

**CREATIVITY IS  
THINKING UP  
NEW THINGS  
INNOVATION  
IS DOING  
NEW THINGS**

*- Theodore Levitt*





## VISION

YIT will set the standard for engineering sciences education in the twenty first century. We are committed to creating new milestones and standards for students to experience an unparalleled educational journey that is intellectually, socially and personally transformative.



## MISSION

YIT will endeavor to educate and transform the student community by instilling in them pride in their gifts and talents, nurturing them and guiding them in how best to utilize it for human welfare and progress.

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# MESSAGE



Hon. Chancellor



Technological advancement across the world has always demanded innovation in education. By exploring new and better ways to educate students and also teaching the skills students need to become innovators themselves, today's educators can have a tremendous impact on the future of our world. Education stands to benefit the most from both utilizing and teaching innovation in the classroom. In recent times, several major factors such as the unprecedented Covid-19 pandemic has called for more innovative methods in teaching and learning. However, teachers and students alike have quickly accepted and overcome the challenges posed by the situation.

I am happy that Yenepoya Institute of Technology, in its resolute endeavour to create new benchmarks and to elevate the learning experience, is committed to enhance research and technical skills among the staff and students. It is continually innovating, improving and inculcating excellence in education by nurturing and supporting a learning environment that paves the way for the student to achieve success and personal growth.

As the great poet William Butler Yeats once said:

**“Education should not be the filling of a pail, but the lighting of a fire.”**

My congratulations to all who have earnestly contributed and worked hard towards bringing out this 10th edition of the technical magazine “YENTECH”, which aptly showcase the innovative side of the staff and students, in their journey to excel. I also applaud the teamwork of the editorial committee in beautifully putting these pages together.

**Keep learning and keep growing.**

A handwritten signature in blue ink, consisting of a large, stylized initial 'Y' followed by a series of loops and a long horizontal stroke.

**Yenepoya Abdulla Kunhi**  
Hon. Chancellor  
Yenepoya (Deemed to be University)

# MESSAGE



Principal



“Strive for perfection in everything you do. Take the best that exists and make it better. When it does not exist, design it.” — **Sir Henry Royce**

Most of the work being done by engineers in developing countries with alternative energy sources, waste disposal, and environmental cleanup is advancing the field of engineering as a whole. United Nations (UN) data forecasts that the world's population will reach 9.7 billion by 2050. With much of that growth happening in developing or underdeveloped countries, the demands for energy, water, transportation, waste disposal, environmental cleanup, and infrastructure will only increase.

Engineers will play a critical role in satisfying those demands and innovation in the field of engineering will be the only way to solve problems brought on by rapid population growth. Much of the world's population needs clean air, water, power, and environments. That creates an opportunity for creative and innovative engineers to use their inventions and expertise to solve these problems.

Most of the engineering aspirants maybe asking themselves “Why should I be an engineer?” Well, engineering means much more than science and technology. When engineers use their skills to develop new methods of tackling issues in developing countries for the common good they are doing more than a job, they're affecting positive change in communities. That's one reason engineering salaries are on the rise.

I congratulate the editorial team for their tireless efforts that have resulted in the form of the 10<sup>th</sup> edition of this technical magazine-YENTECH. I wish it all success and hope that this edition on Engineering and Innovation will be appreciated for its innovative content.

A handwritten signature in blue ink, appearing to read "R. G. D'Souza".

**Dr. R. G. D'Souza**  
Principal YIT Moodabidri

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## *Editorial Message*



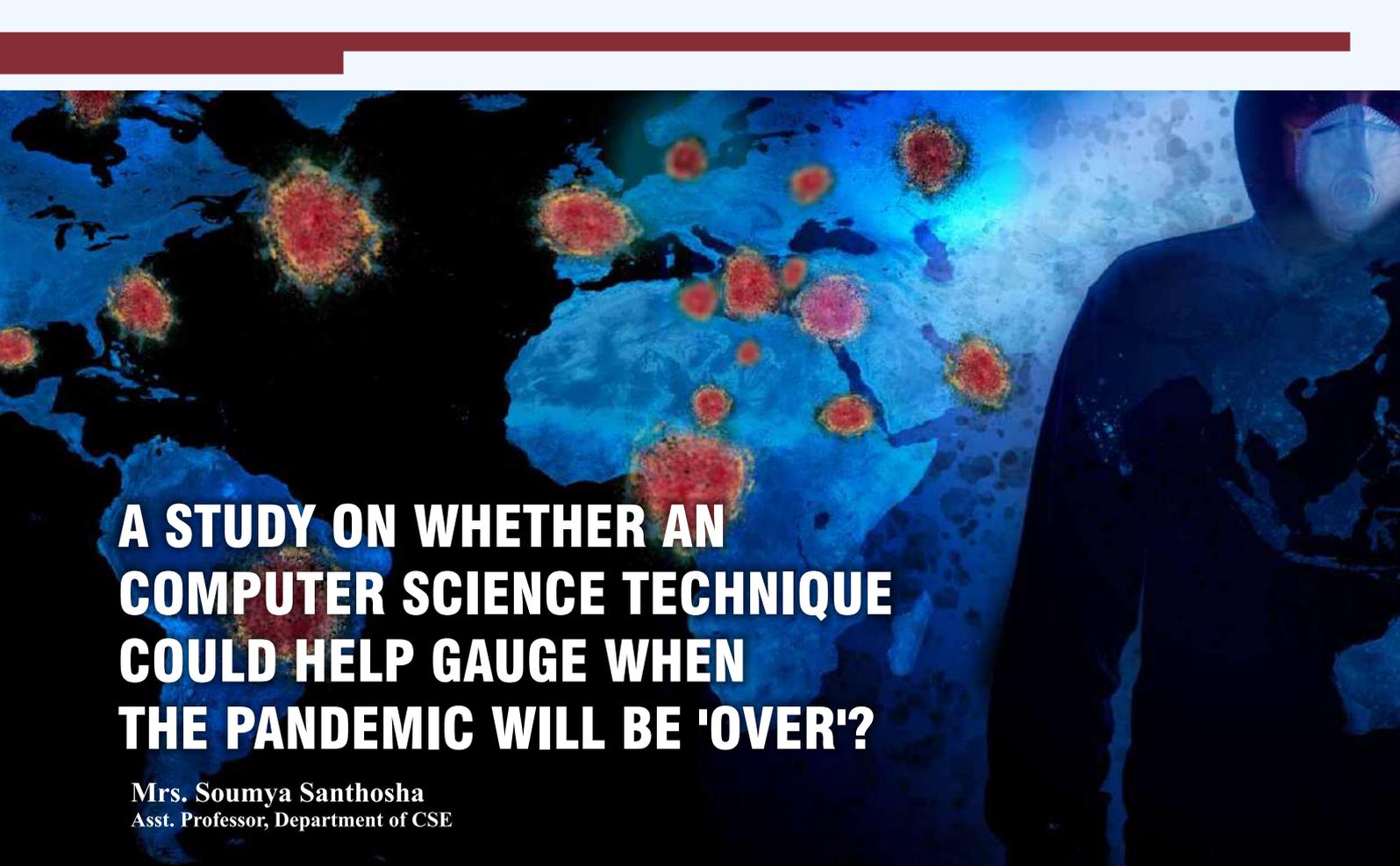
“Technology is best when it brings people together.”

It gives us a great pride and privilege to bring out the 11th edition of Technical Magazine “YENTECH”.

YENTECH 2022 gives an insight into the technical achievements of students and faculty. The enthusiastic write ups of our young writers are sufficient to hold the interest and admiration of the readers.

We appreciate the contribution of all the authors of the articles in this magazine. It is the willingness to share knowledge, concerns and special insight with fellow beings that has made this magazine possible

**EDITOR**  
YENTECH EDITORIAL BOARD



# A STUDY ON WHETHER AN COMPUTER SCIENCE TECHNIQUE COULD HELP GAUGE WHEN THE PANDEMIC WILL BE 'OVER'?

**Mrs. Soumya Santhosha**  
Asst. Professor, Department of CSE

## INTRODUCTION

In early 2022, nearly two years after Covid was declared a pandemic by the World Health Organization, experts are mulling a big question: when is a pandemic “over”?

So, what's the answer? What criteria should be used to determine the “end” of Covid's pandemic phase? These are deceptively simple questions and there are no easy answers

In computing, ontologies are a means to formally structure knowledge of a subject domain, with its entities, relations and constraints, so that a computer can process it in various applications and help humans to be more precise.

Ontologies can discover knowledge that's been overlooked until now: in one instance, an ontology identified two additional functional domains in phosphatases (a group of enzymes) and a novel domain architecture of a part of the enzyme. Ontologies also underlie Google's Knowledge Graph that's behind those knowledge panels on the right-hand side of a search result.

## METHODOLOGY

Applying ontologies to the questions posed at the start is useful<sup>[1]</sup>. This approach helps to clarify why it is difficult to specify a cut-off point at which a pandemic can be declared “over”. The process involves collecting definitions and characterisations from domain experts, like epidemiologists and infectious disease scientists, consulting relevant research and other ontologies and investigating the nature of what entity “X” is.

“X”, here, would be the pandemic itself – not a mere shorthand definition, but looking into the properties of that entity. Such a precise characterisation of the “X” will also reveal when an entity is “not an X”. For instance, if X = house, a property of houses is that they all must have a roof; if some object doesn't have a roof, it definitely isn't a house.

With those characteristics in hand, a precise, formal specification can be formulated, aided by

additional methods and tools. From that, the what or when of “X” – the pandemic is over or it is not – would logically follow. If it doesn't, at least it will be possible to explain why things are not that straightforward.

This sort of precision complements health experts' efforts, helping humans to be more precise and communicate more precisely. It forces us to make implicit assumptions explicit and clarifies where disagreements may be.

A ontological analysis of “pandemic” was conducted. First, we need to find definitions of a pandemic.

Informally, an epidemic is an occurrence during which there are multiple instances of an infectious disease in organisms, for a limited duration of time, that affects a community of said organisms living in some region. A pandemic, as a minimum, extends the region where the infections take place.

Next, we drew from an existing foundational ontologies. This contains generic categories like “object”, “process”, and “quality”. I also used domain ontologies, which contain entities specific to a subject domain, like infectious diseases. Among other resources, consulted the Infectious Disease Ontology and the Descriptive Ontology for Linguistic and Cognitive Engineering.

First, aligned “pandemic” to a foundational ontology, using a decision diagram to simplify the process. This helped to work out what kind of thing and generic category “pandemic” is:

- (1) Is [pandemic] something that is happening or occurring? Yes (perdurant, i.e., something that unfolds in time, rather than be wholly present).
- (2) Are you able to be present or participate in [a pandemic]? Yes (event).
- (3) Is [a pandemic] atomic, i.e., has no subdivisions and has a definite end point?  
No (accomplishment).

The word “accomplishment” may seem strange here. But, in this context, it makes clear that a pandemic is a temporal entity with a limited lifespan and will evolve – that is, cease to be a pandemic and evolve back to epidemic.

Next, examination of a pandemic's characteristics described in the literature. They collated eight characteristics of a pandemic.

Listed and assessed them from an ontological perspective:

1. Wide geographic extension. This is an imprecise feature – be it fuzzy in the mathematical sense or estimated by other means: there isn't a crisp threshold when “wide” starts or ends.
2. Disease movement: there's transmission from place to place and that can be traced. A yes/no characteristic, but it could be made categorical or with ranges of how slowly or fast it moves.
3. High attack rates and explosiveness, or: many people are affected in a short time span. Many, short, fast – all indicate imprecision.
4. Minimal population immunity: immunity is relative. You have it to a degree to some or all of the variants of the infectious agent, and likewise for the population. This is an inherently fuzzy feature.
5. Novelty: A yes/no feature, but one could add “partial”.
6. Infectiousness: it must be infectious (excluding non-infectious things, like obesity), so a clear yes/no.
7. Contagiousness: this may be from person to person or through some other medium. This property includes human-to-human, human-animal intermediary (e.g., fleas, rats), and human-environment (notably: water, as with cholera), and their attendant aspects.

8. Severity: Historically, the term “pandemic” has been applied more often for severe diseases or those with high fatality rates (e.g., HIV/AIDS) than for milder ones. This has some subjectivity, and thus may be fuzzy.

## CONCLUSION

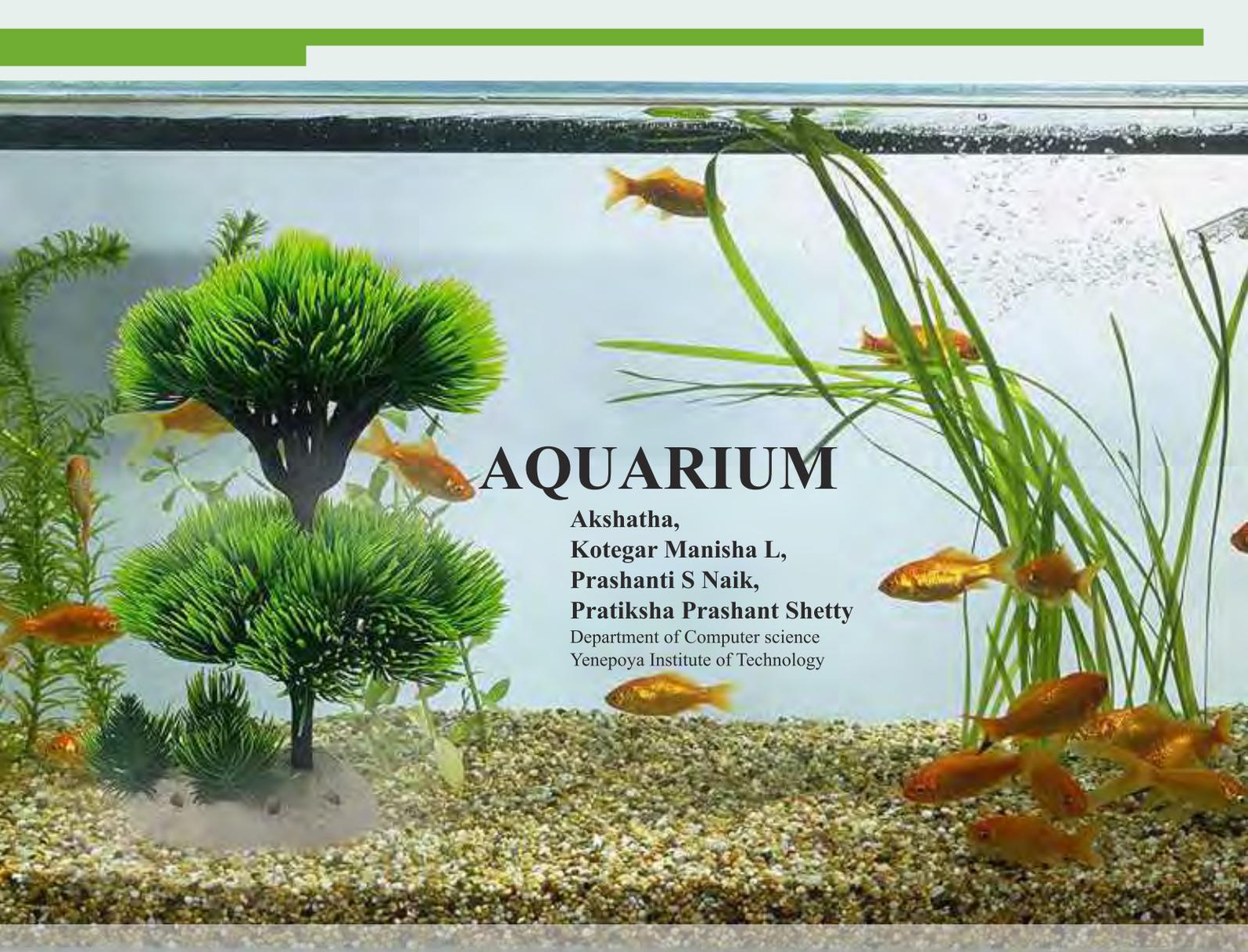
Properties with imprecise boundaries annoy epidemiologists because they may lead to different outcomes of their prediction models.<sup>[2]</sup> But from my ontologist's viewpoint, we're getting somewhere with these properties. From the computational side, automated reasoning with fuzzy features is possible.

COVID, at least early in 2020, easily ticked all eight boxes. A suitably automated reasoner would have classified that situation as a pandemic. But now, in early 2022? Severity (point 8) has largely decreased and immunity (point 4) has risen. Point 5 – are there worse variants of concern to come – is the million-dollar question. More ontological analysis is needed in this respect

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# AQUARIUM

**Akshatha,  
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**Abstract:** This paper aimed at developing “AQUARIUM”. The main idea behind this paper is to display an aquarium with computer graphics. This graphics package is based on the OpenGL library functions. The programming language used here is C using OpenGL libraries. In this paper, we are demonstrating the screensaver in which the fishes will have a random motion.

## INTRODUCTION

Computer graphics is one of the most exciting and rapidly growing computer fields. It is also an extremely effective medium for communication between man and computer; a human being can understand the information content of a displayed diagram or perspective view much faster than he can understand a table of numbers or text containing the same information. Thus, computer graphics is being used more extensively.

There is a lot of development in hardware and software required to generate images, and nowadays the Cost of hardware and software is dropping rapidly. Due to this, interactive computer graphics is becoming available to more and more people.

Computer graphics started with the display of data on hardcopy plotters and cathode ray tube (CRT) screens soon after the introduction of computers themselves. It has grown to include the creation, storage and manipulation of models and manipulation of models and images of objects. These models come from a diverse and expanding set of fields, and include physical, mathematical, engineering, architectural, and even conceptual structures, natural phenomena, and so on.

Computer graphics today is largely interactive. The user controls the contents, structure and appearance of objects and their displayed images by using input devices, such as a keyboard, mouse, or touch sensitive panel on the screen. The handling of such devices is included in the study of computer graphics, because of the close relationship between the input devices and the display.

## METHODOLOGY

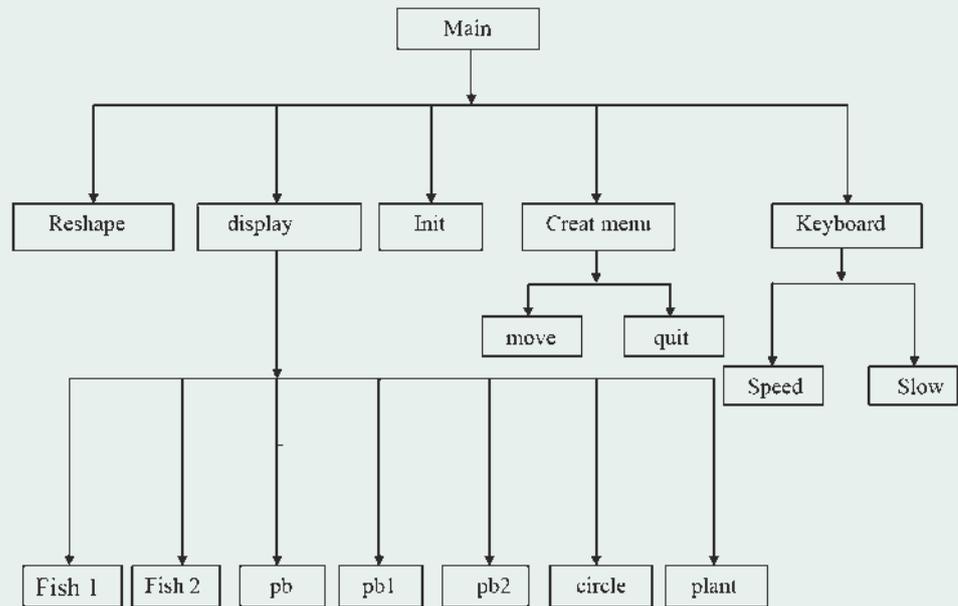
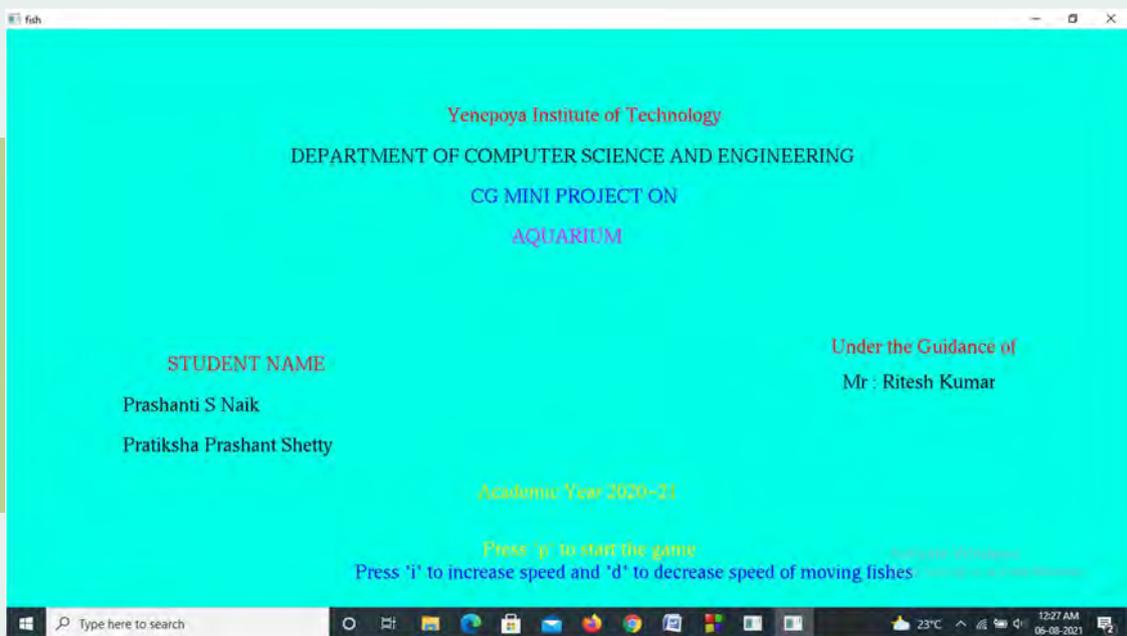


Figure: flowchart of aquarium project





## CONCLUSION

The paper entitled as “**Aquarium**” is the demonstration of movement of fishes. This paper is implemented with all the features mentioned in OpenGL functions of Computer Graphics. This paper is to just demonstrate the movement of fishes and decoration of Aquarium with pebbles and small green grass. It provides calming effect of the view. The main idea behind this paper is to display an aquarium with computer graphics .

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# “WOMEN SAFETY APPLICATION”

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**Abstract:** The safety of women is a concern of increasing urgency in India and other countries. The primary issue in the handling of these cases by the police lies in constraints preventing them from responding quickly to calls of distress. These constraints include not knowing the location of the crime, and not knowing the crime is occurring at all: at the victim's end, reaching the police assuredly and discreetly is a challenge. To aid in the removal of these constraints, this paper introduces a mobile application called WoSApp (Women's Safety App) that provides women with a reliable way to place an emergency call to the police. The user can easily and discreetly trigger the calling function by shaking her phone, or by explicitly interacting with the user interface of the application via a simple press of a PANIC button on the screen. A message containing the geographical location of the user, as well as contact details of a pre-selected list of emergency contacts, is immediately sent to the police. This paper describes the application, its development, and its technical implementation.

**Keywords:** Android Studio, WoSApp, Panic button

## INTRODUCTION

From the very early time, women use defensive strategy for their safety but we are still not successful in avoiding violence against women. It's time to adopt attacking strategy against women violence and eve teasing with the help of this device. As We Know, people using smartphones have increased rapidly and hence, smart phone can be used efficiently for personal security or various other protection purposes. The main objective of this paper is to design and implement a highly reliable system for protecting women from being harassed. The current practices in female security broadly fall into different categories ranging from android applications developed for mobile phones, and extend to fashionable apparels that can be wore and carried in day today life. However, our focus is on creating a safety system that merges the benefits of existing techniques and brings about a solution that ensures both defence and creation of a seamless pathway to initiating legal procedures, if any; have to be taken by the victim.

## METHODOLOGY

As We Know, in existing system Victim has to press SOS given on the screen to send her location to police and selected contacts. In existing system, the APP will alert to family and police by sending location with the help of internet connectivity. The Existing System will send the message also of victim's location to selected contacts. It also captures the photo/video of attacker to take the legal action. In Our System, we provide the victim to better security i.e instead of press SOS on screen, victim has to press power button twice to send the alert to police and selected contacts even if she has no connectivity of internet or GPS.

The system will send the continuous location of the victim's after every one-minute i.e. provides better location, if she is moved from one location to other.

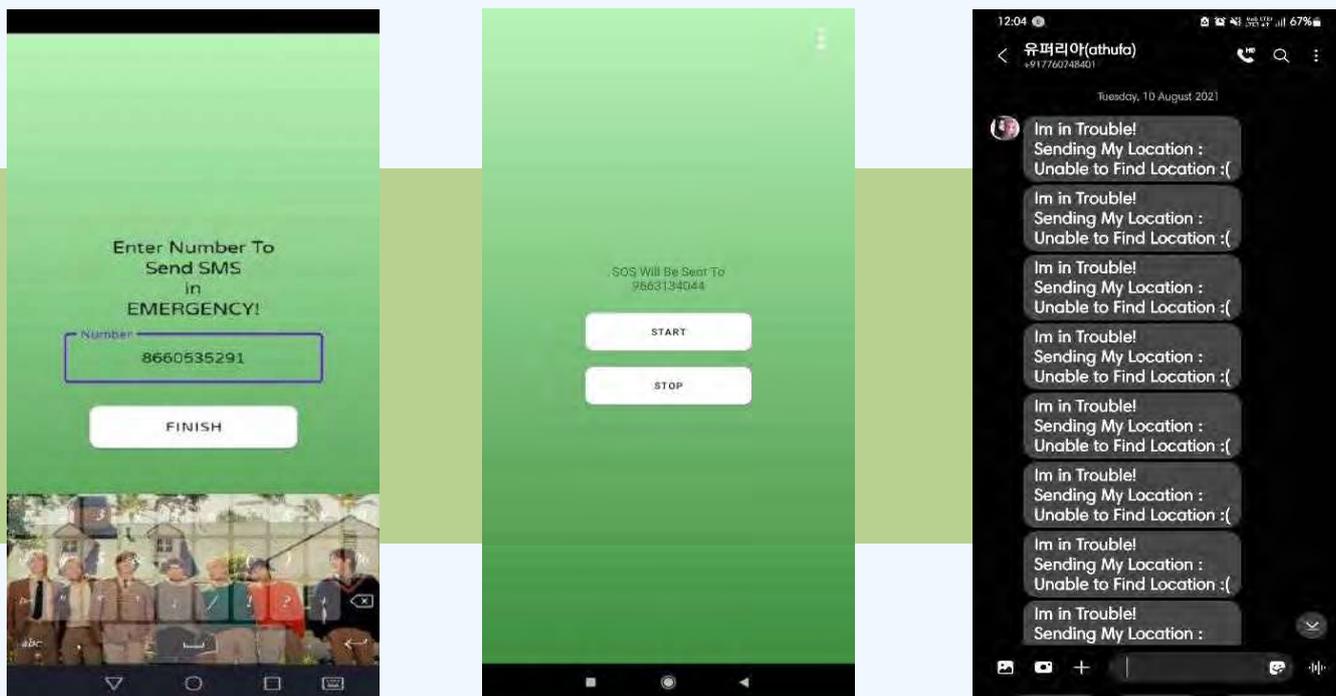


Figure: Working of WoSApp

## APPLICATIONS

An app is the technology. It cannot replace human being. The app can be used as a guidance, but we cannot expect a protective sheath from these apps. The women security apps are definitely good for the prevention of the accidents as far as possible within the extent of the women. though in case of emergency, it would be the presence of mind of the female in trouble which would get her out of the situation. The apps can help to trace back or can be used in mobile network areas. But more often such accidents takes place in remote areas. As for help, again the woman needs to be bold enough and have a quick response time to the stimulus. We cannot condemn the women security apps as a whole, as they do provide a lot of information to the females and also ensure them with the knowledge of their surroundings. These apps may help them develop their self-confidence to move on with their daily routine.

## CONCLUSION

In this paper, we have proposed the designing and implementation of a safety system for women in the form of application. Going serially as per the objectives mentioned, location tracking subsystem was successfully implemented and the corresponding results were logged. The further implementation of the system will be performed accordance with the goals mentioned in the future scope. The paper also describes the GPS technology so that the location of the victim can be traced using latitudes and longitudes.

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# “INTERNAL MARKS MANAGEMENT SYSTEM”

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**Sharanya**

**Y Hima Jain**

Department of Computer Science and Engineering  
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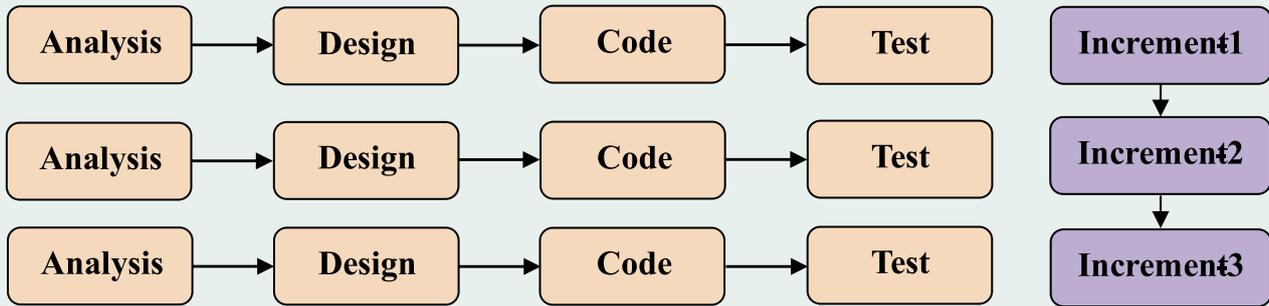
**Abstract:** The purpose of Internal Marks Management System is to automate the existing manual system by the help of computerized equipments fulfilling their requirements, so that their valuable data can be stored for a longer period with easy accessing and manipulation of the same. Internal Marks Management System can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus it will help organization in better utilization of resources. Basically the project provides easy way of entering, correcting, automatic calculating, maintaining and displaying the student mark records.

Keywords: Internal marks management system, Database.

## INTRODUCTION

The “Internal Marks Management System” has been developed to override the problems prevailing in the practicing manual system. The system is designed for the Internal Marks to keep record and calculate the student marks along with other assessment. The software designed is beneficial to both faculty to easily enter student marks and students to view their marks and gives the idea for students to score maximum marks to maintain their internal average. It also helps to register the details of students and their marks details. No formal knowledge is needed for the user to use this system. Thus by this all it proves it is user-friendly. The application provides the faculty to enter the marks of the student with a simple and good user-interface. The total and average marks are calculated automatically. The security of this is such that only authenticated and admin approved faculty can enter the marks and avoids false faculty cannot access the database of Internal Marks Management System. It also provides the students to view their marks only by entering their USN.

## METHODOLOGY



The methodology we used for developing this project is Incremental model. This model combines linear sequential model with the iterative prototype model. New functionalities will be added as each increment is developed. The phases of the linear sequential model are: Analysis, Design, Coding and Testing. The software repeatedly passes through these phase in iteration and increment is delivered with progressive changes.

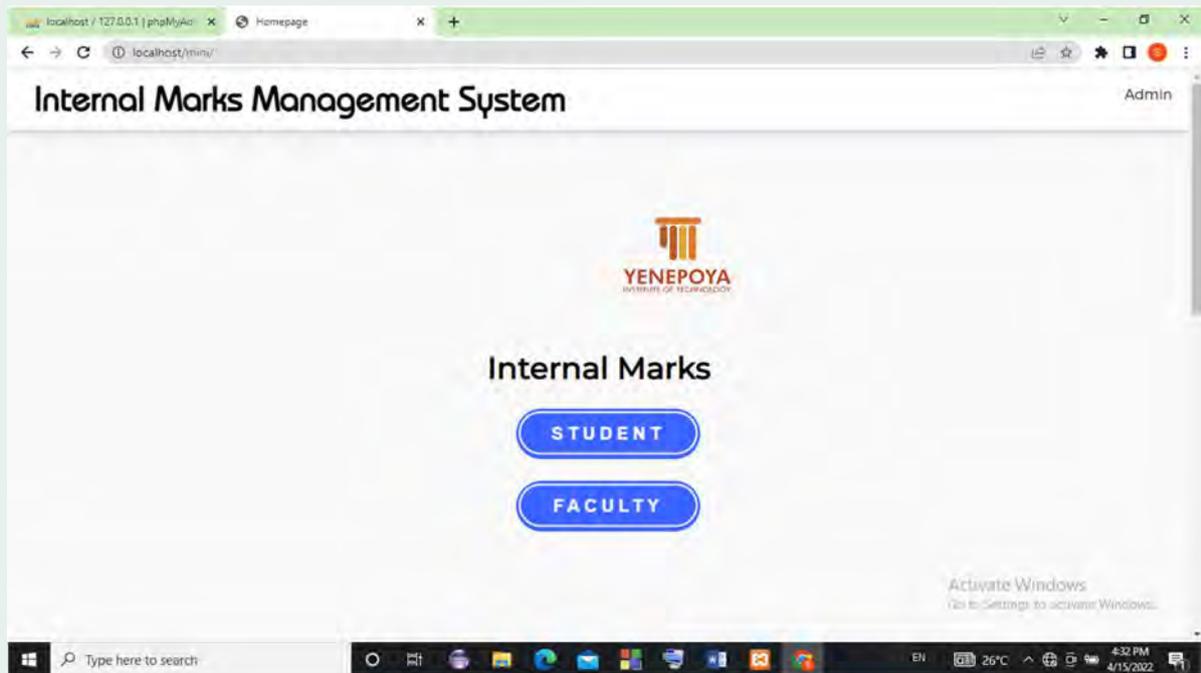


Figure: Home Page

## **APPLICATION**

The purpose of the project is to build an application program to reduce the manual work for entering the Internal Marks, managing, correcting and displaying it.

## **CONCLUSION**

Our project is a humble venture to satisfy the requirements of faculties and students. The project is used for computerizing the process for Internal Marks. It is a great improvement over the manual process. The software take cares of all the operations and calculation required for assigning average Internal Marks and it is capable to provide easy and effective storage of all data related to Internal Marks and other details of the student.

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# WHAT IS NON-FUNGIBLE TOKEN?

**Mr. Raghavendra G.S**  
Asst. Professor, Department of CSE



**Non-fungible tokens** (NFTs), that doesn't make it any clearer. “Non-fungible” more or less means that it's unique and can't be replaced with something else.

**In Simple terms**, NFT is converting your real world object into digital assets.

Example:

Art/Music/Tweets/Videos even memes can be NFTs.

Non-fungible, suppose you had currency note of 500 you can exchange it for 100\*5 notes which means it is fungible.



On the other hand, it doesn't work as the same for art or music which can be called as non-fungible.



## How much are NFTs worth

The value of NFTs are based on the value that buyers give to it. These can be worth millions. If an NFT is well received than its value can go very high.

**The Merge** by the digital artist **Pak** is the most expensive NFT art of all time and it sold at a whopping sum of USD 91.8 million.

**Beeple's Everyday Series: The first 5000 Days** was sold at 69 million USD to Indian cryptocurrency investor, Vignesh Sundaresan, who's also known as MetaKovan.

NFTs can really be anything digital, you can even consider this magazine article as NFT. You can buy this and be an owner even though it is free to read for everyone.



**TIME** Releases First-Ever Full Magazine Issue as an NFT on the Block Chain Featuring a Cover Story on Ethereum Co-Founder Vitalik Buterin.

# OWNERSHIP



## **Why buy NFT when you can download it for free?**

It's all about human psychology and how the way we value things and it is slowly shifting towards technology

An NFT essentially allows its buyer to say that they own the original copy of a digital file. Anyone can download and view the file, play the song for free, but they don't own it and cannot again any value from it.

**Fun Fact:** A student in Indonesia made a fortune by converting a selfie collection into non-fungible tokens. The 22-year-old named Ghozali originally priced each of his solo shots at 0.00001 ETH (about \$3), but after luring the high-risk cryptocurrency speculators, the individual images now sell for almost \$10,000. His selfies are currently selling for up to 4 ETH (\$ 12,500), and his complete collection, Ghozali every day, is valued at roughly 374 ETH (\$ 1.2 million).

# "CARTOONIFY"



**Rifa**  
**Athufa Banu**  
**Nida Taskeen**

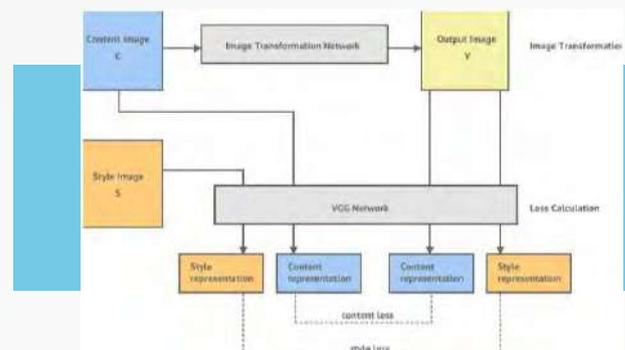
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**Abstract:** This paper represents different techniques of converting image to cartoon. Using any one of below mentioned techniques it is possible to convert all types of captured images to cartoon such as images of person, mountains, trees, flora and fauna etc. There are several other techniques for image to cartoon conversion such as using photoshop, adobe illustrator, windows MAC, paint.net and much more. Creating a cartoon like effect is time and space consuming. Existing solutions to provide cartoon like effect to images are complex. Some solutions involve installing complex photo editing software like photoshop and other involve performing some task by user.

**Keywords:** OpenGL, User Defined Functions

## INTRODUCTION

Social media is extensively used these days. And standing out in this online crowd has always been a to-do on every user's list on these social media platforms. Be it images, blog posts, artwork, tweets, memes, opinions and what not being used to seek attention of followers or friends to create influence or to connect with them on such social platforms. We aim to provide one such creative solution to their needs, which is applying cartoon like effects to their images. Users can later share these images on any social media platforms, messengers, keep it for themselves, share it with loved ones or do whatever they like with it. Nowadays almost everyone is registered in social networks.



## METHODOLOGY

Creating a cartoon like effect is time and space consuming. Existing solutions to provide cartoon like effect to images are complex. Some solutions involve installing complex photo editing software like photoshop and other involve performing some task by user.

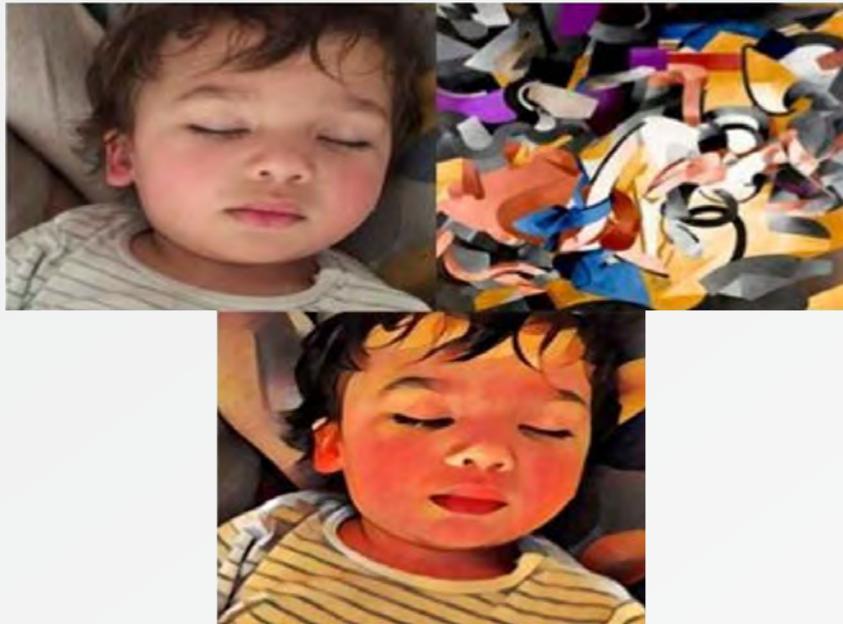


Figure: **Cartoonify**

## APPLICATIONS

Purpose to create a website, which consists of image upload functionality using which the user can upload his image, the uploaded image is then processed by server using Neural style transfer algorithm and the resulting image is presented to the user on the website. Which then user can download & share. Neural fast style transfer is used by Apps such as <https://deepart.io>, Prisma, Artisto etc. We decided to choose this approach over traditional image filters as Neural fast style transfer is quite new and challenging technique which uses machine learning & image processing to produce various styled images based on variety.

## CONCLUSION

In this User will be provided with a set of pretrained style images to choose from. Based on the chosen style and the content image provided by the user, the Resulting image with cartoon like effect is generated by the program. The implementation is based on of the combination of Gatys' A Neural Algorithm of Artistic Style,

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# “VILLAGE SIMULATION”

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## **Abstract:**

This paper is mainly based on Village , in the broadest sense, is the natural, physical, or material world or universe. "Village" can refer to the phenomena of the physical world, and also to life in general. Within the various uses of the word today, "Village" of ten refers to Mountains and wildlife. Villages have the beautiful surrounding of nature unlike cities and metropolitan areas. Life of the village is full of contentment and happiness as people aren't in a hurry always unlike city life. Pollution in the village is less compared to cities as we don't have industries and traffic in rural areas. People in the village are more friendly and social in nature compared to cities. India is the country of villages with more than 65% of the population residing in rural areas. Life in the village is very simple and the majority of people are involved in farming during day time. Villages lack basic infrastructure and amenities compared to city life yet people lead a satisfying life.

**Keywords:** OpenGL, User Defined Functions, Buffers

## **INTRODUCTION**

Computer Graphics is concerned with all aspects of producing pictures or images using a computer. The field began humbly almost 50 years ago, with the display of a few lines on a cathode-ray tube (CRT); now, we can create images by computer that are indistinguishable from photographs of real objects. We routinely train pilots with simulated airplanes, generating graphical displays of a virtual environment in real time. Feature-length movies made entirely by computer have been successful, both critically and financially. Massive multi player games can involve tens of thousands of concurrent participants. Perhaps the dominant characteristic of this new millennium is how computer and communication technologies have become dominant forces in our lives.

## METHODOLOGY

This is the most important diagram, representing the flow of graphical information, as it is processed from CPU to the frame buffer. There are two pipelines of data flow. The upper pipeline is for geometric, vertex-based primitives. The lower pipeline is for pixel-based, image primitives. Texturing combines the two types of primitives together.

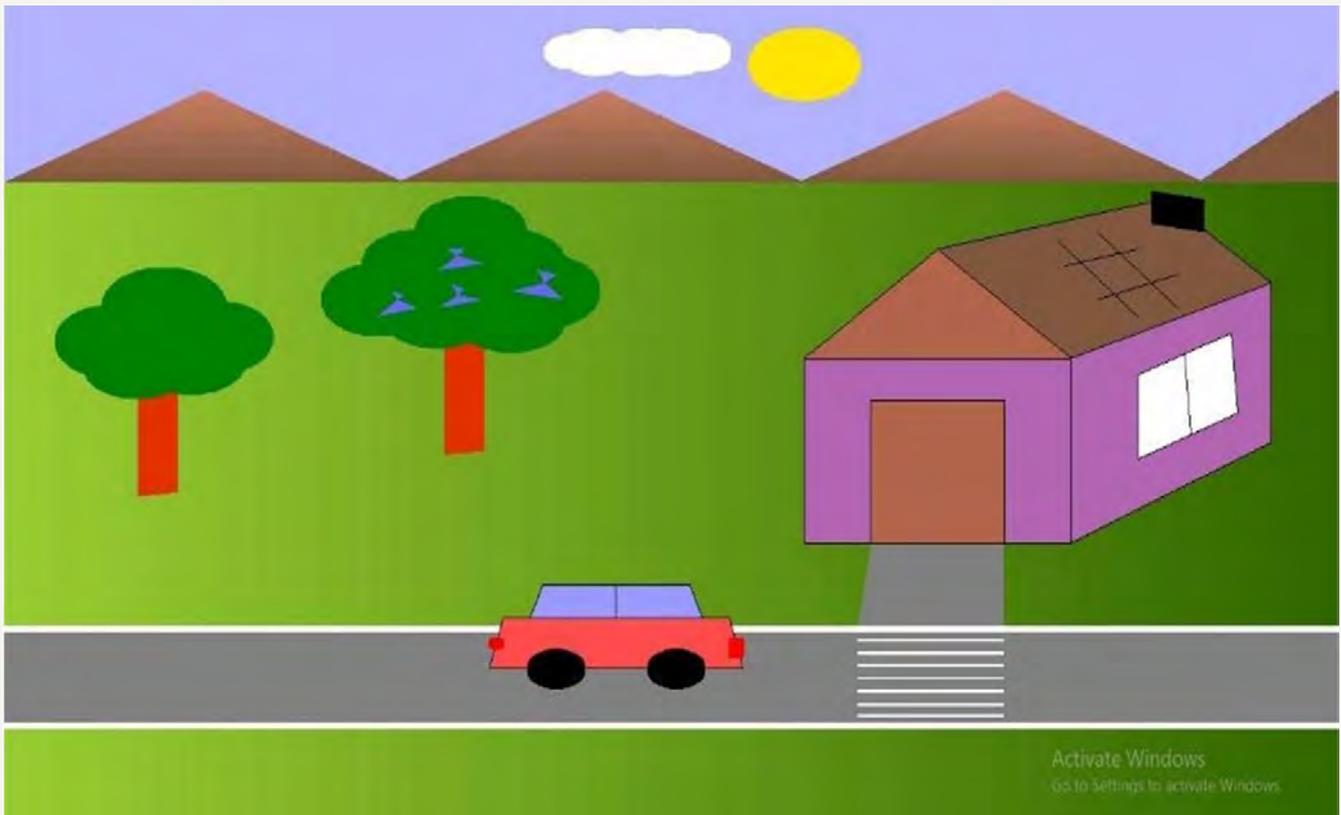
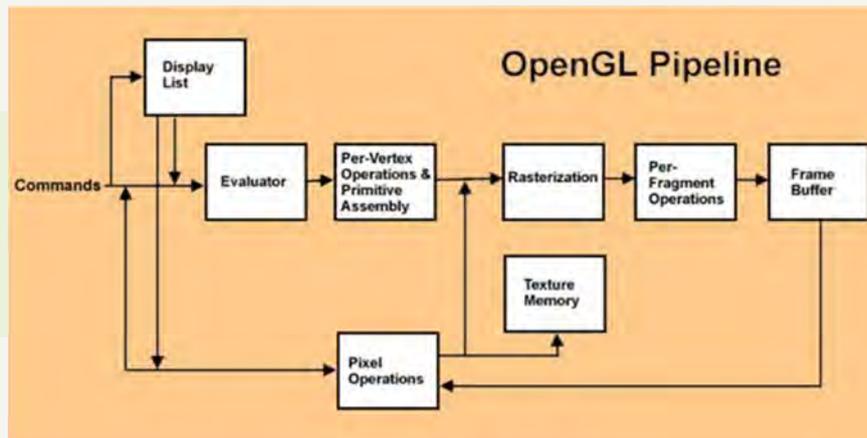


Figure: Appearance of Car & Movement

## APPLICATION

The design and simulation of future “village simulation” is very useful to regional planning agencies to evaluate sustain ability, architectural designs for future growth, alternative transportation investments, land use regulations, and environmental protection policies. Sustainable city modeling is an effort of worldwide concern covering many different aspects and a large collection of very diverse cities. These activities span large distances, many cultural backgrounds, and numerous professional, scientific, and governmental communities with varying levels of involvement.

## CONCLUSION

In this project we constructed a nature that can simulate fully in an outdoor environment. Using polygon, triangle, quads line and line loop mode, we have made a virtual environment for the nature. We used 2 modes they were day and night. (We have given 'd & n' keys to change the modes). Here we have used keyboard interaction and mouse interaction for changing the mode and performing some movement operations. Further we can implement this project by adding 3D effects and some animation effects.

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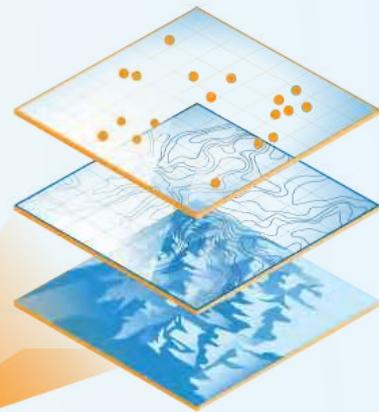
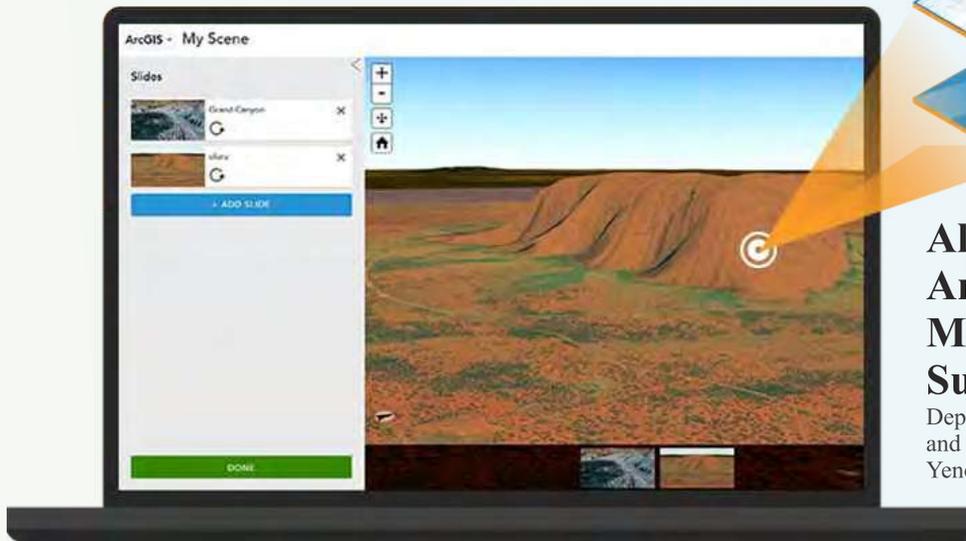
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# 3D SCENE VIEWER



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**Abstract:** The 3D Scene viewer paper is a real-time and simple application of the FreeGLUT library, based on the OpenGL graphics library, written in C++. It allows the user to traverse in the 3D generated space using a combination of keyboard and mouse to pan, truck, zoom in the 3D space. The program also utilises lighting using a positional light object in the scene. The lighting of the system changes depending on whether the surface is facing the light or not. The program also provides the ability for the user to change into three different shapes, that is Cube, Icosahedron and a Five-faced Pyramid respectively.

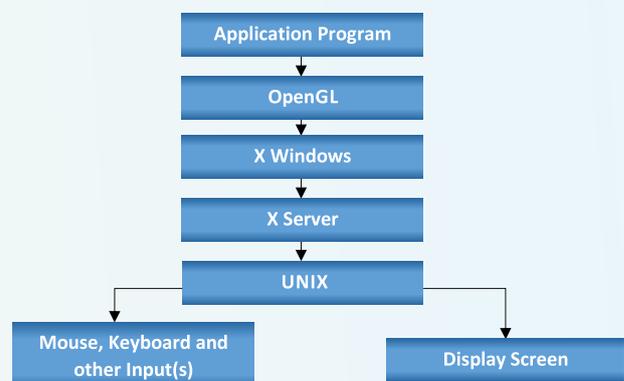
Keywords: OpenGL, FreeGLUT, C++, Shapes, Scenes.

## INTRODUCTION

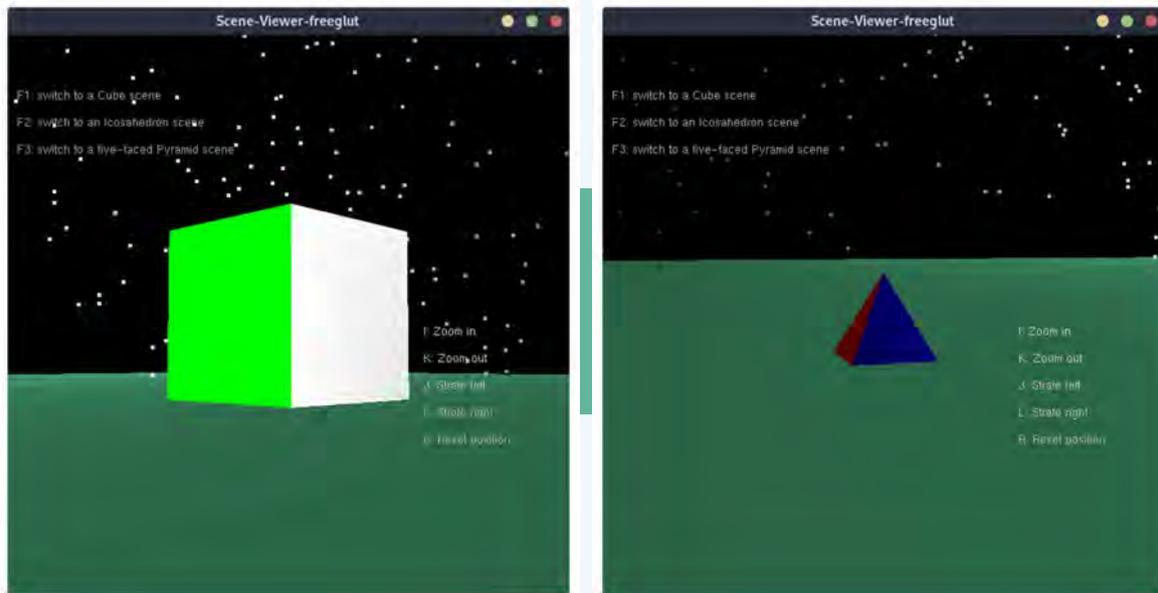
In this era of computing, computer graphics has become one of the most powerful and interesting aspect of computing. It all began with displaying data on a hardcopy and then the CRT screen. Computer graphics, now involves creation, retrieval, manipulation of models, text, characters and images on a graphical medium (screen).

Graphics today are used in many different applications. Graphics provide one of the most natural means of communicating within a computer, since our advanced 2D and 3D visual-recognition abilities of perception allow us to perceive and process pictorial data rapidly and effectively. Interactive computer graphics is the most important means of producing pictures since the invention of photography and television. It has the added advantage that, with the computer, we can make pictures not only of concrete real-world objects but also of abstract, synthetic objects, such as mathematical surfaces and of data that have no inherent geometry, such as survey results..

## METHODOLOGY



This diagram denotes the flow of processes in a UNIX(or a UNIX-like) system for executing and rendering an OpenGL based application. The OpenGL graphics application calls the OpenGL library for various functions that includes actions for creating the window, creating buffers, creating shapes, and such other actions. The window creation function hooks on to the X window, which is a windowing component of the X Server in the UNIX graphical session. The X window hooks to the UNIX as a process, holding the other aspects of the graphics in the window itself. This window, via the UNIX, through the X server, displays the graphical output on the Display output.



**Figure: Scene Viewer appearance**

## APPLICATIONS

The creation of a simple three-dimensional “Scene Viewer” project was initiated to understand the working and the idea behind scene navigation mechanics used in three-dimensional applications like game spectating mode, 3D modelling and sculpting software, and scene viewers in fluid mechanics, CAD modelling, and other critical 3D based applications. Scene viewer uses only one window, that is Scene-Viewer-freeglut(the main and the only window). This window contains a 3D scene that contains a geometry, rasterized text on the screen for guiding the users about controlling the scene, positional lighting that ensures components like ambient, diffuse, and specular lighting are applied on the 3D object, Mouse and keyboard events triggered in this window, to control the position of the camera in the scene.

## CONCLUSION

The project gives the user ability to traverse through the scenes, using keyboard and mouse call-back functions, using lighting, etc. We are able to simulate effects of shadows, diffuse, ambient and specular light, and give the objects in the scene a sense of direction. This project has helped us understand concepts of 3D graphics, scenes, and graphics processing and basics of the OpenGL pipeline.

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# Facial Emotion Recognition:

## An Introduction to Emotion Reading Technology



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### What is Facial Emotion Recognition?

Facial Emotion Recognition is a technology used for analysing sentiments by different sources, such as pictures and videos. It belongs to the family of technologies often referred to as 'affective computing'; a multi disciplinary field of research on computer's capabilities to recognise and interpret human emotions and affective states and it often builds on Artificial Intelligence technologies. Facial expressions are forms of non-verbal communication, providing hints for human emotions. For decades, decoding such emotion expressions has been a research interest in the field of psychology but also to the Human Computer

Emotions are expressed when interacting and socializing with other people. Understanding those emotions expressed by any person standing in front might be a trivial task for Human beings, but for a computer it is a very challenging task. Emotion recognition is used by many applications now-a-days, but what is it exactly?

Interaction field. Recently, the high diffusion of cameras and the technological advances in biometrics analysis, machine learning and pattern recognition have played a prominent role in the development of the FER technology. Many companies, ranging from tech giants such as NEC or Google to smaller ones, such as Affectiva or Eyeris invest in the technology, which shows its growing importance.

FER analysis comprises three steps: face detection, facial expression detection, and expression classification to an emotional state. Emotion detection is based on the analysis of facial landmark positions which are end of nose, eyebrows, chin, forehead etc. Furthermore, in videos, changes in those positions are also

analysed, in order to identify contractions in a group of facial muscles. Depending on the algorithm, facial expressions can be classified to basic emotions which are anger, disgust, fear, joy, sadness, and surprise or compound emotions which can be happily sad, happily surprised, happily disgusted, sadly fearful, sadly angry, sadly surprised. In some cases, these facial expressions could be linked to physiological or mental state of mind such as tiredness or boredom.

The source of the images or videos serving as input to FER algorithms vary from surveillance cameras to cameras placed close to advertising screens in stores as well as on social media and streaming services or own personal devices. FER can also be combined with biometric identification. Its accuracy can be improved with technology analysing different types of sources such as voice, text, and health data from sensors or blood flow patterns inferred from the image.

## Uses of Facial Emotion Recognition

Potential uses of FER cover a wide range of applications, examples of which are listed here below in groups by their application field.

### Provision of personalized services

- Analyze emotions to display personalized messages in smart environments.
- Provide personalized recommendations e.g. on music selection or cultural material.
- Analyze facial expressions to predict individual reaction to movies and advertisements.

### Customer behavior analysis and advertising

- Analyze customers' emotions while shopping focused on either goods or their arrangement within the shop.
- Advertising signage at a railway station using a system of recognition and facial tracking for marketing purposes.

## Healthcare

- Detect autism or neurodegenerative diseases.
- Predict psychotic disorders or depression to identify users in need of assistance.
- Suicide prevention.
- Detect depression in elderly people.
- Observe patients conditions during treatment.

## Employment

- Help decision-making of recruiters.
- Identify uninterested candidates in a job interview.
- Monitor moods and attention of employees.

## Education

- Monitor students' attention.
- Detect emotional reaction of users to an educative program and adapt the learning path.
- Design affective tutoring system.
- Detect engagement in online learning.

## Public safety

- Lie detectors and smart border control.
- Predictive screening of public spaces to identify emotions triggering potential terrorism act.
- Analyzing footage from crime scenes to indicate potential motives in a crime.
- Driver fatigue detection.
- Detection of political attitudes.

## Crime detection

- Detect and reduce fraudulent insurance claims.
- Deploy fraud prevention strategies.

## Challenges of Emotion Detection & Recognition

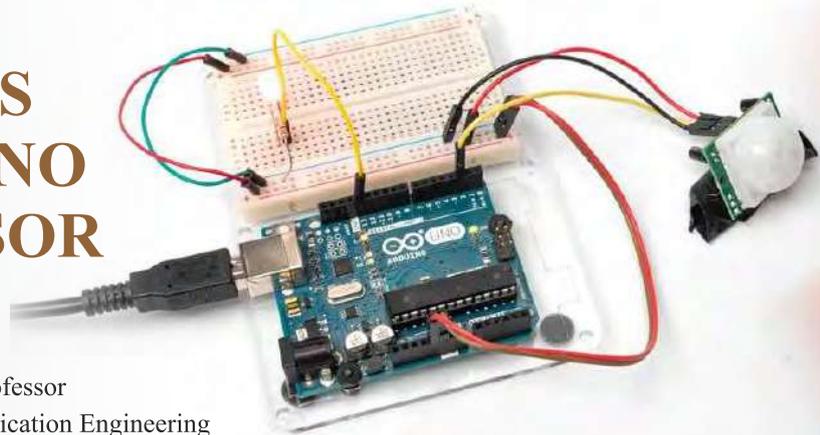
Just like any developing technology, emotion recognition is not perfect and has its imperfections and challenges. One of the challenges is that datasets are labelled by the people, and different persons can read and interpret emotions in different ways. Also, some visible visual cues like furrowed eyebrows can mean other emotions aside from anger, and other cues may be subtle hints of anger, although they are not obvious.

Another issue faced by this technology is when detecting emotions from people of different colors. There are models that detect more anger in black people. This means that training sets need to be more diverse, and experts are already doing what they can to fix this.

Lisa Feldman Barrett, a psychology professor at North-eastern University, admits that it doesn't make sense to map facial expressions directly onto emotions across all cultures and contexts. She said that a person might scowl when they're angry, but another one might smile politely while planning on how to make their enemy fall. That is why having diverse data sets is necessary since, in different countries, emotional expression seems to take on different intensities and nuances.

Emotion recognition provides benefits to many institutions and aspects of life. It is useful and important for security and healthcare purposes. Also, it is crucial for easy and simple detection of human feelings at a specific moment without actually asking them.

# AUTOMATIC ROOM LIGHTS USING ARDUINO AND PIR SENSOR



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**Abstract:** *Abstract*—Automatic Room lights using Arduino and PIR sensor, where the lights in the room will automatically turn ON and OFF by detecting the presence of a human. This system can be used in garages, classrooms, staircases, bathrooms, etc. where there is no need of continuous light but only when there is a human. Also, there is no need to worry about electricity bills as the lights get OFF when there is no human. The main aim of proposed system is that the light should remain ON in the human presence otherwise should remain OFF. This system is designed using various devices like PIR sensor, Arduino, relay, DC power supply. The proposed system avoid unnecessary energy consumption and helps in energy saving.

**Keywords:** Arduino UNO, PIR sensor, Relay, room light

## INTRODUCTION

With the rapid development of technology, automation system is developing quickly. As the need of automation system increases day by day, many industrialist and researchers are working to develop most efficient automatic System to operate and control different machine based on the requirement. Human beings are wasting too much of electrical energy by not turning off the lights when they are not using it. To overcome from this problem, developed a device that can be fitted

anywhere in offices or homes. With the help of automation the use of electricity become more economical. The purpose of this project is energy saving. The main aim of proposed system is that the light should remain ON in the human presence otherwise should remain OFF. This system is designed using various devices like PIR sensor, Arduino, relay, DC power supply. Proposed system avoid unnecessary energy consumption and helps in energy saving.

## METHODOLOGY

The Automatic Room Lights using Arduino and PIR Sensor where the lights in the room will automatically turn on upon detecting a human motion and stay turned on until the person has left or there is no motion. Flow chart is shown in below fig 1. Initially, when there is no human movement, the PIR Sensor doesn't detect any person and its OUT pin stays LOW. As the person enters the room, the change in infrared radiation in the room is detected by the PIR Sensor. As a result, the output of the PIR Sensor becomes HIGH. Arduino will activate the relay by making the relay pin LOW (as the relay module is an active LOW module). This will turn the Light ON. The light stays turned ON as long as there is movement in front of the sensor. If the person takes a nap or leaves the room, the IR Radiation will become stable (there will be no change) and hence, the Data OUT of the PIR Sensor will become LOW. This in turn will make the Arduino to turn OFF the relay (make the relay pin HIGH) and the room light will be turned OFF.

The proposed system design is divided into 3 parts as show in fig 2, Arduino consisting microcontroller circuit for controlling the entire system. The sensing unit is used to get parameters from surrounding which is required for automation. PIR sensor which detect the presence of human and the Relay module for automatic switching.

## APPLICATIONS

This project is used in Garage lights ,Bathroom lights ,Hand dryers and Security lights. It can be used in college and schools and home security purpose also we can fit at the main door of the house.

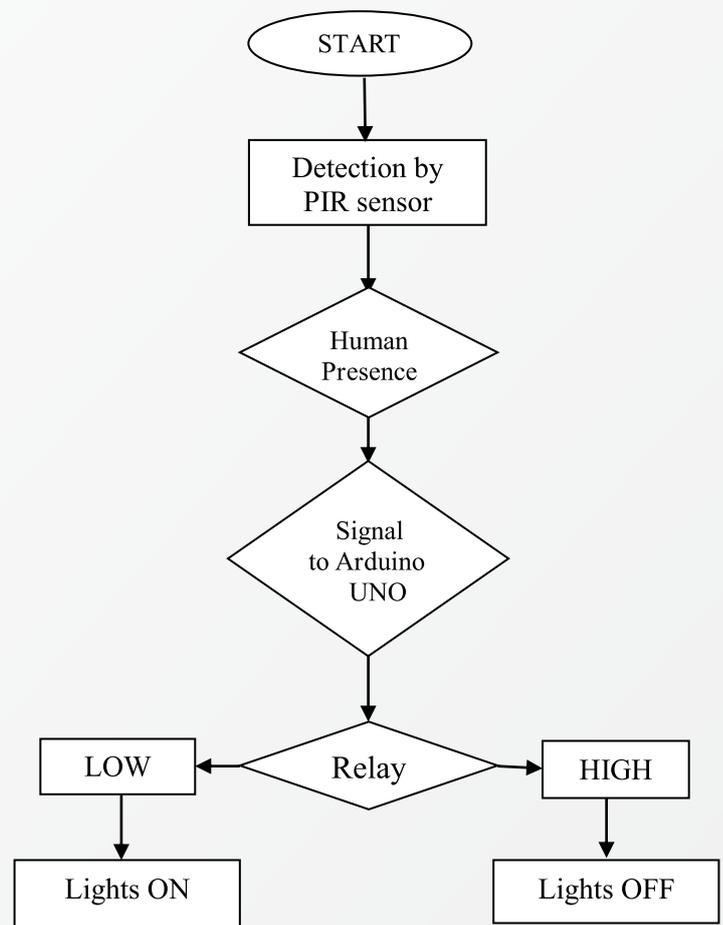


Fig1: Flow chart of automatic room lights Using Arduino and PIR sensor

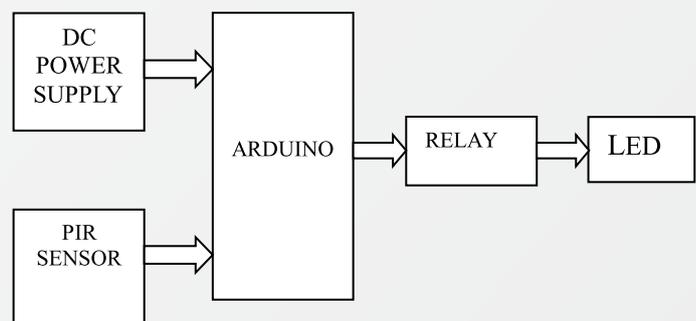


Fig2: Block diagram of automatic room lights using Arduino and PIR sensor

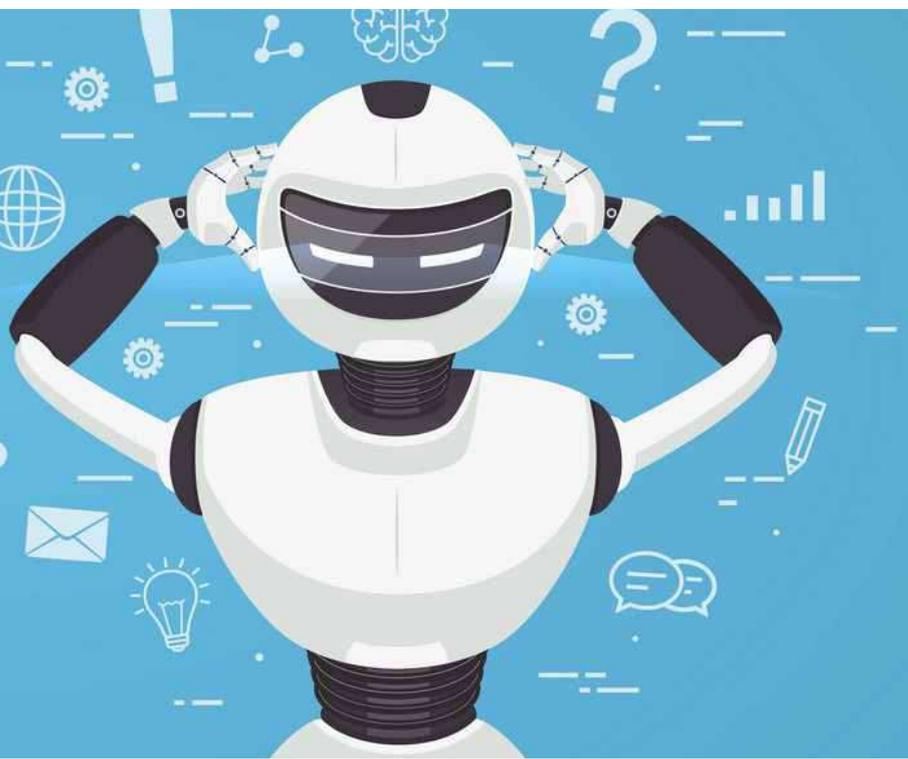
## CONCLUSION

Automatic room light save the power consumption. This Automated Gadget control system having the interconnection between the home applications and sensors for controlling and monitoring the device. Automated home is a vast System that having multiple technologies and its applications that can be Provide control and security of the homes easily.

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# EDU-BOT: A TUTORING CHATBOT



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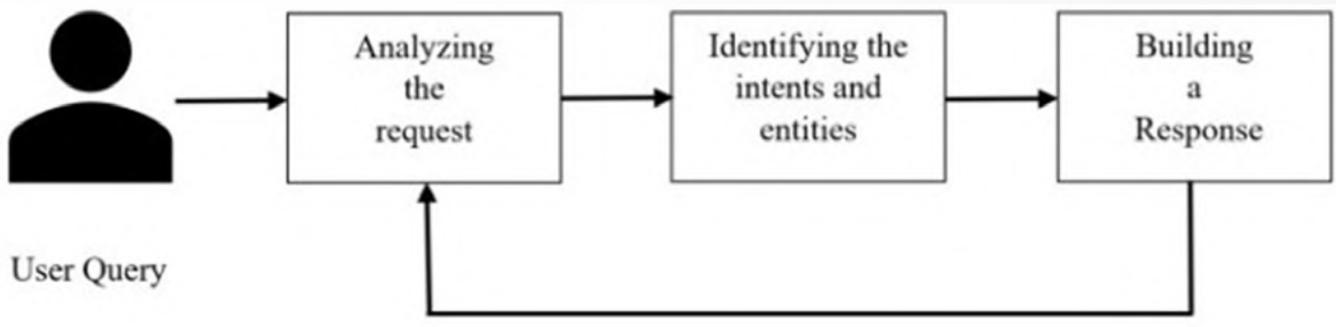
**Abstract:** The aim of this paper is to design and implement a chatbot that can serve as virtual teaching assistant to make learning more effective and comprehensible as it can help with tutorial videos, blogs, wikis etc. The educational chatbot known as EDU-BOT can act as a dedicated personal tutor for each student, helping students to respond to students with everyday tasks. This is making other businesses available on messaging platforms leads to proactive interaction with users about their products. A technology like messaging where it will be able to interact with the users. Making an ordinary project into a personalized interactive API which can maintain conversation non-distracting and fun way.

**KEYWORDS:** Chatbot, API, Chatterbot, Flask, Python, HTML, Virtual teaching assistant.

## INTRODUCTION

Chatbots are conversational programs, answering user questions on websites, in app or even at home like Amazon's Alexa. And they can do even more for us. Chatbots are becoming virtual assistants in our daily lives. Many social networks opened their APIs to allow their users to interact with bots. Even today, most chatbots are not intelligent at all. They do not understand the meaning behind a question nor do they do well in reasoning. Since the first chatbot was published in 1966 by Joseph Weizenbaum, most chatbots still use simple pattern matching and provide prepared answers. [4] Often it is the human willingness which helps traditional chatbots to pass the Turing test. In other words, many traditional chatbots only generate an illusion of understanding. In our project we explore how a chatbot can give information to students about college related information. Building a chatbot is easy. But before building a bot, you need to decide on the purpose of building the bot and what solution it has to offer to an existing problem. Chatbots can be built in two ways: a) a rule-based approach which requires hard coding and b) via machine learning that necessitates streaming data for the system to learn on its own. This paper presents a formal methodology for designing and implementing a chatbot as an intelligent tutor for a university level. The teaching process will involve a close collaboration between humans and machines, and instructional roles can possibly be disseminated amongst multiple chatbots.

## METHODOLOGY



**Fig 1. Block diagram of Edu-Bot**

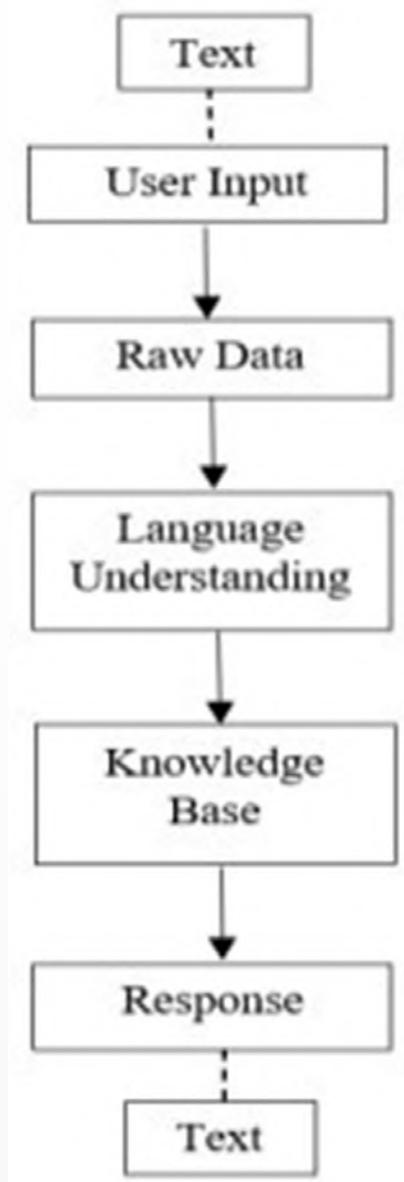
There are two categories of chatbots. We are implementing command based chatbot, where chatbot rely on a databank of replies and heuristics. The user must be very specific while asking the questions so that the bot can answer. Hence, these bots can answer limited set of questions and cannot perform function outside of the code. This rule-based Edu-bot performs two main tasks i.e., training the Edu-bot and asking queries. It is created in python programming language. This system is developed using Visual Studio. We use flask to create web app or web-based user interface. This flask-based web app contains a chatbot which we have to train by chatterbot library files and make conversation with bot. Import the library file Chatterbot-corpus. These modules are used to quickly train Edu-Bot so that it can respond to various inputs in different languages, it is still useful to have these training sets available to prime a fresh database and make the variety of responses that a bot can yield much more diverse.

You can create a new trainer to train your chat bot from your own data files. You may choose to do this if you want to train your chat bot from a data source in a format that is not directly supported by Chatterbot. It is also possible to import individual subsets of Chatterbot's corpus at once. For example,

if you only wish to train based on the English greetings and conversations corpus then you would simply specify them like given below, chatterbot.train

```
("chatterbot.corpus.english.greetings",  
"chatterbot.corpus.english.conversations")
```

Whenever a user asks any query, the Edu-bot will first analyse the request, then identifies intents and entities, builds a response and sends it back to the user and again begins to analyse. Now, intents mean intention of the query and entity means details of that query. For example, if a student wants to know the details about artificial intelligence, then the intent will be details and entity will be artificial intelligence in this case. The below Fig.2. shows flowchart of Edu-Bot where text given by the user is converted into the user input. This input text is the raw data which is created in the HTML file. Further it understands the language and converts into knowledge base. This contains the data set of required solutions which is stored. The text is later processed as response and again converts into text and result is displayed



**Fig 2. Flow chart of Edu-Bot**

When we run the command `python app.py`, It will process all the libraries, packages and Flask framework. It will take the input and return the value that is generated with the highest confidence that is actually the matching of the statement. The most relevant statement is going to get processed and then you will get the response from the input, so this is how the Edu-Bot works. For the wrong input it will display the current time.

## APPLICATIONS

- Apart from educational institutes can have this in sectors like hotels, Hospitals and shopping Centre. Can work as receptionist, map guides and also to resolve customer query
- It will never get tired to repeat the answer and will continue to obey your command. They will continue to operate every day throughout the year without requiring to take a break.
- This instant responder can also skillfully craft your chatbot to maintain your image and brand.
- Edu-bot can eliminate the wastage of time and also provide a very clean and easy to understand conversation flow and structure that needs to be maintained by the Edu-Bot.

## CONCLUSION

Edu-bot is helpful in guiding students with correct and most up to date sources of information. It is advantageous for international applicants for queries such as fee payment and academic matters. Edu-bots typically provide a textbased user interface, allowing the user to type commands and receive text. When chat bot technology is integrated with popular web services it can be utilized securely by an even larger audience can run on local computers, though most of the time it is accessed through the internet. Edu-bots can give a human like touch to some aspects and make it an enjoying conversation. And they are focused entirely on providing information and completing tasks for the humans they interact with.

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# Automated Solar Tracking System



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**Abstract:** Energy crisis is the most important issue in today's world. Conventional energy resources are not only limited but also the prime culprit for environmental pollution. Renewable energy resources are getting priorities in the whole world to lessen the dependency on conventional resources. Solar energy is rapidly gaining the focus as an important means of expanding renewable energy uses. Solar cells those convert sun's energy into electrical energy are costly and inefficient. Different mechanisms are applied to increase the efficiency of the solar cell to reduce the cost. The solar tracking system is the most appropriate technology to enhance the efficiency of solar cells by tracking the sun. A microcontroller-based design methodology for an automatic solar tracker is presented in this paper. Light-dependent resistors are used as the sensors of the solar tracker.

**Keywords:** Arduino, Solar tracking, Photoresistor, Microcontroller, Stepper motor.

## INTRODUCTION

Energy is the prime factor in the development of a nation. An enormous amount of energy is extracted, distributed, converted, and consumed in the global society daily. 85% of energy production is dependent on fossil fuels. The resources of the fossil fuels are limited and their use results in global warming due to the emission of greenhouse gases. To provide sustainable power production and a safe world for future generations, there is a growing demand for energy from renewable sources like solar, wind, geothermal, and ocean tidal waves.

The sun is the prime source of energy, directly or indirectly, which is also the fuel for most renewable systems. Among all renewable systems, the photovoltaic system is the one that has a great

chance to replace the conventional energy resources. The solar panel directly converts solar radiation into electrical energy. The solar panel is mainly made from semiconductor materials. Si is used as the major component of solar panels, which is a maximum of 24.5% efficient. Unless high efficient solar panels are invented, the only way to enhance the performance of a solar panel is to increase the intensity of light falling on it. Solar trackers are the most appropriate and proven technology to increase the efficiency of solar panels by keeping the panels aligned with the sun's position. Solar trackers get popularized around the world in recent days to harness solar energy most efficiently. This is a far more cost-effective solution than purchasing additional solar panels.

## METHODOLOGY

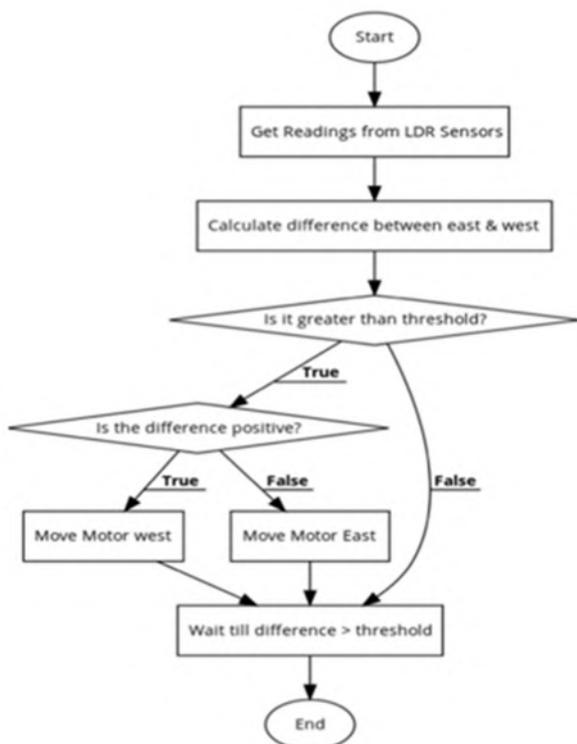
### A. Solar tracker

A solar tracker is a device that follows the sun as it moves across the sky. When solar trackers are coupled with solar panels, the panels can follow the path of the sun and produce more renewable energy for us to use. There are 3 types of sun-tracking systems, manual solar trackers, passive solar trackers, and active solar trackers

### B. Components

The major components used in the project are Arduino Uno board (ATmega328P), Servo Motor (sg90), and LDR sensors.

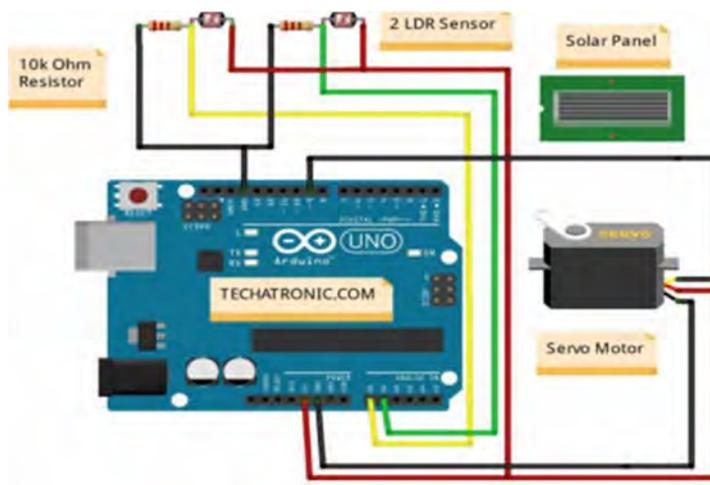
### C. Flow Chart



### D. Working

The LDRs detect the light intensity and according to that, the tracker adjusts the direction that a solar panel to the position of the Sun in the sky. LDR sensors decrease the resistance in the circuit when the light incident on it. there are two LDR in the circuit on both sides(east-west). The tracker adjusts the panel perpendicular to the Sun so more sunlight strikes the solar panel, and less light is reflected. Hence, it absorbs more energy which can be converted into power. So, which LDR shows the less resistance the motor will start to move in that direction. LDR gives output to the Arduino every time. And Arduino processes the data that comes from the LDR and Sends instructions to the Servomotors.

### E. Circuit Diagram



## APPLICATIONS

Based on the objectives, this project study will propose methods to estimate the solar tracking system's reliability parameters and applies them to maximize power generation. The main reason to use a solar tracker is to reduce the cost of the energy, a tracker produces more power over a longer time than a stationary array with the same number of modules. The presence of this device is extremely important because the sun's position varies from time to time. And the position of the sun will often vary with the season and the elevation and is dependent as well on the time of the day. It can be used most effectively in areas with low horizons and locations that are shade-free from dawn to dusk each day. Throughout the year the tracking array will be able to utilize the wide-open access to gain every available electron from the sun. The existence of a solar tracker is very useful in situations when the electricity demand is higher. As to increase the electricity, the solar tracker plays the role in producing more electricity.

## CONCLUSION

The paper has presented a means of tracking the sun's position with the help of a microcontroller. Especially, it demonstrates a working software solution for maximizing solar cell output by positioning a solar panel at the point of maximum light intensity. The prototype represents a method for tracking the sun both in normal and bad weather conditions. Moreover, the tracker can initialize the starting position itself which reduces the need for any more photoresistors. The attractive feature of the designed solar tracker is a simple mechanism to control the system. The solar tracker also provides a lucrative solution for third-world countries to integrate it into their solar system at a comparatively low cost through a software-based solution. Though the prototype has limitations in hardware areas as an initial setup, still it provides an opportunity for improvement of the design methodology in the future.

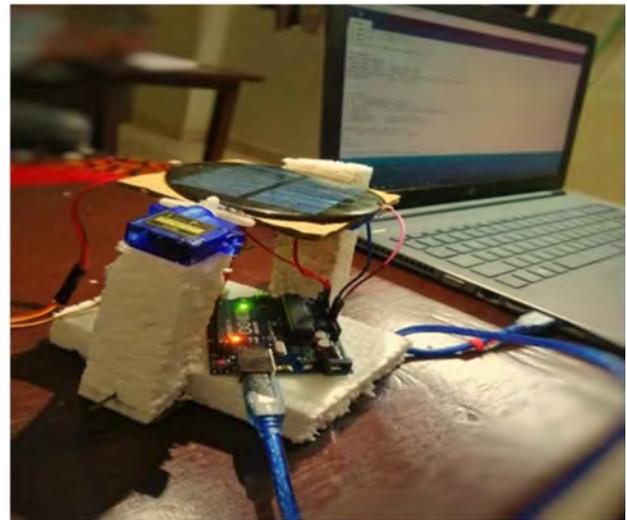
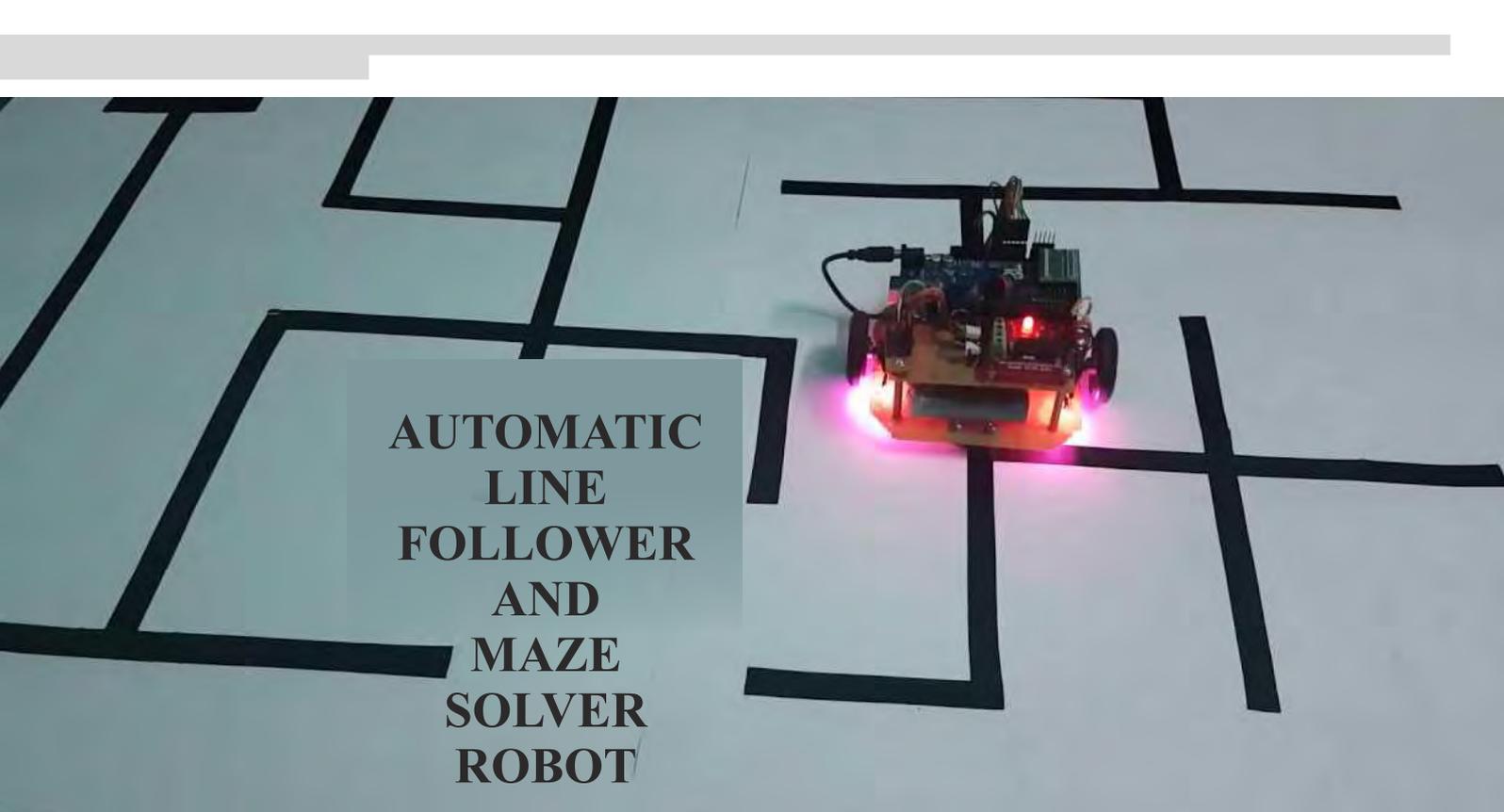


Fig. Solar tracker prototype

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# AUTOMATIC LINE FOLLOWER AND MAZE SOLVER ROBOT

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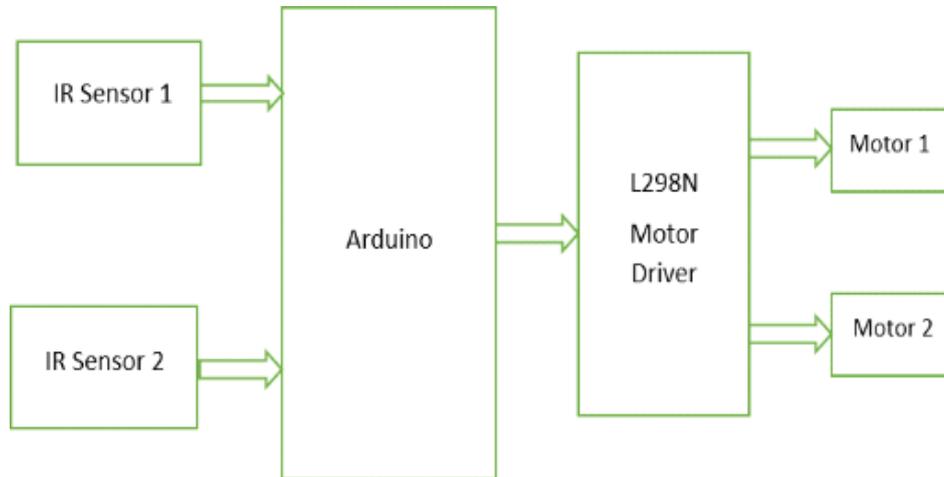
**Abstract:** Line Following is one of the most important aspects of robotics. A Line Following Robot is an autonomous robot which is able to follow either a black line that is drawn on the surface consisting of a contrasting color. It is designed to move automatically and follow the line. The robot uses arrays of optical sensors to identify the line, thus assisting the robot to stay on the track. The array of three sensor makes its movement precise and flexible. The robot is driven by DC geared motors to control the movement of the wheels. The Arduino Uno interface is used to perform and implement algorithms to control the speed of the motors, steering the robot to travel along the line smoothly. This mini project aims to implement the algorithm and control the movement of the robot by proper tuning of the control parameters and thus achieve better performance.

**Keywords:** Arduino UNO, IR sensor, L298N Motor driver, DC Motors

## INTRODUCTION

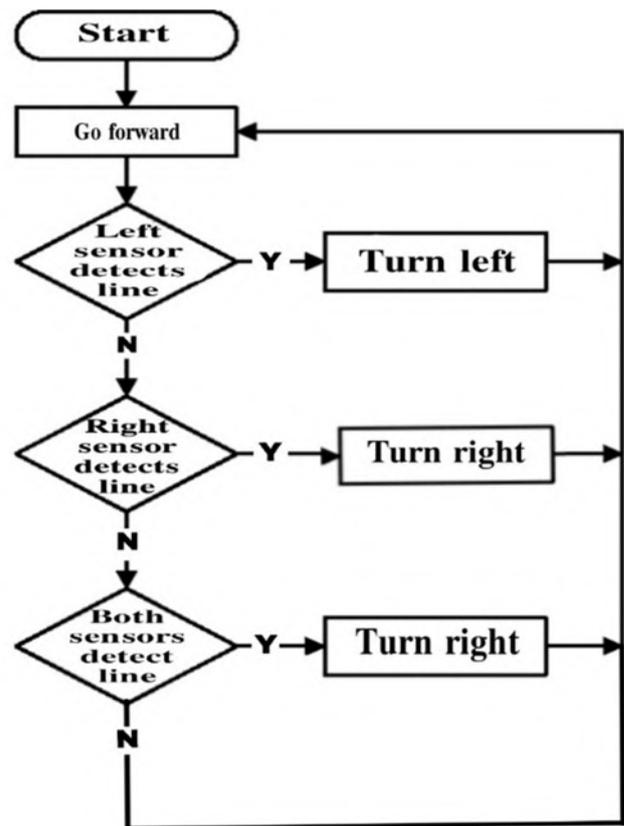
Now a days, to reduce human effort and ensure efficient automatic transport system line followers are becoming popular. Especially in industrial areas, these are using in large number. A line follower robot is basically a robot designed to follow a line or path already predetermined by the user. The path can be visible like a black line on a white surface (or vice-versa) or it can be invisible like a magnetic field. It continuously corrects itself to stay on the track. A **maze** is a tour puzzle in the form of a complex branching passage through which the solver must find a route. It could be a white line on a black background or vice versa. Each line maze has a Start point and a Finish point. The robot is expected to follow the lines and find its way from Start to Finish.

## METHODOLOGY



**Fig. 1. Block diagram of line follower and Maze Solver Robot**

Line follower robot senses white or black line by using IR sensor and then sends the signal to Arduino. Then Arduino drives the motor according to sensors output. When robot is placed on the fixed path, it follows the path by detecting the line. The robot direction of motion depends on the two sensors outputs. When the two sensors are on the line of path, robot moves forward. Concept of working of line follower is related to light. We use here the behavior of light at black and white surface. When light fall on a white surface it is almost full reflected and in case of black surface light is completely absorbed. This behavior of light is used in **building a line follower robot**. There are two IR sensors which are connected to the Arduino as input. There is a L298N motor driver which takes input from the Arduino and there are two DC motors connected to the motor driver. Here in this Arduino line follower robot when sensor senses white surface then Arduino gets 1 as input and when senses black line Arduino gets 0 as input. According to these inputs received by the two IR sensors, the motor driver drives the motors so that robot continuously stays on the track. Using the combination of these inputs from the two IR sensors, the robot can be made to solve the maze.



**Fig.2. Flow chart of line follower and Maze Solver Robot**

The path for the line follower robot is predetermined. Here we have used white track on the black surface. A simple maze of white lines is drawn on the black surface. When the robot starts moving, the two IR sensors continuously send the corresponding inputs to the Arduino. When IR rays hit white track, Arduino gets 1 as input. When IR rays hit the black surface, the IR rays won't be reflected back to the receiver, hence Arduino gets 0 as input. By comparing these two combinations, the motor driver drives the two motors accordingly. When the robot starts to move forward, if there is no deviation, the robot continues to move forward. If there is a left turn ahead, the robot takes a left turn by rotating left motors in forward and right ones in backward direction. If there is a right turn ahead, then the motor takes a right turn by rotating right motors in forward and left ones in backward direction. If there is both left and right deviation, then the robot will always take a right turn as the priority of the robot has been set to right. Hence the robot continues to solve the maze and reaches the destination successfully.

## APPLICATIONS

- **Industrial Applications:** These robots can be used as automated equipment carriers in industries replacing traditional conveyor belts and railway tracks.
- **Automobile applications:** These robots can also be used as automatic cars running on roads with embedded magnets.
- **Domestic applications:** These can also be used at homes for domestic purposes like floor cleaning etc.
- **Guidance applications:** These can be used in public places like shopping malls, museums to provide path guidance.
- **Restaurant Industry:** These robots can be used in restaurants for serving food.

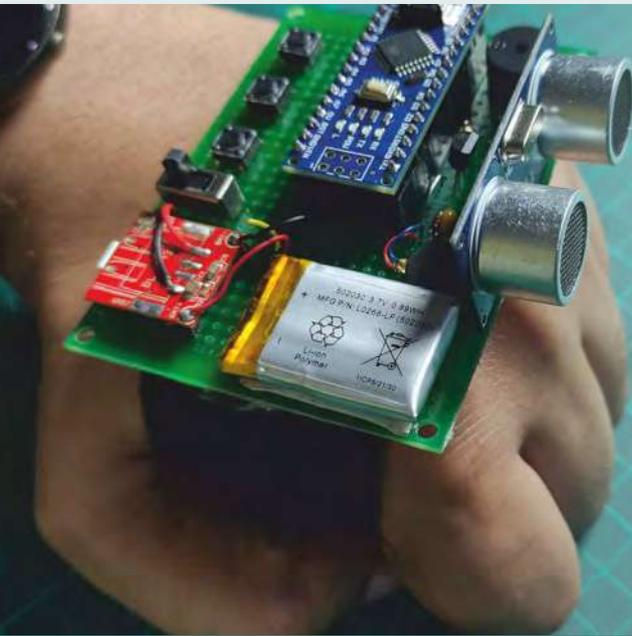
## CONCLUSION

The line follower robot works successfully on the white track on the black surface. Above the black surface there are some white lines in the direction the robot still good enough to sense the line and follow the track.

The maze-solver robot performs perfectly and solves any closed loop line maze without any error. This shows that the algorithm has been implemented perfectly and there are no errors in the program as well.

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# THIRD EYE FOR BLIND USING ARDUINO UNO

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**Abstract:** Third eye for the visually impaired is an advancement with the assistance of the multidiscipline subjects like software engineering, gadgets designing what's more, well-being science which causes the visually impaired individuals to explore with speed and certainty by identifying the close by hindrances utilizing the help of ultrasonic waves and advise them with a signal sound or vibration. As indicated by WHO 39 million individuals are evaluated as blinds around the world. The Arduino Uno R3 board is worn like a gadget. Utilizing the sensor, recognize the articles around them and can travel effectively. At the point when the sensor recognizes any article it will advise the client by blare or vibration. In this manner the blinds and assist them with voyaging better places.

**Keywords:** Ultrasonic sensors, Arduino Uno R3, buzzer, switch, power supply

## INTRODUCTION

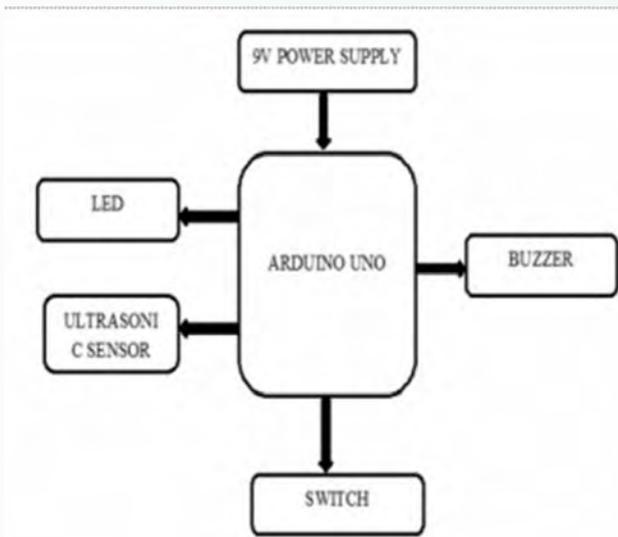
This is the wearable innovation for the blinds which helps settle every one of the issues of the current advancements. Presently a days there are such huge numbers of innovations, things and keen gadgets for the outwardly debilitated individuals for the route, however the majority of them have certain issues for the dazzle individuals and the significant downsides are that those things need a great deal of preparing and endeavors to utilize One of the fundamental quirk of this advancement is, it is moderate for everybody, the all-out cost being under \$25 or ~1500 INR. There are no such gadgets accessible in the market that can be worn like a fabric and having such a minimal effort and effortlessness. With the utilization of this extemporized gadget in a huge scale, with upgrades in the model, it will definitely profit the network of the outwardly impeded or the visually impaired

individuals. The strolling stick is a basic and absolutely mechanical gadget devoted to recognize the static or the steady snags on the ground, lopsided surfaces, openings and steps by means of straightforward material power input.

## METHODOLOGY/WORKING PRINCIPLE:

Third eye for the blind is a product of aiding the visually impaired person. In the system, there are two parts: ultrasonic sensor and Arduino UNO. The distance between them must be 0.15 meters at most. When sensor finds the obstacle, the LED will blow and buzzer will alarm. If the user lost his cane, he can press the button on the watch. At that time, the buzzer will also alarm to help in the process of finding his cane. The family members can also know the location of smart cane via

GPS. They can also get the message from the cane when the user press the button on the watch. The cane and the watch are connected by the wireless module (NRF24I01). The block diagram of the system will be described in Figure. 1. The system design includes software implementation and hardware implementation. Arduino Uno micro controller, Ultrasonic Sensor, Buzzer, 9V battery are used for hardware implementation. C programming language is used for software implementation as shown in figure 2 which represents the snapshot of the project.



**Fig1: Block Diagram**



**Fig2: Snapshot of the Project**

## APPLICATIONS

- It works as a navigation device for the blind people.
- This system can be used to navigate by everyone not only visually impaired under certain circumstances, like foggy mornings with low visibility. Some winter mornings are foggy, where the visibility is very low then this system can be used.
- This system can also be used by patients suffering with various eye ailments like cataract, exophthalmia, post eye operative situations and others

## CONCLUSION

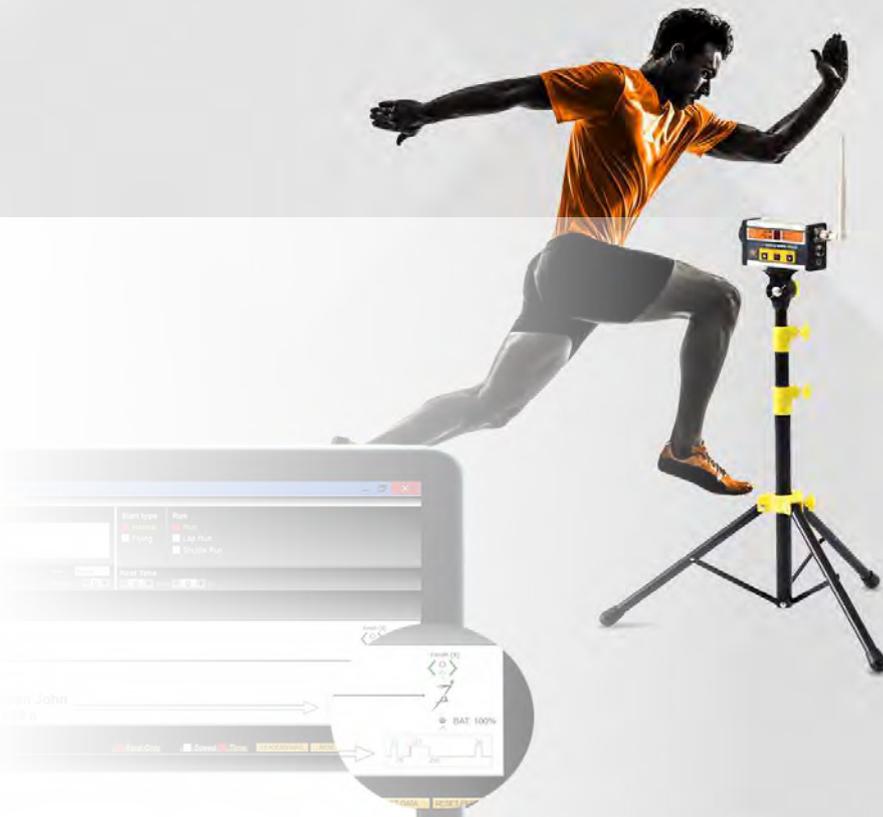
This project consists of a design of such a concept which we can term as a virtual eye for the people who are insufficient to detect obstacle with their naked eyes. It is an Arduino based project which will be economical and affordable. This is a easy and effective portable glove that can identify hurdles in any way

irrespective of its height and depth. It calculates distance between the user and the obstacle easily, and then according to its received back signal intensity, buzzer beeps and motor vibrates. If the design of this system is made with correctness, then blind impaired person can go to easily in different directions

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# Low Cost & Portable Automatic Athlete's Timing System



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## ABSTRACT:

For an athlete practicing is a key thing that increases there performance. Assistance devices are very beneficial to maintain or improve the performance of the athlete. During track of training sessions, the coach might not track or guide each and every athlete. Secondly imported devices, sensors are expensive; and all the training centers and educational institutions, possibly will not afford these devices. Available timing systems cost thousands of dollars due to the expenses on the sensors and components. The developed system is a portable, smart, wireless assistance device that detect selapsed time of an athlete to start and stop line in a racing track arena automatically. When the athlete passes from the starting line and reaches the ending line; the timer system with the help of the sensors will display the elapsed time. This system design has a very easy installation process and is fully automatic; also, manual inter facing with the system is not required.

**Index Terms:** elapsed time, start and end line, athlete, timing system, wireless.

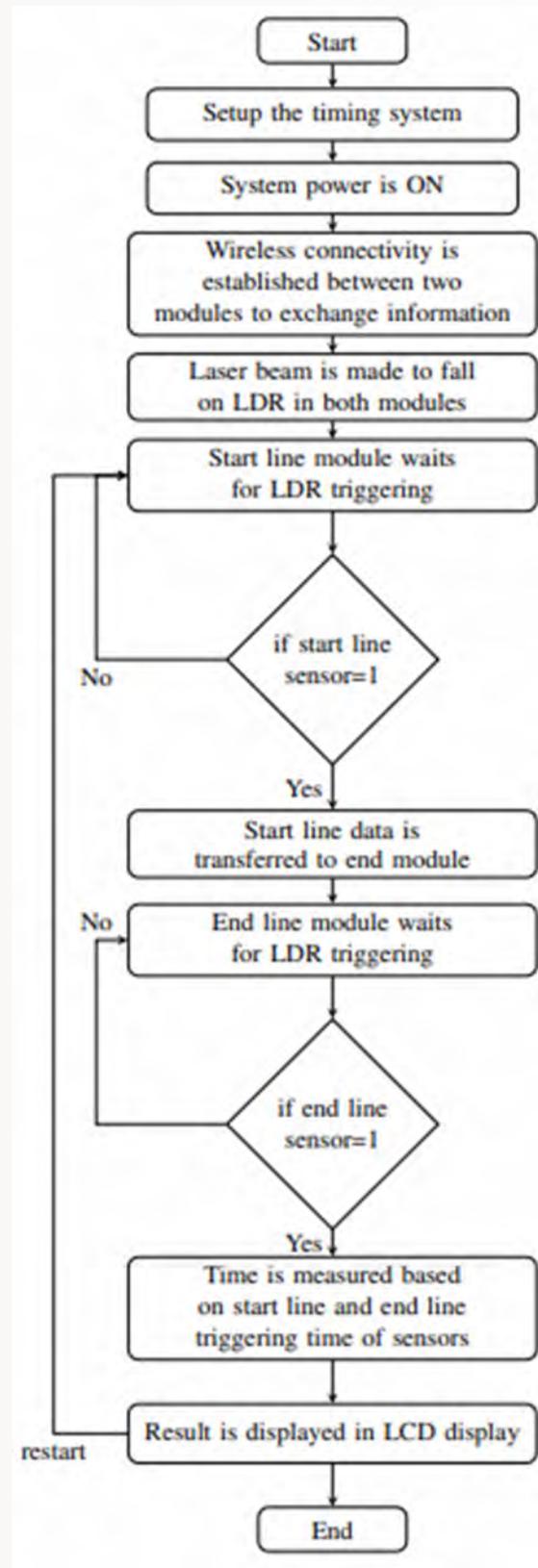
## INTRODUCTION

Sports and various events will be difficult to organize without advanced sports science technology. Anomalously, it is the predominant of technology that has brought most to individuals 'in competence to make use of the domain, perception of its power and also uneasiness as to what aspect of different technological evolution play in sports. It is suggested that those leading, governing

and utilizing sport must be equipped to make right on the type and use of sports technologies that would assist in the right performance. Among the application field for these contextual services, the sports domain may be one of the most benefited. The sports person utilizing assisting devices has noted with evolving greater in their performance.

## WORKING MECHANISM

There are two modules in an automatic athlete's timing system with microcontrollers, LDRs, nRF24101 in each module respectively. When a runner passes through starting end of the running track, photoresistor detects the runner's presence during his/her start through. It sends the data to end module using transceiver. Meanwhile if end line photoresistor detects runner's presence, the microcontroller processes the elapsed time based on difference in start time and the reaching time to end of the track. The elapsed time is displayed using LCD display using I2C module. I2C module makes easy in circuitry in displaying the time in LCD display. The laser beam is made continuously fall on the photoresistors. When the athlete passes through the line, the beam beams making LDR highly resistive for a while. This process also occurs at end line as well. After displaying the elapsed time timing system resets the process to initial state. nRF24101 transceiver module acts as the channel of mesh between both microcontrollers to communicate wirelessly.



*Fig1:Flow chart for automatic athletes timing system.*

## APPLICATION

As in stopwatch manual errors are obtained but the timing system gives precise output. Our experimental system gives the following result: Timing system is simple and user-friendly. Anyone can easily fix the system in the track during the practice session. This whole system is designed to be useful for both physically able and disabled. The system acts as an assistance device that increases the overall performance of the athlete. The power consumption is less, which is an important aspect of the design. The purpose system is cost-effective for purchasing and installation.

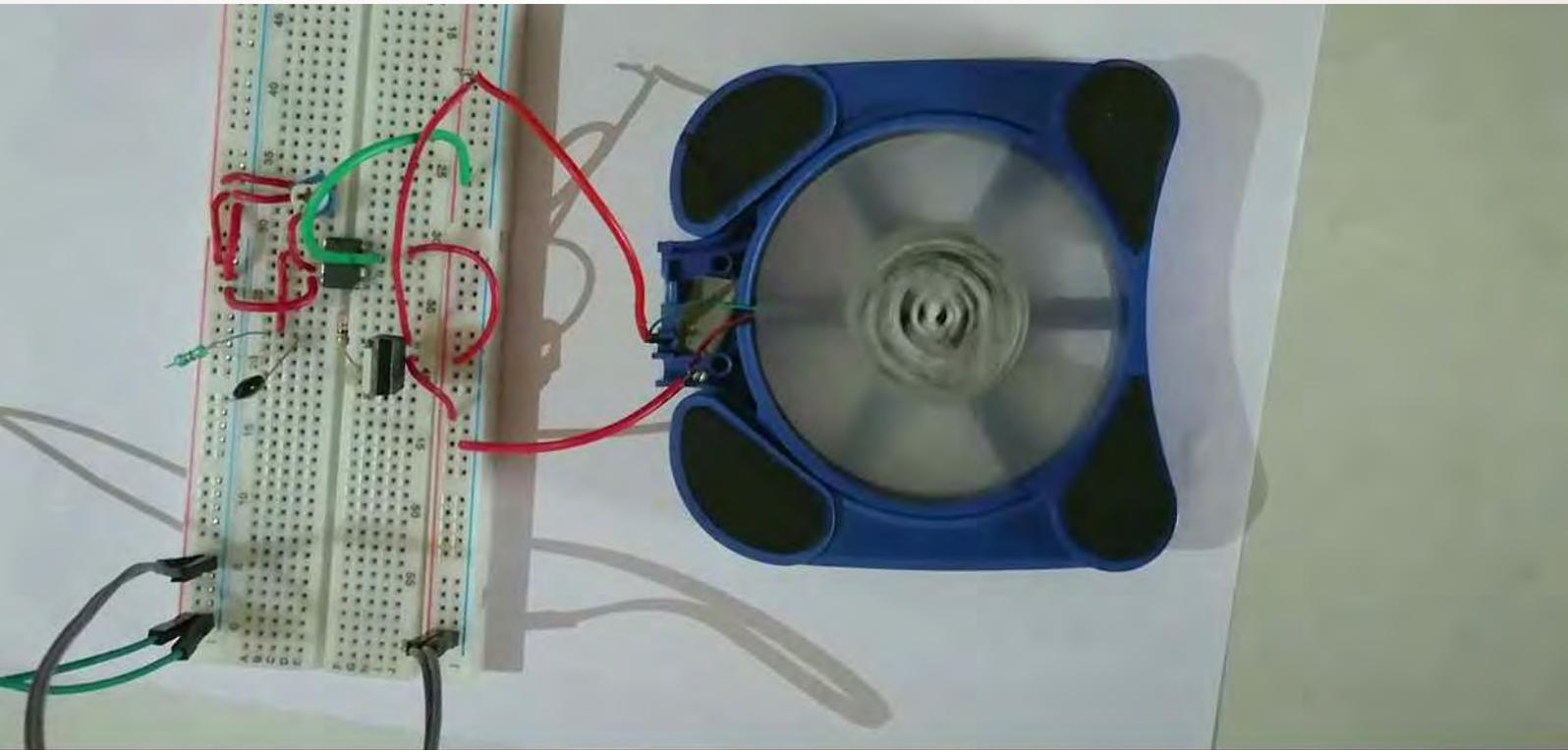
## CONCLUSION

In this paper, proposed system is for implementing and producing a single wireless sensor-enabled system using Arduino Uno micro controller. The system design takes advantage of simple architecture and algorithm that provides an ample amount of knowledge and scope for future work in this field of research. The design has focused on a specifically on sensor that is compatible with embedded works, in terms of unit cost, power usage, reliability, size, efficiency, and lighter weight. The system is easy to analyze in hardware and algorithmic way. Additional features can be easily added like sound delivering for blind athletes and LED blinking for deaf athletes. To conclude, timing system can be easily carried and placed in in door or out doors port track.

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# AUTOMATIC TEMPERATURE CONTROLLED DC FAN USING THERMISTOR

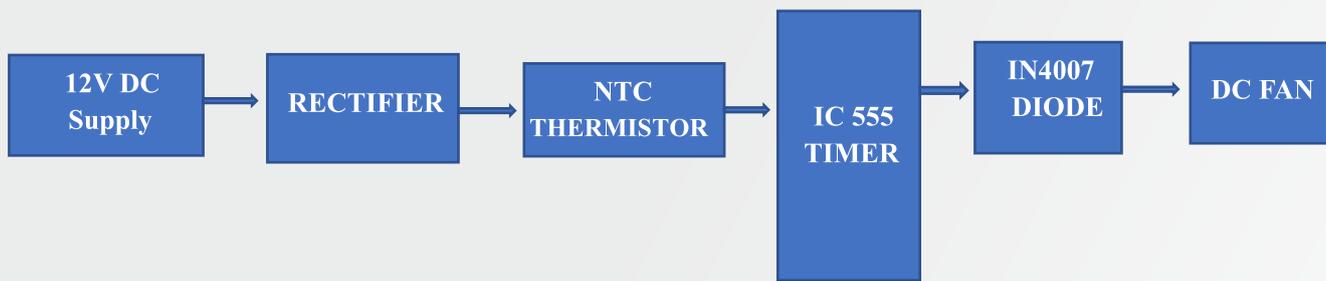
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**Abstract:** Over the last decades, advances in digital electronics have made computer smaller, cheaper and faster. Throughout this revolution as well as mobile computing environment has been created and undoubtedly other advances in technology like smart home also play an important role towards better life in future. The main purpose of making this project is to allow users to adjust the fan speed automatically. So, it can save and streamline the work that usually done manually which could then work automatically and effective for humans.

**Keywords:** KEYWORDS: NTC thermistor, NE555 Timer IC, DC fan, Diode.

## INTRODUCTION

This system consists of temperature sensor for more accurate temperature control in various industries so it overcomes the disadvantages of thermostat or analog system in terms of accuracy. Nowadays, the demand for accurate temperature control and air refreshing control has conquered many of industrial domains. One of the most important concerns involved in heat area consist in the desired temperature achievement and consumption optimization. So, an automatic temperature control system technology is needed. LED is used to indicate the circuit working condition, when the temperature exceeds the set limit. The system detects temperature and switches to cooling when it goes beyond the set limits.



**Figure: block diagram of automatic temperature-controlled dc fan using thermistor**

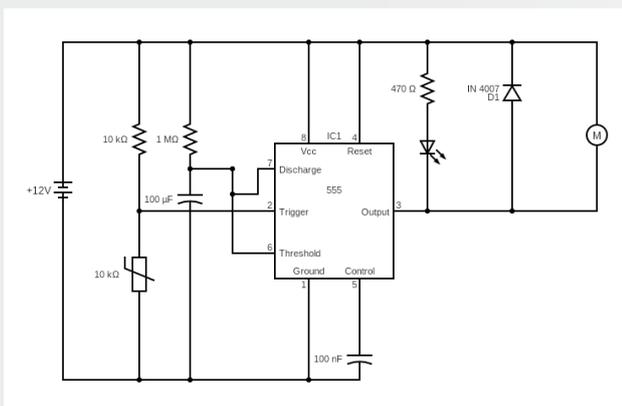
## METHODOLOGY

Implemented project have taken 12v DC fan, 555 Timer IC is used, which is well known timer IC available in 8 pin dip packages. The main component of this temperature-controlled fan is NTC (Negative Temperature Coefficient) type of thermistor. A diode is used across the DC fan to control the back EMF of the coil.



## APPLICATIONS

- Typical application includes automotive, telecom equipment's, laptops, server and many other portable and nonportable electronic devices.
- Sometimes the fan used in conjunction with heat sink to increase overall cooling air.



**FIGURE: Circuit Diagram of Automatic Temperature-Controlled DC Fan Using Thermistor**

This circuit is operating at 9-12v DC supply. To set the time delay of this circuit an electrolytic capacitor  $C_x$  has been used, A switch at the input pin (pin2) of 555 timer IC is connected, when the temperature increases mean while resistance also increases due to NTC thermistor and IC will be triggered and it will provide the desired time delay and then switch on the fan connected to it. Also, an LED with a current limiting resistor as an indicator of the circuit operation has been used. It lights up when the circuit is on and goes off when the circuit is off. Switching on and switching off of the circuit may damage the appliance and majorly it can be neutralized by this time delay circuit.

## CONCLUSION

This circuit is very simple and easy to build. In this system elaboration of the design and construction of fan speed to control the object or environment temperature. As conclusion, the system which designed in this work was perform very well, for any temperature change and can be classified as automatic control.

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**Abstract:** To use ultraviolet (UV) radiations in an indigenous method for sterilization of respirators for reuse during COVID-19 outbreak. COVID-19 outbreak has infected more than 200 countries. In India, till now, more than 100,000 cases have been reported. Healthcare workers are at high risk of developing infections being in the frontline of taking care of COVID-19 cases. The demands of personal protective equipment (PPE) are increasing, but the same is not matched with supply due to various reasons. In such scenarios, reusing respirators and face shields is an alternative. UV radiations have quick action and are able to preserve the quality of respirators. We have developed a UV box for surface sterilization of respirators with an intention to reuse. A box was taken and was fitted with two UV tubes of 254 nm wavelength procured from local service centre of water purifiers. The position of the two tubes was such that one was near the base while other was fixed at the top. The roof of the box was converted into a lid. In addition, a biological indicator tube containing test strip with spores of Bacillus atrophaeus was also exposed to UV light for a predefined duration, which did not show any colour change after incubation for 48 hours. UV box can help in meeting the demand supply deficit for respirators, face shields, and goggles that are paramount for the protection of HCW.

**Keywords:** UVC radiation, Virus, Arduino, Proximity sensor, Type c UV light

## INTRODUCTION

Covid19 changed all of humankind in 2020. Due to its fast and efficiently spreading nature, people were forced to use face masks and gloves to protect from everything they touch. Masks are used to protect from outside but what about the things which they bring home from market or things exchanged with other people. For example: Applying sanitizers on fruits, vegetables, packed food, batteries etc which are bought from outside or can't sanitize files, paperwork that doctors exchange with patients or employees exchange with each other.

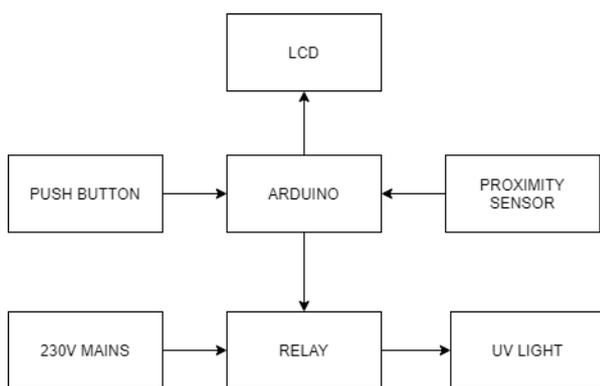
This huge problem can be solved with a smart electronics system powered by an Arduino. We design a 360 degree disinfection box using ultraviolet sterilization to solve the issue. The system makes use of UVC tubes to achieve this task.

## METHODOLOGY

The working starts when the user puts the items to be sterilized inside the box, closed the lid and press the start button. On clicking the button, a timer starts running and the UV led light placed inside the box turns ON (with the help of Relay). The UV rays from the LED light starts to disinfect the materials inside the box and turns OFF once the timer reaches zero.

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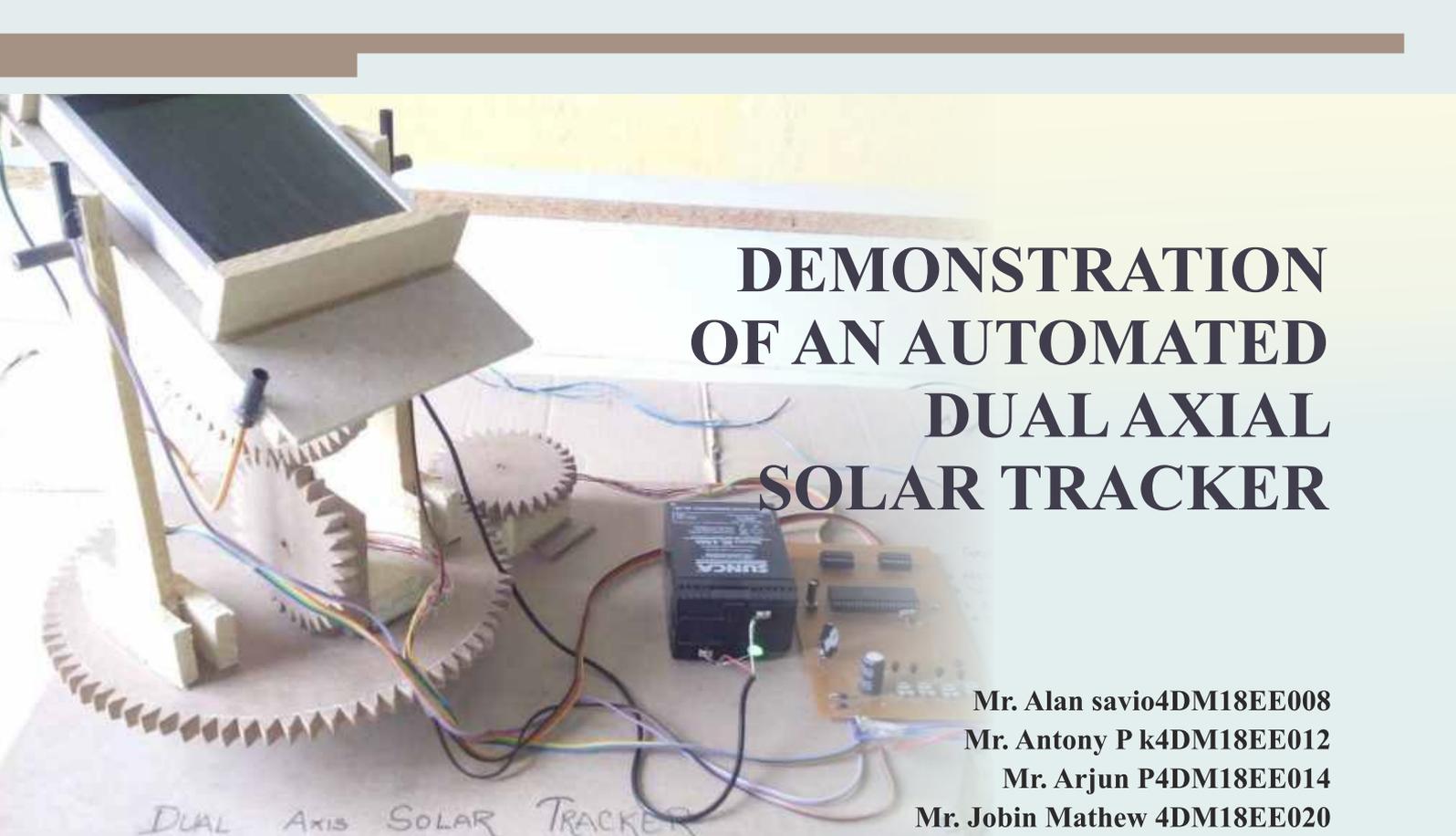
**Fig: Block diagram of Covid box**

## APPLICATIONS

- Germs off of your phone as well as gadgets without messing up gadgets with damp as well as foul-smelling wipes.

## CONCLUSION

Ultraviolet disinfection uses short-wavelength ultraviolet light to disinfect water by killing bacteria through destruction of nucleic acids and DNA disruption. Ultraviolet disinfection disables microorganisms so they cannot perform vital cellular functions. Ultraviolet disinfection equipment uses LEDs, lamps or bulbs in close contact with water to disinfect it.



# DEMONSTRATION OF AN AUTOMATED DUAL AXIAL SOLAR TRACKER

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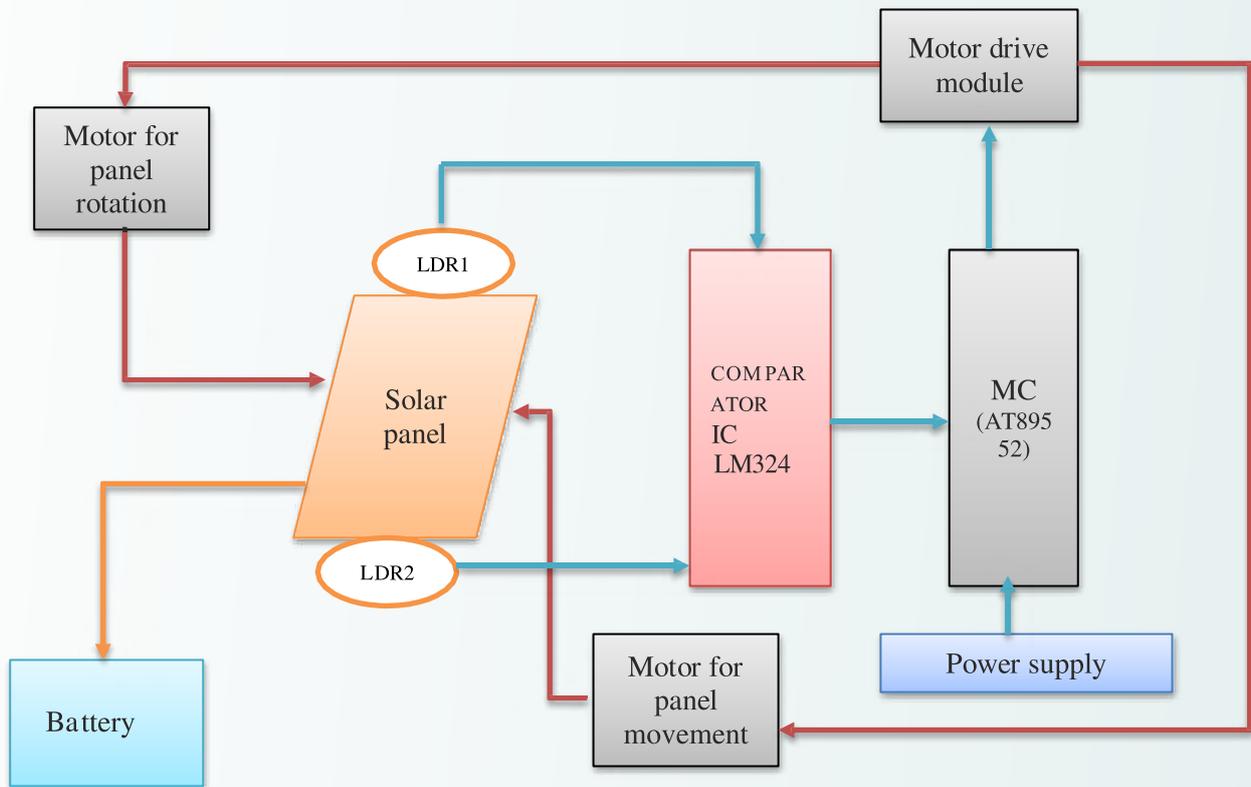
**Abstract:** Solar energy is very important means of expanding renewable energy resources. In this project we described the design and construction of a microcontroller based solar panel tracking system. Solar is a nonconventional source of energy, considering this we have developed solar panels so that we can fulfill our electricity need. The main objective for this project is to develop the sun tracking solar system model which is a device that follow the movement of the Sun regardless of motor speed. Besides that, it is to improve the overall electricity generation using single axis sun tracking system and also to provide the design for residential use.

**Keywords:** Tracker, Converter, Controller, DC gear motor, Photovoltaic, Solar Energy, Solar Panel, Storage Battery, Solar Irradiance, System design.

## INTRODUCTION

The solar tracker is very useful for device that needs more sunlight for higher efficiency such as solar cell. Many of the solar panels had been positioned on a fixed surface such as a roof. As sun is a moving object, this approach is not the best method. One of the solutions is to actively track the sun using a sun tracking device to move the solar panel to follow the Sun. With the Sun always facing the panel, the maximum energy can be absorbed, as the panel is operating at their greatest efficiency

## BLOCK DIAGRAM



## METHODOLOGY

The working principle of an automated solar panel tracking system is explained below.

- There are two simple principles used here. One being, the normal principle of incidence and reflection on which solar tracker works and the other is the principle on which the solar panel works, that is on the incidence of the solar rays the photovoltaic cell will produce electricity.
- This both principles are combined there and as a result of which we are able to fetch nearly double the output which the panel gives normally.

## APPLICATION

CSP applications using dual axis tracking include solar power towers and dish (Stirling engine) systems. Dual axis tracking is extremely important in solar tower applications due to the angle errors resulting from longer distances between the mirror and the central receiver located in the tower structure.

## CONCLUSION

Dual Axis Solar Tracking System prototype model is successfully developed. The designed system is focuses on designing controller part and the main concern is to design appropriate circuits and the circuits suppose to be able to control DC-gear motor rotation direction without considering motor speed. The system is able to track and follow Sunlight intensity in order to collect maximum solar power regardless of motor speed. The unique of developed system, motor speed is not critical consideration because the DC-gear motor offers low output rated speed and high output rated torque.

## RESULT

The constructed system has been tested and some data from hardware measurement have been collected and discussed. Typical solar panel has been used and the purpose only to prove the designed system is able to operate accordingly. Therefore, the surrounding effects, for instance, weather condition are not seriously considered during hardware testing.

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# Future of Data Science



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is currently working as HOD in the Department of Electrical & Electronics Engineering at Yenepoya Institute of Technology, Moodbidri. He has total 20 Years of experience including industry and teaching.

## What is Data Science?

Data science combines multiple fields, including statistics, scientific methods, artificial intelligence (AI), and data analysis, to extract value from data. Those who practice data science are called data scientists, and they combine a range of skills to analyze data collected from the web, smartphones, customers, sensors, and other sources to derive actionable insights.

Data science encompasses preparing data for analysis, including cleansing, aggregating, and manipulating the data to perform advanced data analysis. Analytic applications and data scientists can then review the results to uncover patterns and enable business leaders to draw informed insights.

## Relation between AI, Data Science, Machine Learning and Deep Learning

AI means getting a computer to mimic human behavior in some way.

**Data science** is a subset of AI and it refers more to the overlapping areas of statistics, scientific methods, and data analysis—all of which are used to extract meaning and insights from data.

**Machine learning** is another subset of AI and it consists of the techniques that enable computers to figure things out from the data and deliver AI applications.

**Deep learning** which a subset of machine learning that is enables computers to solve more complex problems.

## Process of Data Science

The process of analyzing and acting upon data is iterative rather than linear, but this is how the data science lifecycle typically flows for a data modeling project:

**Planning:** Define a project and its potential outputs.

**Building a data model:** Data scientists often use a variety of open source libraries or in-database tools

to build machine learning models. Often, users will want APIs to help with data ingestion, data profiling and visualization, or feature engineering. They will need the right tools as well as access to the right data and other resources, such as compute power.

**Evaluating a Model:** Data scientists must achieve a high percent of accuracy for their models before they can feel confident deploying it. Model evaluation will typically generate a comprehensive suite of evaluation metrics and visualizations to measure model performance against new data, and also rank them over time to enable optimal behavior in production. Model evaluation goes beyond raw performance to take into account expected baseline behavior.

**Explaining Models:** Being able to explain the internal mechanics of the results of machine learning models in human terms has not always been possible—but it is becoming increasingly important. Data scientists want automated explanations of the relative weighting and importance of factors that go into generating a prediction, and model-specific explanatory details on model predictions.

**Deploying the Model** The difficult and laborious process is to take a trained, machine learning model and getting it into the right systems. This can be made easier by operationalizing models as scalable and secure APIs, or by using in-database machine learning models.

**Monitoring Models:** Unfortunately, deploying a model isn't the end of it. Models must always be monitored after deployment to ensure that they are working properly. The data the model was trained on may no longer be relevant for future predictions after a period of time. For example, in fraud detection, criminals are always coming up with new ways to hack accounts.

## Tools for data science

Some of the most popular notebooks are Jupyter, RStudio, and Zeppelin. Notebooks are very useful for conducting analysis, but have their limitations when data scientists need to work as a team. Data science platforms were built to solve this problem.

## The benefits of a data science platform

A data science platform reduces redundancy and drives innovation by enabling teams to share code, results, and reports. It removes bottlenecks in the flow of work by simplifying management and incorporating best practices.

In general, the best data science platforms aim to:

Make data scientists more productive by helping them accelerate and deliver models faster, and with less error

Make it easier for data scientists to work with large volumes and varieties of data

Deliver trusted, enterprise-grade artificial intelligence that's bias-free, auditable, and reproducible

Data science platforms are built for collaboration by a range of users including expert data scientists, citizen data scientists, data engineers, and machine learning engineers or specialists. For example, a data science platform might allow data scientists to deploy models as APIs, making it easy to integrate them into different applications. Data scientists can access tools, data, and infrastructure without having to wait for IT.

The demand for data science platforms has exploded in the market. In fact, the platform market is expected to grow at a compounded annual rate of more than 39 percent over the next few years and is projected to reach US\$385 billion by 2025.

When a data science platform is the right move

The organization could be ready for a data science platform, if it is noticed that:

Productivity and collaboration are showing signs of strain. Machine learning models can't be audited or reproduced. Models never make it into production. A data science platform can deliver real value to your business. Oracle's data science platform includes a wide range of services that provide a comprehensive, end-to-end experience designed to accelerate model deployment and improve data science results.

## Impact of Data Science on Business

- Determine customer churn by analyzing data collected from call centers, so marketing can take action to retain them
- Improve efficiency by analyzing traffic patterns, weather conditions, and other factors so logistics companies can improve delivery speeds and reduce costs
- Improve patient diagnoses by analyzing medical test data and reported symptoms so doctors can diagnose diseases earlier and treat them more effectively
- Optimize the supply chain by predicting when equipment will break down
- Detect fraud in financial services by recognizing suspicious behaviors and anomalous actions
- Improve sales by creating recommendations for customers based upon previous purchases

## Future of Data Science in India

By 2025, it's estimated that 463 Exabyte's of data will be created each day globally that's the equivalent of 212,765,957 DVDs per day! This statement comes from the World Economic Forum.

India contributed to 9.4 per cent of the total global analytics job openings, a rise from 7.2 per cent in January 2020. In addition, recruitment services firm Michael Page India's 'The Humans of Data Science' report revealed that data science will create roughly 11.5 million job openings by 2026.

## Career in data science in India

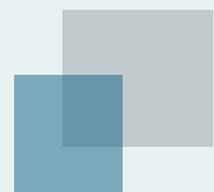
Currently, data science and artificial intelligence have slowly made their way into sectors like travel, healthcare, education, stock market, and e-commerce.

In India, if you have a job experience of working as a data scientist, you can move onto other roles like

- Data architect
- Data engineer
- Data analyst
- Business intelligence analyst
- Database administrator

## Conclusions

Data science education is well into its formative stages of development; it is evolving into a self-supporting discipline and producing professionals with distinct and complementary skills relative to professionals in the computer, information, and statistical sciences. However, regardless of its potential eventual disciplinary status, the evidence points to robust growth of data science education that will indelibly shape the undergraduate students of the future. In fact, fueled by growing student interest and industry demand, data science education will likely become a staple of the undergraduate experience. There will be an increase in the number of students majoring, minoring, earning certificates, or just taking courses in data science as the value of data skills becomes even more widely recognized. The adoption of a general education requirement in data science for all undergraduates will endow future generations of students with the basic understanding of data science that they need to become responsible citizens. Continuing education programs such as data science boot camps, career accelerators, summer schools, and incubators will provide another stream of talent. Today, the nation is in the formative phase of data science education, where educational organizations are pioneering their own programs, each with different approaches to depth, breadth, and curricular emphasis.





# AN IoT PLATFORM INTEGRATED INTO AN ENERGY EFFICIENT DC LIGHTING GRID

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**Abstract:** Permitting clients and supervisors of existing structures to profit by non- meddling Internet of Things (IoT) coordination is an extraordinary resource. IoT joining opens a plenty of new administrations, for example, lighting and power-utilization administration, indoor area based administrations, observation and so forth. In this paper we indicate how a DC lighting network can be joined with remote parts to encourage the arrangement of switches/sensors and actuators fuelled by the DC lighting framework. These control gadgets can be set wherever in the building and speak with alternate gadgets in the system, remotely or by means of the Power accessible on the DC network.

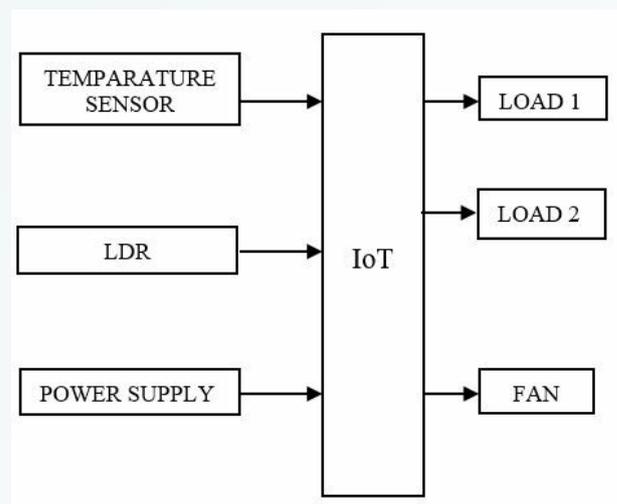
**Keyword :** Lighting grid using IoT

## INTRODUCTION

Internet of Things (IoT) integration opens a plethora of new services such as lighting and power-consumption management, indoor location-based services, surveillance etc. These services can increase occupant productivity, save time for facilities staff, enhance the building experience, improve the safety actions inside the building and deter asset theft. The creation of smarter buildings through the deployment of internet of things. To develop a model which can control load from internet and checks the light intensity from ldr sensor. Development of a model which enables the operation of fan depending the temperature measured through temperature sensor.

Development of E-IoT model at reasonable cost which can help to achieve significant energy saving, reduced operational cost, perform risk management and enhance employee productivity.

## METHODOLOGY

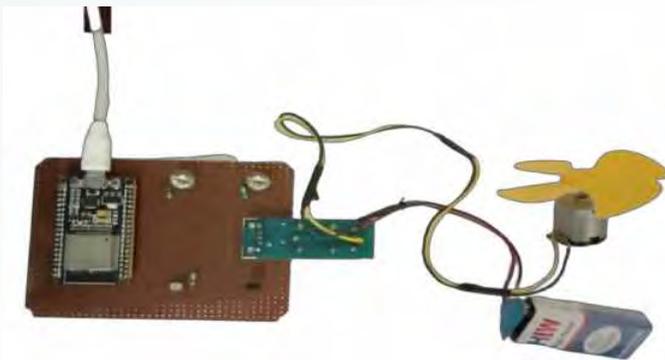


**Block diagram of the Model**

The IoT model was developed with an objective to achieve significant energy saving, reduced operational cost, perform risk management and enhance employee productivity

The components used in the development of model include,

- ❖ Light sensor
- ❖ Temperature sensors
- ❖ Resistors
- ❖ Battery fan
- ❖ Microcontroller



## WORKING PRINCIPLE OF THE PROJECT

The model works with the interface of mobile hotspot and internet. This control device can be set wherever in the building and speak with alternate gadgets in the system, remotely or by means of the power accessible on the DC network. When the temperature exceeds the limit the fan will operate that cools the grid. This device can be operated at any substations.

## CONCLUSION:

The E-IoT platform allows quick development and bringing to market of innovative IoT applications, at a reasonable cost, and at a fraction of the time compared to other approaches. This result is thanks to the integration of a largely distributed network built on the lighting infrastructure, with E-IoT devices, and to the synergies between energy management and IoT systems. The main infrastructure is ready and easily available, facilitating rapid application of intelligent solutions. The distributed intelligence can be shared as well as the abundance of sensors. The DC power supplies are commonly available and there is no need of extra installations.

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# PARKING SENSOR USING ULTRASONIC DISTANCE METER

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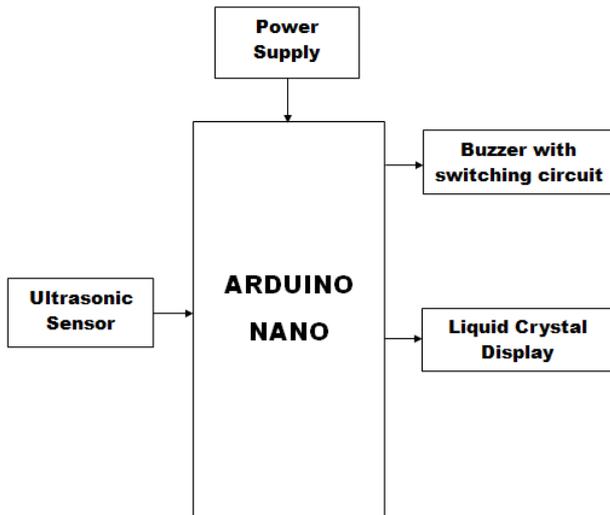
**ABSTRACT:** Technologies are always helpful for mankind in making life much easier and better for humans. A lot of time is consumed when parking the vehicle and sometimes it gets worst by getting damage to our vehicle in order to ensure these things our system sense the object give us signal. Our project is about designing a parking sensor using microcontroller system, ultrasonic sensor and several other devices. Ultrasonic sensor distance meter is a device that measuring the range between vehicle and wall when the vehicle is parking. The existing device only using sensor and produce bleeping sound when the vehicle is too near to the wall.

**Keyword :** Parking, Ultrasonic sensor, Alert, Avoid, collide.

## INTRODUCTION

The objective of this project is to design a reverse parking sensor for the vehicle which can reduce small accidental damages to the vehicle. There are times when it is difficult to judge the distance while reversing the car or while parking. If someone is there to help, that is great but in situations when driving alone or a new driver and cannot judge the distance, this parking sensor will solve all those problems. It can be easily installed at the corner of the vehicle .The proposed system helps in providing sound alerts in the vehicle according to the nearing objects. For most of the drivers parking a car in a small space seems to be difficult because it requires a series of forward and reverse motions and turns. Parking is always a great problem for aged people and unskilled driver. They cannot park a car properly especially in overcrowded area. Drivers can hardly find parking lot in this condition. So they often park a car improperly or usually collide with other object damaging their car.

## METHODOLOGY

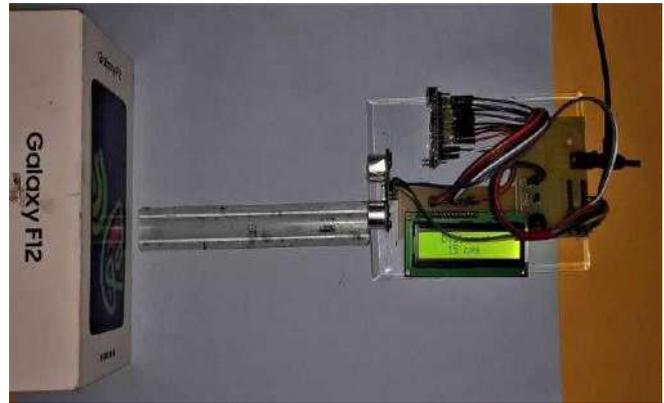


**Fig: 1** Block diagram of parking sensor using ultrasonic distance meter

This chapter describes the block diagram and working system of parking sensor using ultrasonic distancemeter. The working of the Project might have been very clear by now. When the circuit is powered ON, the Arduino will start measuring the distance of the object in front of the Ultrasonic Sensor. If the calculated distance is 100cm, then Arduino activates the buzzer. In addition, as the distance of the object reduces, the frequency tone of the buzzer changes alerting the user that object is getting nearer. This will definitely provide focusing alert during the driving controls and helps in avoiding small vehicle accidents during parking and driving reverse. All the status messages are displayed on a liquid crystal display.

## APPLICATIONS

It is used in Parking assistance for less experienced drivers and reduces accidental and parking damage maintenance cost of a vehicle. This system can also be used in distance measurements in civil constructions. This system can also be useful for assisting blind people in detecting the obstacles. This system can be used in Self driving vehicles and also in terrain monitoring robots.



## RESULT AND DISCUSSION

The figure represents object is moving towards the obstacle which in our case is the vehicle and a wall or object. The device when the vehicle is 15cm away from the wall or object while parking, LCD displays distance of 15 cm and the frequency tone of Buzzer starts beeping in small intensity.

## CONCLUSION

In Conclusion, the objective of this project is to design a Parking sensor using Ultrasonic Distance meter for the vehicle which can reduce small accidental damages to the vehicle is successfully achieved. As described in this report a system is developed that can calculate the distance of the object or wall from the vehicle from LCD Display module. Then with the buzzer it gives us alert signal by beeping sound this will alert the driver by unwanted obstacles or accidental damages. This is a low computational-cost method for detecting the object from the parking vehicle based on ultrasonic sensors.

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# PLANT MOISTURE MONITORING SYSTEM USING ARDUINO NANO WITH AUTOMATIC IRRIGATION PROCESS

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**ABSTRACT:** Technologies always help mankind in making life easier and better. Agriculture is the backbone of our country most of the people depend on agriculture. The main issue in agriculture is water scarcity. The water resource is not used in an effective manner, so that water is wasted. In order to overcome this irrigation process can be automated. The use of monitoring system in this field will be helpful to reduce the wastage of water. So that the temperature as well as humidity and light are measured by means of sensors and depend up on the outcome further processing can performed. We propose a system that will capture all the details about the soil and the temperature by means of sensors. The sensed information will be sent to the processor and depends up on the outcome the alert message will be passed and the appropriate amount of water will be released to the crop. And the further information related to the fertilizer quantity and whether there is any set of serious attack on the crop that will also be identified be the system. The advantage of this system will be finding the current issues in terms of soil condition, humidity and crop condition. Appropriate soil water level is a necessary pre- requisite for optimum plant growth. Also, water being an essential element for life sustenance, there is the necessity to avoid its undue usage. Irrigation is a dominant consumer of water. This calls for the need to regulate water supply for irrigation purposes. Fields should neither be over-irrigated nor under-irrigated. Over time, systems have been implemented towards realizing this objective of which automated processes are the most popular as they allow information to be collected at high frequency with less labour requirements. Bulk of the existing systems employ micro-processor-based systems.

**Keyword :** Plant moisture sensor, irrigation system, weather-based information submersible pump.

## INTRODUCTION

The project deals about the plant moisture monitoring mechanism which gives information about the moisture level in the soil. A moisture monitor can make things better. A moisture monitor provides a solution to the above problem by monitoring the moisture level of the soil and producing an audio-visual alert when the moisture goes below a pre-set level, indicating that the plant needs to be watered. Proper irrigation management is essential for high yields and to avoid stress from excess or scarcity of water. Determining when to irrigate is not an easy task. Usually, this decision is based on past experiences, weather forecast information or soil-related measurements. Past experiences are probabilistic and are often not adjusted for annual changes in weather. Irrigation scheduling based on crop evapo-transpiration can be difficult. This can make scheduling using weather - based information uncertain. Because of the shortcomings of these methods, soil-based irrigation scheduling is the preferred technique. In soil-based measurements, most commonly the soil moisture content is monitored. There are different methods that are used for realizing this Feel and Appearance method using shovel or soil auger: This method is subjective and requires experienced monitoring. Meters and Sensors: Sophisticated devices like sensors measure some physical property that is related with soil moisture. Some portable sensing tools are pushed into the soil directly or into an access tube planted in the soil. Other systems rely on buried sensors that are wired to a fixed meter. Being an automated process, this provides accurate results and is highly efficient.

## METHODOLOGY

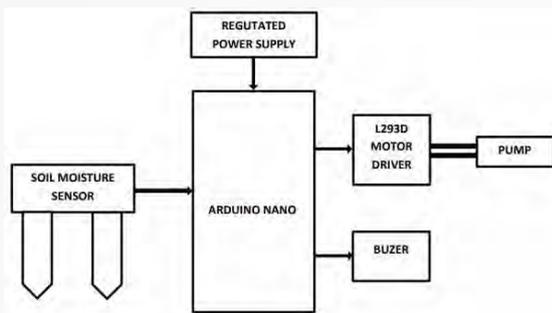
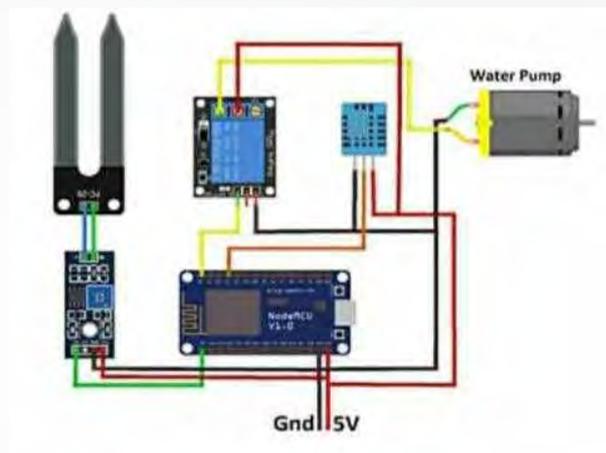


Fig. 1: Block diagram for plant moisture monitoring system with automatic irrigation process



## WORKING PRINCIPLE

In this above circuit sensors are used to detect the required scarcity of the soil for proper irrigation. Required action by water in the soil for the help of controller is to be taken for the deficit of the physical parameters of the soil for a healthy process. For the exact amount of water in the soil to be measured is to read the analog output of the Moisture Sensor. Once sensor is inserted into the soil it's two pins are get connected and if the soil is dry automatically pump start then LED and buzzer stop once the soil is wet.

## FUTURE SCOPE

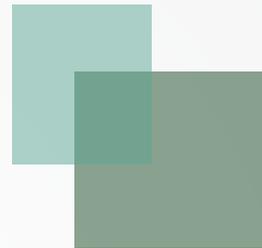
Day by day, the field of electrical and electronics is blooming and have caused great impact on human beings. The project which is to be implemented is automated irrigation method and has a huge scope for future development. The project can be extended to greenhouses where manual supervision is far. Plant Moisture Monitoring System with Automatic Irrigation and few in between the principle can be extended to create fully automated gardens and farmlands. Combined with the principle of rain water harvesting, it could lead to huge water savings if applied in the right manner. In agriculture lands with severe shortage of rainfall, this model can be successfully applied to achieve great results with most types of soil. By developing a smart wireless sensor and by using upcoming techniques a farmer can increase his profit by solving different problems that are faced by the farmer in his routine life. And also, to involve Arduino Controller with a video capturing by using an MMS facility about the crop position and at the same time sending video to the farmer.

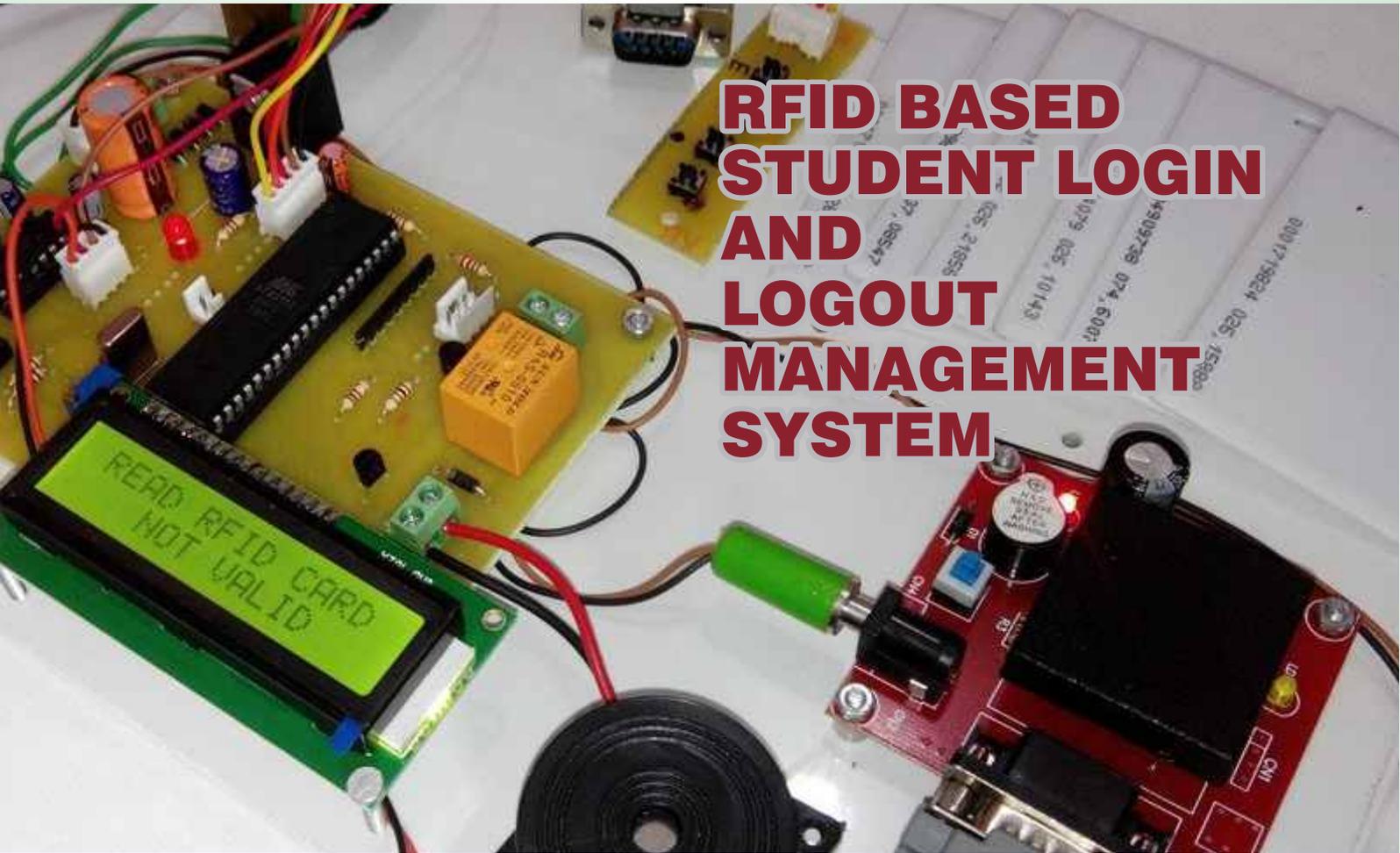
## CONCLUSION

This whole project mainly focuses on two results. The first result is to help farmers to upgrade their agriculture technical knowledge, act in accordingly with minimum requirements on environmental issues and mostly the basic function being prevented by major disasters and protect plants and nature from being ruptured. And the second result of our project is to use technology to measure the humidity, temperature and moisture of the plant root and make the plant grow in a well suitable environment without the use of soil as per the concept of hydroponics. The farmer or user receives the message regarding the status and thus helps in avoiding delay of plant watering and protect the plant to live in a suitable environment.

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# RFID BASED STUDENT LOGIN AND LOGOUT MANAGEMENT SYSTEM

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**Abstract:** The role of technology has successfully made the conventional aspect much easier and better for us humans. A lot of time is consumed in schools and colleges for manual attendance procedures, in such cases our system provides an instant and automated attendance marking system. Proposed project consists of an RFID based attendance system that allows for automatic attendance marking by using RFID tags. Every student is provided with a unique authorization tag/card that is used to record his/her attendance. Every authorized student is provided with a unique RFID tag/card with his/her details fed in it. The tag consists of a built in integrated circuit that stores this data through modulating and demodulating transmitted radio frequency signals. The data thus stored in this card is the unique identification of that person. As soon as the card is placed in front of the RFID

reader, the data in it is read and attendance for that student is registered. This is done with the help of a microcontroller interfaced with the reader. If it is a registered student, then a confirmation is displayed on an LCD screen, else this stem rejects the attendance. All student attendance status can be later obtained from the system when the status button interfaced with the microcontroller is pressed and faculty card is shown in front of the RFID reader. This saves a lot of time and effort in student attendance registration process.

## **Keywords:**

RFID - Radio Frequency Identification, Student attendance management system, student attendance monitoring system, RFID utilization in educational institutions

## INTRODUCTION

The existing attendance system is manual and it is taken on paper also it consumes lot of time. It is known that many traditional or conventional old school “Attendance system” uses attendance register to note down the attendance. The administrative person needs to maintain the attendance papers / sheets. In schools attendance is taken on roll call musters and in colleges attendance is taken by respective professors. Problem with existing attendance system is that wrong attendance can be entered. In colleges one student can give proxy attendance of another student. Probability of this is very less but it does happen. To avoid all such problems, we have implemented automated attendance system which utilizes RFID cards.

The term RFID (radio frequency identification) is a one type of electronic device includes a small antenna and a chip. This device is used to transmit the information between reader and RFID tag/card using radio frequency electromagnetic fields. Each student is provided with his/her authorized tag to swipe over the reader to record their attendance. In classrooms, more time is consumed in roll calls as it is done manually or old school conventional method. In this proposed system, authorized student is given an RFID card which is printable PVC card. This tag contains an integrated in-built circuit that is used for storing, processing information through modulating and demodulating of the radio frequency signal that is being transmitted. Thus, the data stored in this card is referred as the identification/attendance of the person. Once the student places the card in front of the RFID card reader, it reads the data and verifies it with the data stored in the microcontroller ATMEGA328 which is mounted in Arduino Nano board. If the data matches, then it displays a message (name of the student) on the LCD confirming the entry of that student else displays a message denying the attendance. The status of a student's attendance can be retrieved from this system by pressing the status button interfaced to the microcontroller followed by faculty card.

## METHODOLOGY

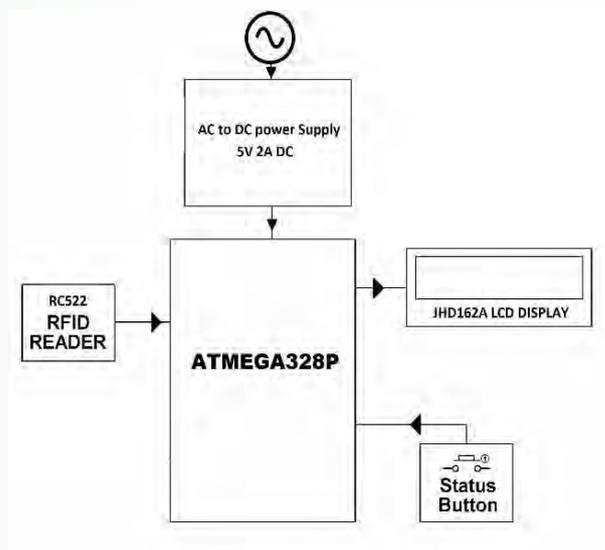


Fig. 1: Block diagram for RFID based attendance management system

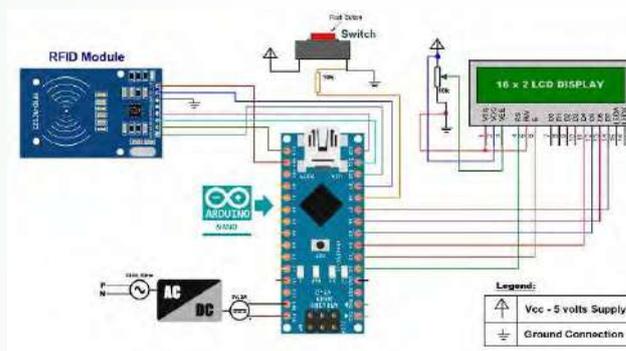


Fig. 2: Pin/Connection diagram for RFID based attendance management system

The data thus stored in this card is the unique identification of that person. As soon as the card is placed in front of the RFID reader, the data in it is read and attendance for that student is registered. This is done with the help of a microcontroller ATMEGA328 interfaced with the reader. If it is a registered student, then a confirmation is displayed on an LCD screen, else system will not consider that card/tag for his/her attendance. All student attendance status can be later obtained from the system when the status button interfaced with the microcontroller is pressed and faculty card is show again before leaving the class.

## METHODOLOGY



**Fig. 3: Real project kit and its RFID cards, tag**

Switch ON the power supply (Adapter used is 5V 2A DC connected using type B mini data cable to Arduino Nano). Faculty will show his/her RFID card to module/kit soon after he enters the classroom (There will be a small time slot after this where students has to register their attendance). All students present in class has to register their attendance followed by faculty card (If it is a registered student, then a confirmation is displayed on an LCD screen, else system denies the attendance). Faculty before leaving the class by the end of the period the status button interfaced with the microcontroller has to be pressed for 2 second and his/her faculty card to be shown to RFID reader soon after that all student attendance status will be displayed in LCD screen.

## APPLICATIONS

- This system can be used to take attendance for students in school, college, and university.
- It also can be used to take attendance for workers in working places in construction, manufacturing companies, dairy farms, central processing plants etc.
- This project can be used in various software companies where usually large number of employees are present.

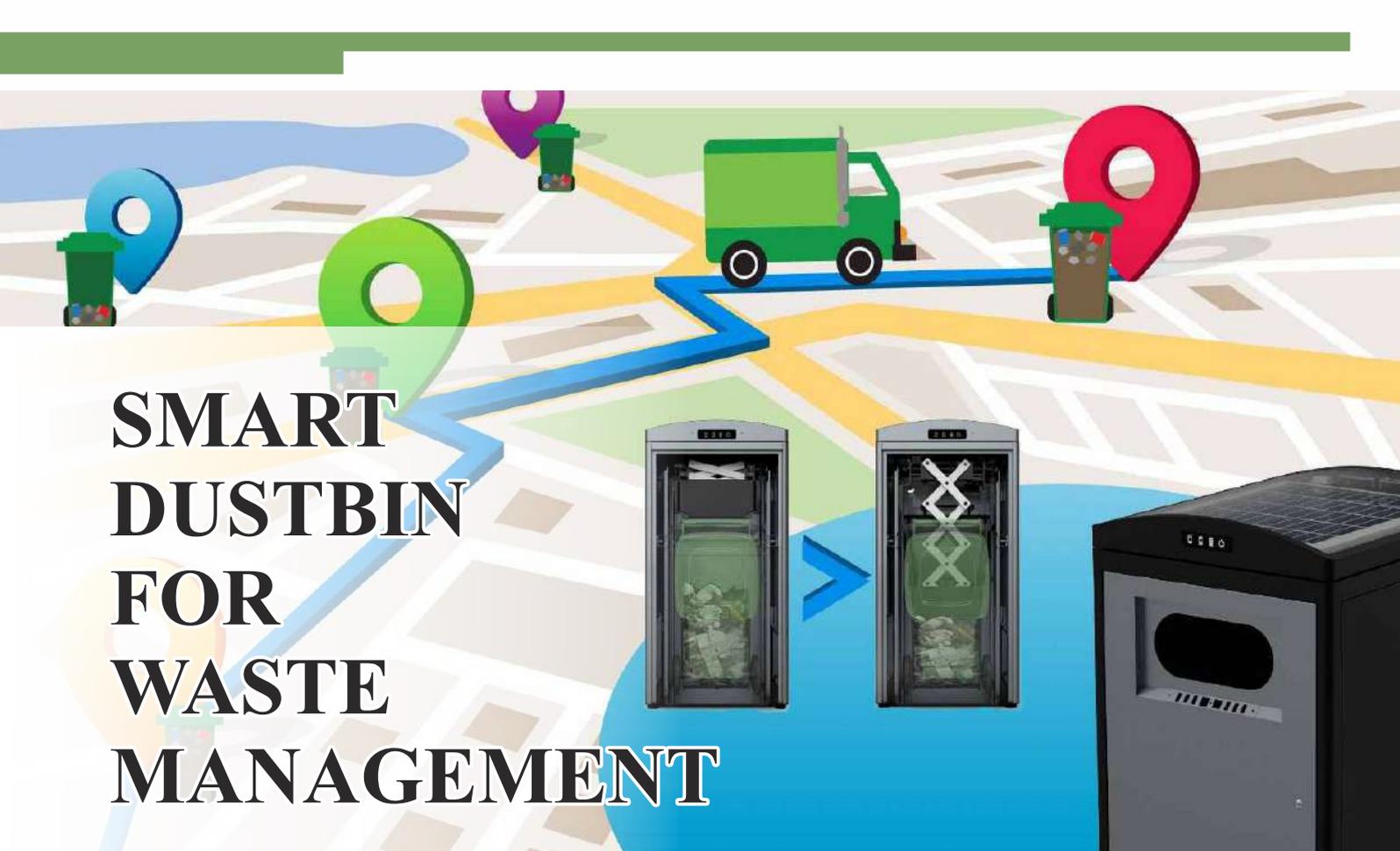
- It can be used in shops, shopping malls for the attendance of employees and workers.
- It can also be used to note down the in and out of vehicles.

## CONCLUSION

As the RFID technology evolves, more sophisticated applications will use the capability of RFID to receive and store data. RFID has many applications as can be imagined. In this project, we have utilized the versatility of RFID in implementing functional and automatic student course attendance recording system that allows students to simply fill their attendance just by swiping or moving their ID cards over the RFID reader which are located at the entrance of lecture halls with a considerable degree of success and acceptability of usage in our faculty. We hope that this system can change attendance system in classroom and provide a new, accurate, and less difficulty of taking student attendance. The objective to build an RFID based attendance system was successfully achieved. In terms of performance and efficiency, this project has provided a convenient method of attendance marking compared to the traditional method of attendance system.

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# SMART DUSTBIN FOR WASTE MANAGEMENT

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**ABSTRACT:** In the present days, dustbins are placed at public places overflow without proper disposal leading to widespread diseases. To avoid garbage overflow, smart dustbins can be used. The Ultrasonic sensor is on the inner side of the dustbin lid. It finds the distance between the lid and the waste inside which determines the garbage level in the dustbin. The number of sensors to be used varies depending on size of the bin. It opens and automatically closes based on the detection of humans within a particular radius. This avoids incident of animals and birds trying to pull out the waste from the dustbin thus reducing the risk of waste borne diseases. Further improvements can be done by displaying the status of the dustbin digitally. This system provides timely indication to disposal of wastes. In this project, the smart dustbin is built on a micro controller-based platform Arduino Uno board is interfaced with the Servo motor and an Ultrasonic sensor.

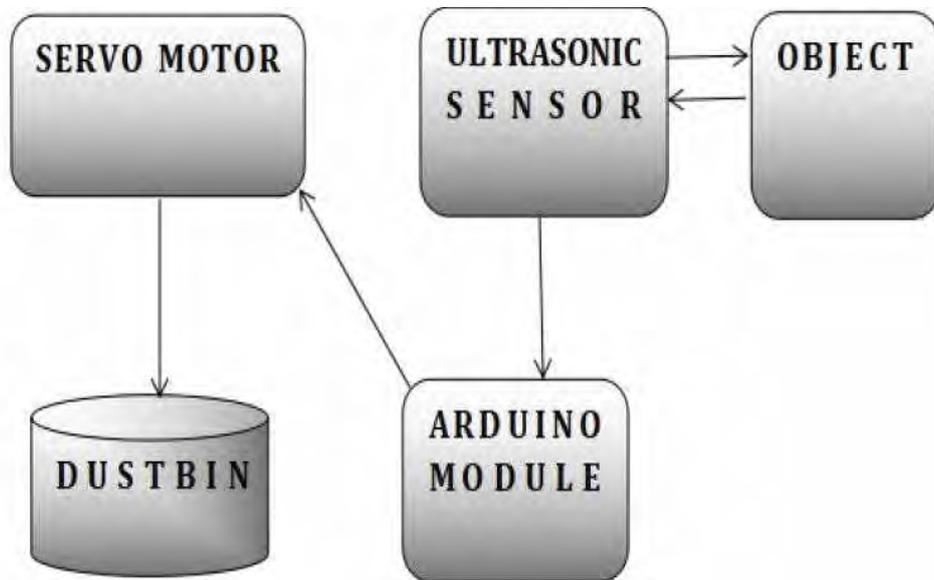
## Keyword :

Waste management, Microcontrollers, Arduino, Smart cities, Smart dustbin

## INTRODUCTION

A smart dustbin using ARDUINO UNO, will detect the presence of a person approaching near to the dustbin by ultrasonic range detection and opens its lid with the help of the servo motor. The Smart Dustbin will keep open its lid when the person is within its range, it waits for a particular time duration and will close the lid automatically. It is a smart gadget to simplify the waste disposal. It can be employed to collect dry or wet type of waste. It can be also used for smart city waste management system.

## METHODOLOGY



## APPLICATIONS

- It is an easy way to manage the waste in homes.
- It can be used in the public places such as parks, hospitals etc.

## CONCLUSION

The combination of intelligent waste monitoring and trash compaction technologies, smart dustbins are better and more attractive compared to traditional garbage dustbin. It is equipped with smart devices and sensors. It will help towards maintain better health and hygiene. It is possible to make the smart bin less expensive so that people belonging to all classes can easily afford and use it.

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# DEMONSTRATION OF AUTOMATIC SOLAR TRACKER



**Purushotham | Maneeth | Vikshith | Akshay Kharvi**  
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## ABSTRACT:

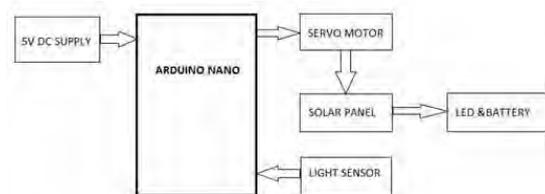
The socio economic growth of the country depends on a great deal of electrical energy. In order to maintain continuous and pollution free electric power we have to rely on the renewable energy resources. Solar, wind, tidal etc. are sources of renewable energy. Among these resources solar power is being recommended due to its non-contaminated assets. Solar panels are utilized to absorb the solar irradiance. A large quantity of energy is transmitted from the sun each day inside the world, we have a tendency to get a little magnitude of it by a fixed solar panels. The solar tracking system solve this problem by collecting more amount of solar radiation.

**Keyword:** Keywords—Single axis tracking, LDR sensor

## METHODOLOGY

This chapter describes the block diagram and working of working system of demonstration of automated solar tracker. Single-axis tracking system changes altitude of solar panel. LDR sensor is used to feedback from solar panel. When sunlight falls on LDR sensor it sends voltage signal to the controller. The controller recognizes the feedback voltage. Then it sends the control signal to actuate the dc servo motor. So that the incident sunlight is perpendicular to the solar panel to increase the energy absorption.

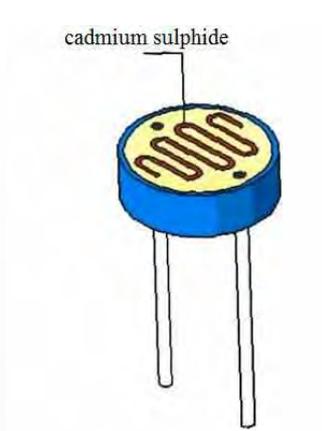
## BLOCK DIAGRAM



*Fig.3.1 Automated Solar Tracking Panel*

## FUNCTIONAL DESCRIPTION

LDR diode: The diagram and working principle of light sensor diode is shown below.



*Fig 4.1 LDR diode*

An LDR or light dependent resistor is also known as photo resistor, photocell, photoconductor. It is a one type of resistor whose resistance varies depending on the amount of light falling on its surface. When the light falls on the resistor, then the resistance changes. These resistors are often used in many circuits where it is required to sense the presence of light.

## WORKING PRINCIPLE OF LDR:

This resistor works on the principle of photo conductivity. It is nothing but, when the light falls on its surface, then the material conductivity reduces and also the electrons in the valence band of the device are excited to the conduction band. The photons in the incident light must have energy greater than the band gap energy of the semiconductor material. This makes the electrons to jump from the valence band to conduction band. Hence the diode starts to conduct electricity. *toring System. Ibidunmoye, information science computing and telecommunications, 206[2013]*

## RESULT AND DISCUSSION

Single axis trackers provide the highest density of PV panel placement per square. It is applicable for large solar power plants because of its efficiency and mechanical strength. Single axis tracker aligns with the sun route and tracks the sun movement in a very a lot of cost-efficient and includes a fabulous performance upgrading. The outcomes clearly show that single axis tracking is good enough than fixed solar systems. The proposed system is cost effective and it can harvest more energy. Through our experiment we are expecting that single axis solar tracking system can help to increase energy absorption.



*Figure 1.1 Automated*

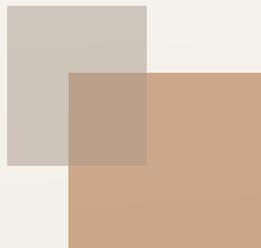
## CONCLUSION

An application of solar tracker using arduino approach has been presented in this study

.As a conclusion, firstly the development of tracking system to control and monitor the movement of solar panel based on the intensity of the light is achieved. The solar panel which will face the sun perpendicularly to absorb more solar energy. Then solar tracking systems generate more output during the hours while fixed solar panel installation generates least power. The percentage efficiency of the system in energy conversion increase when the tracking system is implemented.

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# WIRELESS ENERGY TRANSFERRING SYSTEM

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**Abstract:** Traditional power supply cords have become less important because they prevent large-scale utilization and mobility. In addition, the use of batteries as a substitute for power cords is not an optimal solution because batteries have a short lifetime, thereby increasing the cost, weight, and ecological footprint of the hardware implementation. Their recharging or replacement is impractical and incurs operational costs. Recent progress has allowed electromagnetic wave energy to be transferred from power sources (transmitters) to destinations (receivers) wirelessly, the so-called wireless power transfer (WPT) technique. New developments in wireless power transfer technique motivate new avenues of research in different applications. Recently, wireless power transfer has been used in mobile phones, electric vehicles, medical implants, wireless sensor network, unmanned aerial vehicles, and so on. This review highlights up-to-date studies that are specific to near-field, WPT which include the classification, comparison, and potential applications of these techniques in the real world.

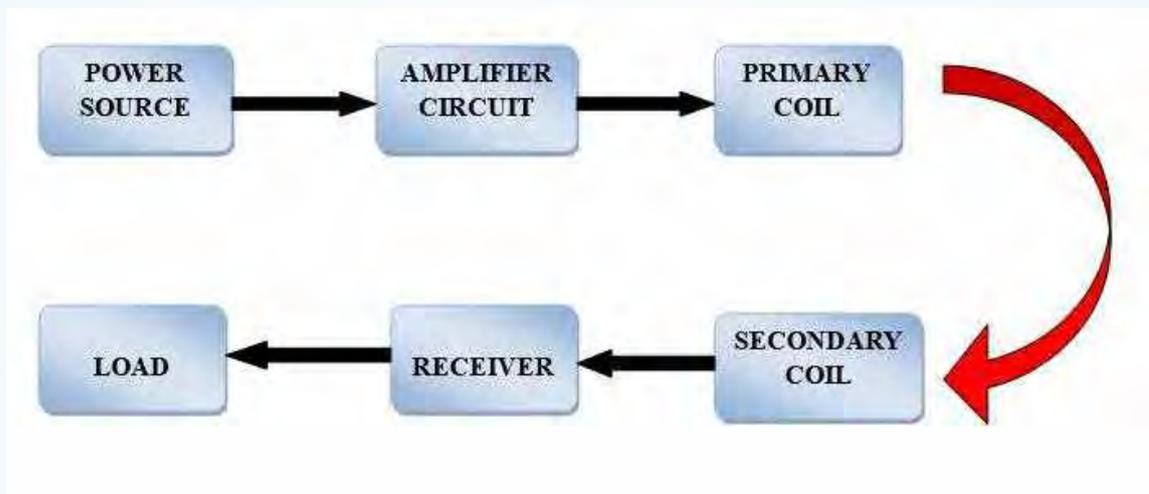
**Keywords:**

Wireless, Wireless power, magnetic induction, amplification, wireless charging,

## INTRODUCTION

Wireless energy transfer is basically defined as transferring electrical energy from one point to another without using any wired systems and through vacuum. This can be used for application where either an instantaneous amount or a continuous amount energy is needed. Where conventional wires are affordable, inconvenient and expensive. This technology can transport energy to locations. A success is doing so would eliminate cables in the charging process, thus making it simpler and easier to charge a low power device. It would also ensure the safety of the device since it would eliminate

## BLOCK DIAGRAM



## METHODOLOGY

The working principle of a wireless energy transferring system is explained below.

- A wireless power system consists of a transmitter connected to a source of power. The technique involves using two coils that are physically separated.
- when one coil is excited by a time varying current, it creates a magnetic field which couples the other coil and transfers power. the power transfer is made possible if both transmitter and receiver achieve magnetic resonance.
- It working on the basis of electromagnetism and the principle of magnetic induction.

## APPLICATIONS

- Charging of electronic portable devices such as cellphones, laptops, smartwatches, etc
- Charging of electric vehicles.
- Theoretical applications : aerial vehicles and solar power satellites.

## CONCLUSION

The transition of power without wires is not a theory or a mere possibility, it is now a reality. Electrical energy can be economically transmitted without wires to any terrestrial distance. In this project, briefly discussed about wireless power transmission technology and its various applications in our life. Moreover, here it is presented and discussed that the potential implementation of wireless power transfer technology to make our life easier. As the wireless power transmission technology continues to evolve and mature, our future life can expect to get rid of the devices power cord bound of mobile phones, cameras, laptops and other mobiles to enjoy the wireless power at the airport, railway stations, hotel offers and a variety of places. , This project also concludes some unique properties that almost guarantee it as an important element, and probably a crucial one in the development of space. At last, the existing problems and developing trends are presented. In the long term, the technology has a wide range of potential applications.

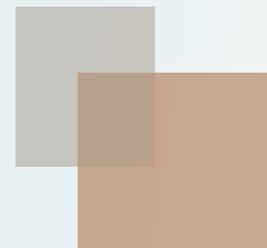
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## RESULT

After the completion of the project it is found that our major aims are achieved. The power which is stored in the 9V battery source is got successfully transmitted to the load(LED) that is connected to the output side through the means of wireless transferring of energy, working on the the principle of mutual induction. when the secondary coil is near to the center tapped primary coil the LED glows with higher intensity ,and when the secondary coil is keeping away from the primary coil it shows the tendency to reduction in intensity. It shows that the wireless transmission of energy is occurring more intensively in short range rather than in long range. The intensity of the light is depends on the number of primary and secondary turns and the potential difference that is applied to the primary side of the circuit.

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# Enhanced Transport System using Hyperloop Transportation Technology



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Human civilization and transportation systems both are intensively involved like the back of a coin. We are still looking for the methods of new transportation technology which should be cheaper and faster in the 21st century. Many scientists and engineers have tried to develop a new sustainable transportation system, but they failed to bring the system commercially. But in 2013, An open-source paper was proposed by ELON MUSK who is the founder, CEO, and lead designer of SpaceX; co-founder, CEO, and product architect of Tesla, Inc. known as “An Alpha Vision”, which describe the fifth mode of transportation system named Hyperloop after Rail, Water, Road, Air. Though this transportation system is in the conceptual stage, this performance would be a lot of times superior to high-speed rail and air transportation systems and also reduce the travel time, transport costs, energy consumption with better safety. So far, HyperloopVactrain (vacuum train) based on three-part which is

- Magnetic or air levitation
- Linear motor propulsion
- Vacuum based transport system

“An Alpha Vision” paper has described by the fifth mode of sustainable transportation system can connect to big American cities like Los Angeles to San Francisco. This new revolutionary transportation technology needs to transfer goods and passengers with a maximum speed of 760 mph. Basic elements of transportation technology are:

- The tube
- The capsule

**The Tube :** Hyperloop is a tube-based transportation system. It uses two tubes, one for moving forward and another one for moving the opposite direction. The diameter and length of the tube are 2.23 m and 30 m. The tube is supported by pylons consecutively 100 ft along the tube. The thickness of the tube (For passengers' tube) is 20 to 23 mm.



*Fig. 1 Tube of Hyperloop*

**The capsule :** The capsule is the vehicle for transferring passengers' which dimensions are 25-30 m in length, 1.1 m in height, and 1.35 m in width. It could carry 28 passengers at a time by providing two rows of seats with 14 seats in each row. It has a compartment for hand luggage of its passengers. As so far, the whole system could carry 840 people/hour, which means 7.4 million people/year. The movement of the capsule is carried out using linear electric motors. The moving motor element (rotor) is located on the bottom of the capsule while the tube incorporates the stationary motor element (stator), which powers the capsule.



*Fig 2. Pod of Hyperloop*

**Principle & Features of This New Technology:**

An Aluminum sheet works as a rotor for the engine located on the bottom. The stator bend produces a linearly moving magnetic field acting on the bottom surface of the capsule. In the transportation system, the main driver is the Aluminum sheets, which located in the area has vortex currents induced in it, in this way creating an opposite magnetic field. The two different magnetic fields force back each other and produce the motion of the capsule. It would not be challenging to accelerate the capsule to reach the velocity of 760 mph and decelerate it for the better and safer braking system.

The acceleration will reboot in a periodically every 110 km (roughly). There should have been a minimum interval time of 30 seconds between two

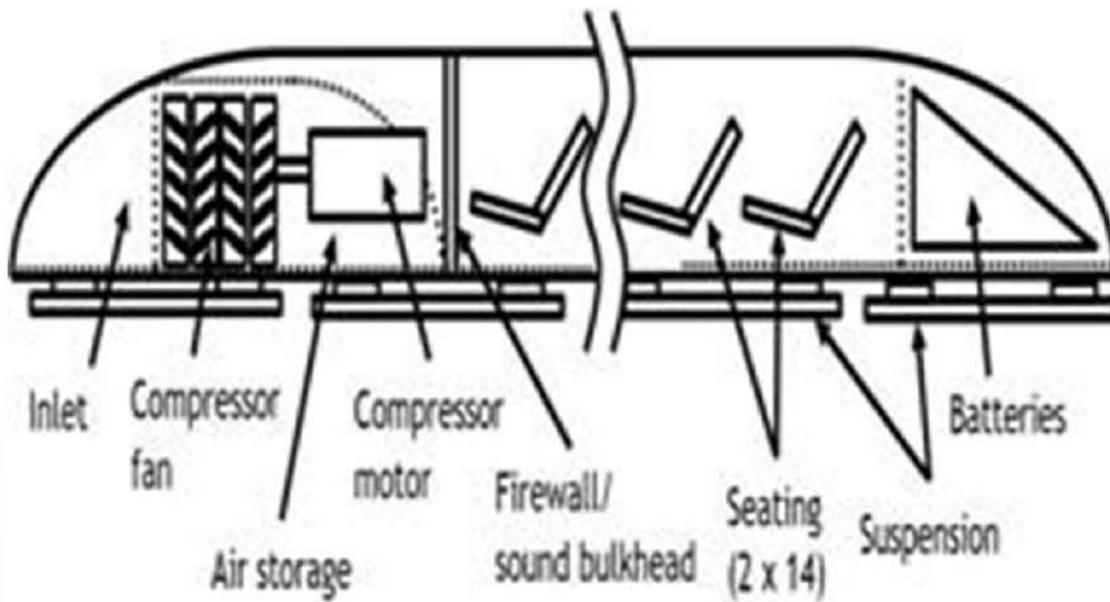
side by side capsules. To get the maximum velocity, the friction should be very lower between capsule and tube. That is why Air cushion mode around the capsule is the right method to prevent the friction between capsule and tube. In the front part of the capsule, An Air compressor receives a counter flow of air to increase the incoming air pressure by 20 times. It feeds in specific proportions through a system of different parts of the capsule surface. As so far, the capsule must move through the tube by air currents without touching the tube wall.

When a solid body moves in the air, air cushion pushes back from the front. The strength of resistance to movement increases with increasing speed of the body. For reducing air resistance, it is proposed to maintain a pressure of 100 Pa (1/1000 atmospheric pressure) in the tube. The vacuum pump system maintains the required reduced pressure.

The energy exhausted by using the air cushion is 21 MW. Solar panels are located on the outer surface of the tube to produce the power for the whole system. The cells could produce a massive amount of energy, almost 57 MW.

To get maximum speed from any high-speed transportation system, the path should be straight line. Therefore, the Hyperloop tube should be a straight line as possible as we can. Due to the curvilinear nature of the route in urban areas of Los Angeles and San Francisco, the capsule reduces the speed on these sections of the road.

In 2016, the work had already begun; it is planned to finish the project in 2020. Elon Musk estimates the costs of this project at \$ 6 billion for only passenger capsule. Two companies, Hyperloop One and Hyperloop Transportation Technologies (HTT), began to work for this project. They have been involved in solving technical problems associated with the new technology.

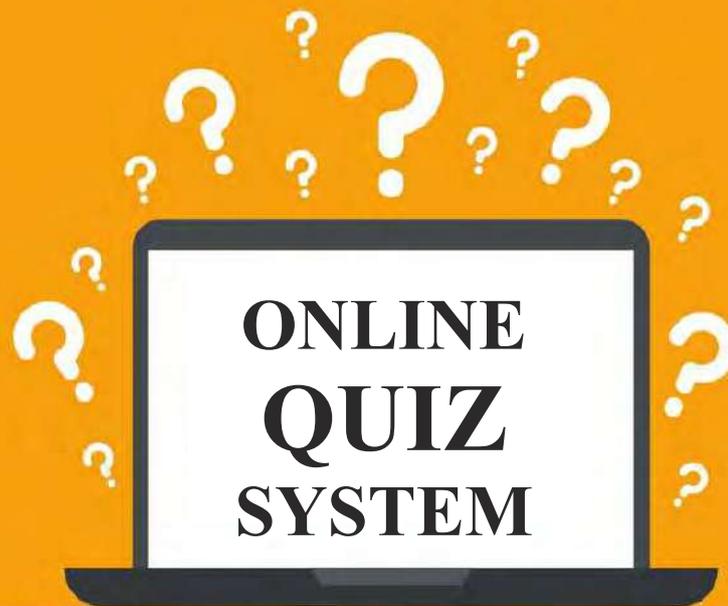


They have built experimental testing grounds and have started for reality of specific projects in the US and other countries. The NTT is working to the realization this project in California. It also has initial agreements with other countries like Central Europe, United Arab Emirates (UAE), and From Asia (China & India) for the development of Hyperloop passengers' project. In 2016, Hyperloop One organized a worldwide competition to select places where the first hyperloop project will begin. It made awareness among Individual citizens, universities, firms and government organizations from different countries who took part in this competition. The proposals should outline the need to use new ultra-high-speed transport technology to move goods and people in this particular place. As a result, the company received 2600 offers from individuals and organizations for five months

Future of this new technology is under construction and visualization, so here has a huge opportunity to develop a new mode of transportation which could dominate the all available transportation system (High Speed

transportation system, Meglev transportation system). Worlds' most technologically developed nations (The USA, China, and Germany) always have been trying to develop new technology.

Finally we are concluding that being a transportation system fast is not enough; it should be durable, sustainable and safer than others. It was outlined with safety in mind by Elon Musk, known as Hyperloop. Developing this project estimate costs \$6 billion from Los Angeles to San Francisco for only passenger travel. The cost of building technology in China is \$1.5 billion only for 36.3 miles. Except in the US many come forward to develop this new technology like Dubai, China, And India, etc. It is a great privilege to the traveler which can save time and money at the same time.



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**ABSTRACT:** Online quizzes are a popular form of entertainment for web surfers. Online quizzes are generally free to play and for entertainment purposes only though some online quiz websites offer prizes. A quiz is a form of game or mind sport in which players attempt to answer questions correctly about a certain variety of subjects. Quizzes can be used as a brief assessment in education and similar fields to measure growth in knowledge, abilities, or skills. They can also be televised for entertainment purposes, often in a game show format. Websites feature online quizzes on many subjects. Many online quizzes are set up to test knowledge or identify a person's attributes. Some companies use online quizzes as an efficient way of testing a potential hire's knowledge without that candidate needing to travel. In an educational context, a quiz is usually a form of a student assessment, but often has fewer questions of less difficult, and requires less time for completion than a test. The quiz is started by displaying five questions to be answered with four options each based on the category chosen i.e., Computer science, Solar system, Mathematics, Constitution, Sports, English knowledge. If the answer is correct the score is incremented by one, with no negative marks for wrong answers. The final score will be displayed on the screen. The user can retake the quiz any number of times.

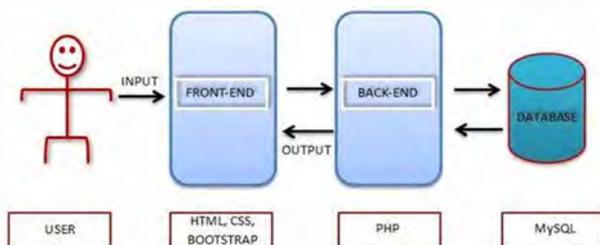
**Keyword :** PHP, MySQL, HTML, CSS, Bootstrap

## INTRODUCTION

PHP Online Quiz System has been built by using PHP with Mysql database on the server-side. In this project, we have used the Sublime Text editor software tool for designing and coding the website. HTML has been used to design the website. It describes the structure of a webpage semantically and originally included cues for the appearance of the document. HTML elements are used to build blocks in the HTML page. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. The main aim of developing this quiz system is to minimize the amount of paper and convert all forms of documentation to digital form. The quiz is started by displaying five questions to be answered with four options each based on the category chosen i.e., Computer science, Solar system, Mathematics, Constitution, Sports, English knowledge. If the answer is correct the score is incremented by one, with no negative marks for wrong answers. The final score

will be displayed on the screen. The user can retake the quiz any number of times. The Target of this system includes all the Internet users that would like to attempt a quiz online to check his/her knowledge based on the topics provided by the admin. Once the user finishes the quiz, he or she will be able to view the score and can retake the quiz. Bootstrap has been used for the front-end framework to give the webpage a modern look.

## METHODOLOGY



### User Section:

- ◆ Allow users to register into the system and then log in to the quiz section by entering their user id and password.
- ◆ Allow users to attempt a quiz.
- ◆ Allows the user to submit the quiz only if the user attempts all five questions in a quiz.
- ◆ Allows the user to view the result of the quiz once the user submits the quiz.
- ◆ Allows if the user wants to retake the same quiz by choosing the retake button provided there.
- ◆ Allows the user to log out from the quiz section.

### Admin Section:

Admin interface will allow authorized administration to update the database for the users. This includes:

- ◆ Maintaining and updating in database.
- ◆ Maintaining users.
- ◆ Maintaining quiz categories data.

## APPLICATION

This website will able the examiners to punch the MCQ questions online;

- ◆ Able the users to solve the questions online.
- ◆ Examiners can manage the information regarding the exam
- ◆ Correct answers will be evaluated by the system (First it should be determined by the examiner).
- ◆ Users can see their results after submitting the test.

## CONCLUSION

Online Quiz System is a web application developed using PHP and Mysql. The main aim of developing this quiz system is to minimize the amount of paper and convert all forms of documentation to digital form. It can observe that the information required can be obtained with ease and accuracy in the computerized system. The key concept is to minimize the amount of paper and convert all forms of documentation to digital form. An online quiz system is a website developed to take the quiz. The user can select an interesting topic to attempt a quiz. This quiz website leads to show up his/her knowledge in various fields which are included here in this project. The score can be viewed after submitting.

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# LIBRARY MANAGEMENT SYSTEM

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**Abstract:** The Library Management System is an application for assisting a librarian in managing a book library in an university. The system would provide basic set of features to add/ update members, add /update books, and manage check in specifications for the systems based on the client's statement of need. Library management system is a typical management Information system (MIS), its development include the establish and maintenance of back-end database and front-end application development aspects.

Keywords: MIS, persistence, AVL tree, B-tree, OS, delimiter.

## INTRODUCTION

Library Management System provides a user-friendly, interactive Graphical user interface (GUI). All data is stored in files for persistence. The mini project uses 5 files: An User file, to store the user data, a Brands file, to store the brands data, a category file, to store the category data, a products file, to store the products data, A Sales file, to store the sales data.

A file structure is a combination of representations for data in files and operations for accessing the data. A file structure allows to read, write, and

modify data. It might also support finding the data that matches some search criteria or reading through the data in some particular order. An improvement in file structure design may make an application hundreds of times faster. The details of the representation of the data and the implementation of the operations determine the efficiency of the file structure for particular applications.

A file is a operation of computer which stores data, information, message, settings, or commands used with the computer program. It is created using system program on the computer.

# METHODOLOGY

## 1. FILE STRUCTURES

The four most common methods as shown in Fig. 1.1 of adding structure to files to maintain the identity of fields are :

**METHOD 1:** Fix the Length of Fields.

**METHOD 2:** Begin Each Field with a Length Indicator.

**METHOD 3:** Separate the Fields with Delimiters.

**METHOD 4:** Use a “Keyword=Value” Expression to Identify Fields.

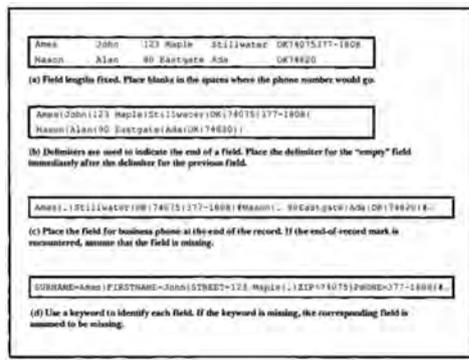


Figure 1.1 Four methods for field structures

## 2. RECORD STRUCTURES

**METHOD 1:** Make the records a predictable number of bytes (Fixed-Length Record).

**METHOD 2:** Make records a predictable number of fields.

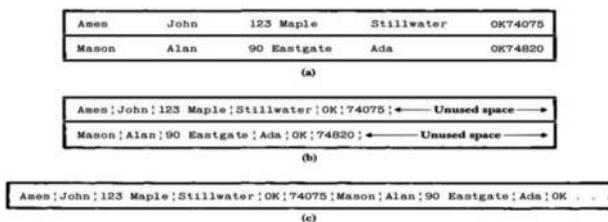


Figure 2.1 Making Records Predictable number of Bytes and Fields

**METHOD 3:** Begin each record with a length indicator.

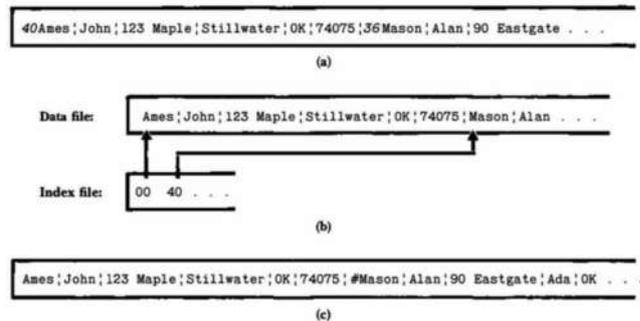


Figure 2.2 Using Length Indicator, Index and Record Delimiters

**METHOD 4:** Use an Index to Keep Track of Addresses.

**METHOD 5:** Place a Delimiter at the End of Each Record.

## APPLICATIONS

Relative to other parts of a computer, disks are slow. One can pack thousands of megabytes on a disk that fits into a notebook computer. The time it takes to get information from even relatively slow electronic random access memory (RAM) is about 120 nanoseconds. Getting the same information from a typical disk takes 30 milliseconds. So, the disk access is a quarter of a million times longer than a memory access. Hence, disks are very slow compared to memory. On the other hand, disks provide enormous capacity at much less cost than memory. They also keep the information stored on them when they are turned off.

## CONCLUSION

This website provides a computerized version of library management system which will benefit the students as well as the staff of the library. It makes entire process online where student can search books, staff can generate reports and do book transactions. It also has a facility for student login where student can login and can see status of books issued as well request for book or give some suggestions. It has a facility of teacher's login where teachers can add lectures notes and also give necessary suggestion to library and also add info about workshops or events happening in our college or nearby college in the online notice board. There is a future scope of this facility that many more features such as online lectures video tutorials can be added by teachers as well as online assignments submission facility, a

feature of group chat where students can discuss various issues of engineering can be added to this project thus making it more interactive more user friendly and project which fulfills each users need in the best way possible.

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# FOOD DELIVERY



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**Abstract:** The aim of developing a Food Delivery system project is to replace the traditional way of taking orders with a computerised system. Another important reason for developing this project is to prepare order summary reports quickly and in the correct format at any point in time when required. The Online Food Ordering System has a lot of scopes. This project can be used by any restaurant or fast food for customers to keep their order records. This project is easy, fast, and accurate. It requires less disk space.

**Keywords:** Python, CSS, Javascript, HTML, Django, Anaconda, Bootstrap, Visual Studio

## INTRODUCTION

The goal of the Food Delivery System project is to use a digital platform to replace the traditional method of taking orders. Another significant purpose for creating this project is to be able to rapidly and accurately create order summary reports whenever they are needed.

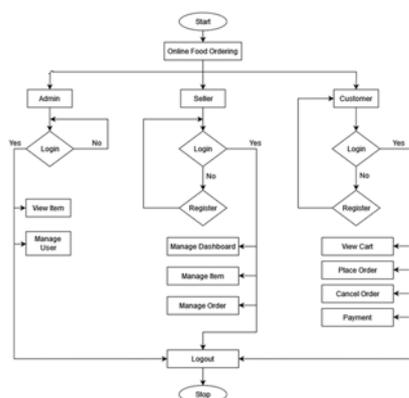
The Online Food Ordering System has a lot of potential. Customers can use this project to keep track of their orders at any restaurant or fast food. This project is simple, quick, and precise. It takes up less space on the hard drive. "Food Delivery" Website is the project that is considered here in this case. To complete the design, Python, CSS, Javascript, and HTML have been implemented.

## SCOPE OF WORK & IMPORTANCE

The admin side of the Django and Python Framework-based online food ordering system has an admin side and a customer side where the admin may control sales, goods, categories, and meal orders. The administrator is critical to the system's management. Customers can place orders online and view their orders in their shopping basket.

There is no risk of unauthorised personnel tampering with records. The records in it are all password-protected. On paper or in memory, files or lists can be wiped off or misused, but not with this technology.

## METHODOLOGY/ WORKING PRINCIPLE



## BACKEND DESIGN

Django is a Python-based open-source web framework that follows the MTV architectural pattern. Its main goal is to make building complex database-driven websites easier. Even settings, files, and data models are written in Python. Django also includes an administrative create, read, update, and delete interface, which is generated dynamically using introspection and configured using admin models.

## FRONT END DESIGN

Anaconda Navigator is a desktop graphical user interface (GUI) included in the Anaconda distribution that lets users launch programmes and manage conda packages, environments, and channels without having to use command-line commands. Navigator may look for packages on Anaconda Cloud or in a local Anaconda Repository, install them, execute them, and update them.

Bootstrap is an HTML, CSS, and JS library aimed at making the creation of informative web pages easier (as opposed to web apps). The main reason for including it in a web project is to apply Bootstrap's colour, size, font, and layout options to it. In the form of jQuery plugins, Bootstrap also includes various JavaScript components. They offer features like dialogue boxes, tooltips, and carousels to the user interface.

Visual Studio Code is a source code editor that supports Java, JavaScript, Go, Node.js, Python, and

C++. It is built on top of the Electron framework, which is used to create Node.js Web apps that employ the Blink layout engine. Rather than having a project system, it allows users to open one or more directories, which can subsequently be saved in workspaces for future use.

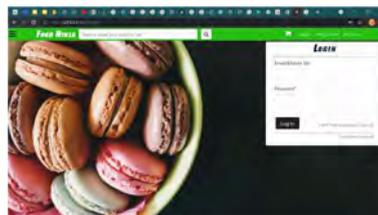


Fig. Login Page



Fig. Main Page

The Django and Python Framework were used to create this online food ordering system. Businesses will rely on AI solutions and delivery droids to handle deliveries, necessitating the adoption of delivery tracking websites/apps.

The website, which comprises a number of admin and consumer modules, gives registered customers who want to order meals from our website better access.

## I. CONCLUSION

A variety of user-friendly coding has been implemented. This package will prove to be a powerful bundle in meeting all of the user's as well as a food outlet's needs. The "Food Delivery" website, which comprises a number of admin and consumer modules, gives registered users who want to order food from the site easier access. The system provides information about the food items that are available, as well as the ability to order them, while admin handles all of the other tasks.

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# FILE STRUCTURE MINI PROJECT ON BANK MANAGEMENT SYSTEM



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**Abstract:** This project is mainly developed for the account division of a banking sector to provide better interface of the entire banking transactions. This system is aimed to save a better out look to the user interface and to implement all the banking transactions. Bank is the place where customers feel the sense of safety for their property. In the bank, customers deposit and withdraw their money. Transactions of money also is a part where customers take shelter of the bank. Now to keep the belief and trust of customers, there is the positive and need for management of the bank, which can handle all this account with comfort and ease. Banking management system thus ensures smooth operations of the real-estate management tasks as well as keep the information about the employees.

**Keywords:** Python, Filestructure, Delimiter

## INTRODUCTION

The Bank management system is a web-based application used for paying financial institutions for the services they provide to the Bureau of the Fiscal Services. Bank management system also provides analytical tools to review, and approve compensation, budgets, and outflows.

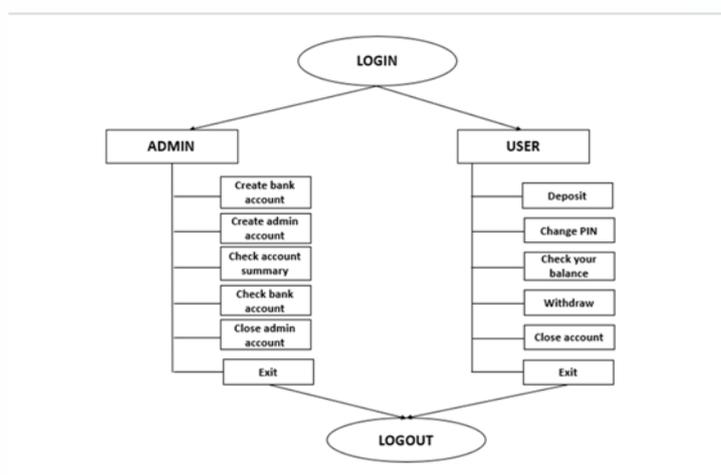
The bank Account Management System is an application for maintaining a person's account in a bank. To develop a project for solving financial applications of a customer in banking environment in order to nurture the needs of an end banking user by providing various ways to

perform banking tasks. The government plays a crucial role with its control over the banking system. This calls for bank management, which further ensures quality service. Banking Management System keeps the track of day and time's tally record as a complete banking process. it can keep the information of the account. The main objective of the bank management is to maximize the profit of the bank maintaining proper management of liquidity, asset, liability and capital adequacy. For achieving this, banks must strictly follow some standards and organized system. To improvement of liquidity, asset, liability and capital adequacy. For achieving this, banks must strictly

follow some standards and organized system. To improve corporate social responsibility.

The mission of banking system is building and developing a professional banking services team, with the best experience and the ability to implement the latest techniques.

## METHODOLOGY



## CONCLUSION

Two-way student information management system using cellular technology aims at reducing the manual operations of the institute as well as reduces the burden of faculty members. This application moves towards to retrieve the whole student information management system using cellular technology. A single administrator can handle the entire information of the overall students in the institute efficiently

## REFERENCES

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- YouTube

## APPLICATIONS

- Bank account offerconvenience.  
For example, if you have a checking account, you can easily pay by check or through Online bill pay.
- Bank accounts are safe.
- It's an easy way to save money.
- Bank accounts are cheaper.
- Bank accounts can help you access credit.



# ONLINE SPORTS SHOPPING SITE



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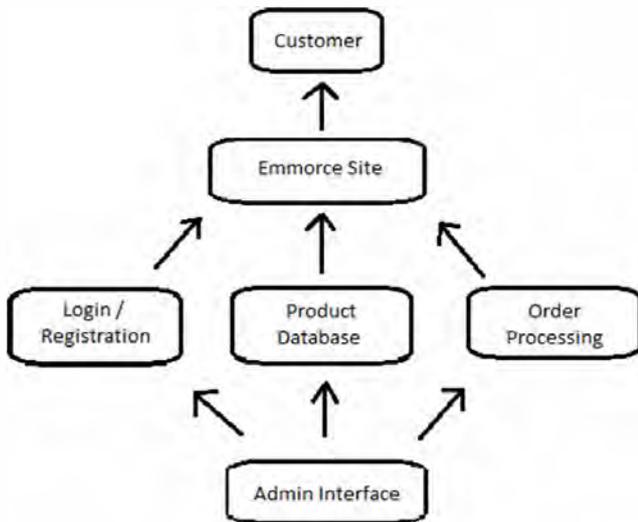
**Abstract:** The business-to-consumer aspect of product commerce (e-commerce) is the most visible business use of the World Wide Web. The primary goal of an e-commerce site is to sell goods online. This project deals with developing e-commerce website for online sports equipments. It provides the user to purchase the equipments related to sports. The user can look for different products, add them to cart and even place an order. The system is implemented using Django for front end design and SQLite for back end database. Designed to guide enterprises to increase the number of domestic sporting goods. This e-commerce application helps to promote sports goods industry to enhance the overall competitiveness.

**Keywords:** Django, HTML, Python, JavaScript, SQLite, E-Commerce

## INTRODUCTION

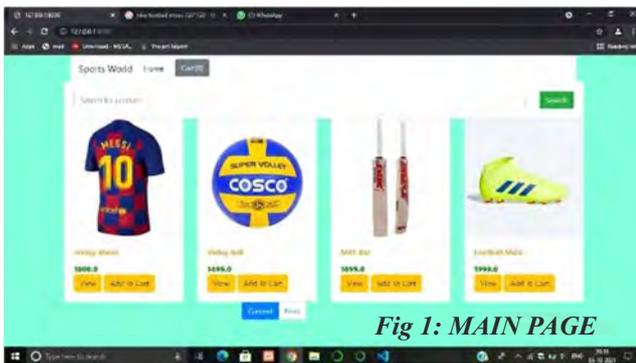
The internship work named as “**Online Sports Shopping Site**”. This product aimed to help people who want to do shopping through online. With the popularization and application of the Internet, e-commerce has made great progress, the future development of space is unlimited. The current rapid development of e-commerce, grasps the current situation and future trends will help us to get more information about the sports item, to further promote the steady development of e-commerce. In various industries, e-commerce marketing model is a new way. Sports Clothing Store: Customer can get *Sports brand* products with categories which make them easy to find out. This website is designed simply so that each customer can interact easily. Products details with price are mentioned. The customer can also purchase products online with help of their debit cards.

## METHODOLOGY

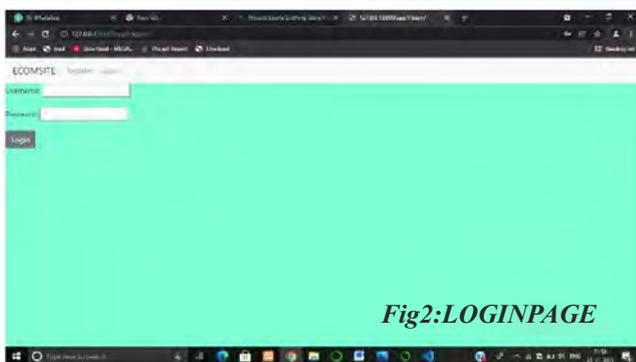


*Fig1:BLOCKDIAGRAM*

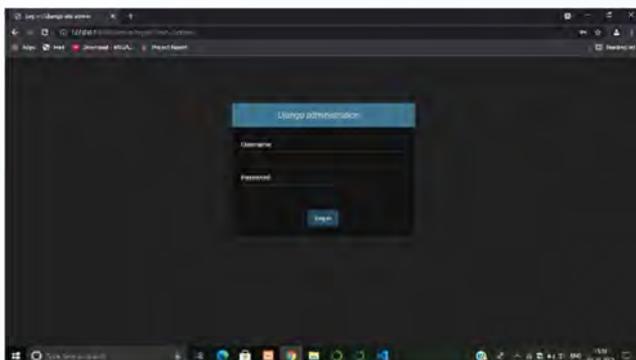
## SNAPSHOTS



*Fig 1: MAIN PAGE*



*Fig2:LOGINPAGE*



*Fig4:ADMINLOGIN*

## APPLICATIONS

The Target user of this system includes all the Internet users who would like to purchase Sports Equipments online. The main application of this website is that the Registered user can order sports equipments online without going to the shop. The customer has the privilege to select the sports equipments and make payment online or after the delivery. The admin and user has the privilege of tracking the order and also can delete the user account if necessary. Admin can check payment details of the customer.

## CONCLUSION

Technology has made significant progress over the years to provide consumers a better online shopping experience and will continue to do so for years to come. With the rapid growth of products and brands, people have speculated that online shopping will overtake in-store shopping. While this has been the case in some areas, there is still demand for brick-and-mortar stores in market areas where the consumer feels more comfortable seeing and touching the product being bought. However, the availability of online shopping has produced a more educated consumer that can shop around with relative ease without having to spend a large amount of time. In exchange, online shopping has opened up doors to many small retailers that would never be in business if they had to incur the high cost of owning a brick-and-mortar store. At the end, it has been a win-win situation for both consumer and sellers.

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# DBMS PROJECT ON BANK MANAGEMENT SYSTEM

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**Abstract:** The Bank Management System is an application for maintaining a person's account in a bank. In this project we tried to show the working of a banking account system and cover the basic functionality of a Bank Management System through GUI. To develop a project for solving financial application of a customer in banking environment in order to nurture the needs of an end banking user by providing various ways to perform banking tasks. Also to enable the user's workspace to have additional functionalities which are not provided under a conventional banking project. The main aim of this project is to develop software for Bank Management System. Creating and managing requirements is a challenge of IT, systems and product development projects or indeed for any activity where you have to manage a contractual relationship. Organization need to effectively define and manage requirements to ensure they are meeting needs of the customer, while proving compliance and staying on the schedule and within budget.

**Keywords:** HTML, CSS, DBMS, MySQL, Web development.

## INTRODUCTION

A database management system (DBMS) is system software for creating and managing database. The DBMS provides users and programmers with a systematic way to create, retrieve, update and manage data. A DBMS makes it possible for end users to create, read, update and delete data in a database. The DBMS essentially serves as an interface between the database and end users or application programs, ensuring that data is consistently organized and remains easily accessible. The DBMS manages three important things the data, the database engine that allows data to be accessed, locked and modified and the database schema, which defines the database logical structure. These three foundational elements help provide concurrency, security, data integrity and uniform administration procedures. Typical dataset administration tasks supported by the DBMS include change management, performance monitoring, tuning and backup and recovery. Many database management systems are also responsible for automated rollbacks, restarts and recovery as well as the logging and auditing of activity. The DBMS is perhaps most useful for providing a centralized view of data that can be accessed by multiple users, from multiple locations, in a controlled manner.

## METHODOLOGY

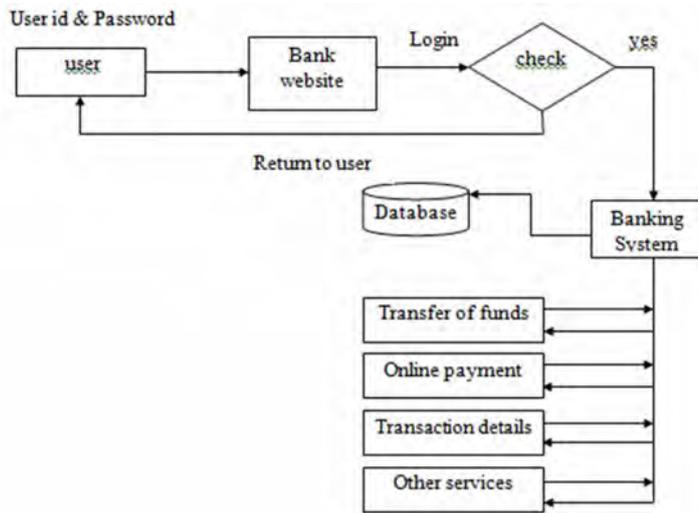


Fig: Block Diagram

## REFERENCES

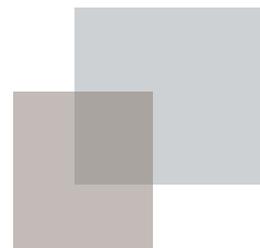
1. The complete reference HTML and CSS 5<sup>th</sup> edition by Thomas A. Powell.
2. [www.stackoverflow.com](http://www.stackoverflow.com)
3. [www.slideshare.com](http://www.slideshare.com)

## APPLICATIONS

Provides secure and efficient net banking facilities to the banking customers over the internet. All banking customers can login through the secured web page by their account login id and password. Money transfer to others, and send cash or money to inter banking as well as other banking customers by simply adding them as payees.

## CONCLUSION

This project is developed to nurture the needs of a user in a banking sector by embedding all the tasks of transactions taking place in a bank. Future version of this project will still be much enhanced than the current version. Access to the balance in your checking account can also be limited by businesses that place holds on your funds. Online banking is an innovative tool that is fast becoming a necessity. If proper training should be given to customer by the bank employees to open an account will be beneficial secondly the website should be made friendlier from where the first time customers can directly make and access their accounts. Thus the Bank Management System it is developed and executed successfully.





# SECOND HAND ONLINE BOOK STORE

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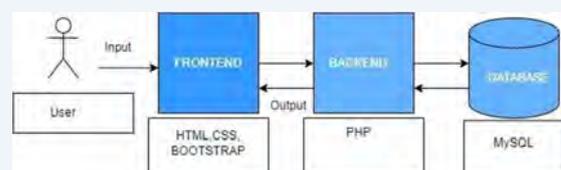
**Abstract:** Technology has the potential to help overcome the myriad issues that the Indian educational system faces, as well as to improve the educational system's efficiency and student interaction. Academic books are one segment of the market that has yet to be fully explored by any single corporation, and is still dominated by local shops near schools and colleges. People currently have a restricted number of options within their city, with the exception of a few very rare vintage book stores. Students will benefit from this idea since they will be able to conveniently acquire and sell books. The project Second Hand Online Book Store Site attempts to create a website. Users can select a specific item and add it to their cart, after which they must provide their personal information in order for their things to be delivered. There are two types of payment methods available: cash on delivery and card alternatives, and they can use either. The items will then be delivered to the specified location. Overall, this project was created for people who wish to shop from anywhere with an internet connection, especially during the Corona pandemic, thus it benefits a large number of people while also saving time.

**Keywords:** HTML, CSS, Java Script, MYSQL

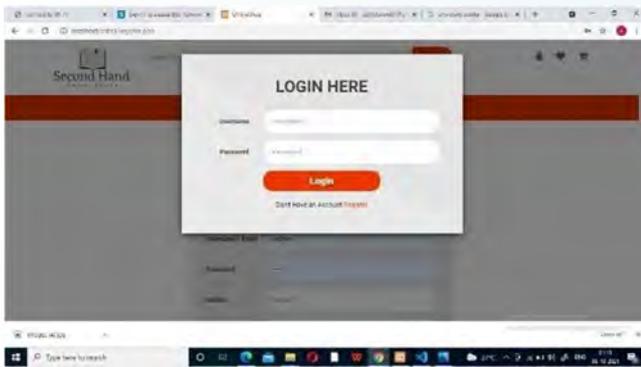
## INTRODUCTION

Recently, the used book industry has been dominated by small vendors, leaving students with little options for buying or selling secondhand books. Secondhand book store is a platform for students to share their books with their peers. Here, they can upload a collection of books that they own and find a buyer. Through this initiative, both buyers and sellers will gain because they will not have to deal with third-party vendors. "Second Hand Online Book Store" is the name of the initiative. This initiative is designed to assist people who desire to shop online. The "Second Hand Online Book Store Site" is highly useful since it saves time and makes it simple to purchase items. There are also alternatives for online card payment and cash on delivery, which consumers can choose from. This project will be useful if a pandemic like as covid occurs. People who are obsessed with fashion can keep up with the latest trends by buying on the internet.

## METHODOLOGY



**Fig 1: BLOCK DIAGRAM**



**Fig 1: LOGIN PAGE**



**Fig 2: REGISTER PAGE**



**Fig 3: HOME PAGE**

## APPLICATIONS

This project will be beneficial to those who are residing in the city. It is also beneficial for consumers to be able to obtain books at a low cost. This will also broaden the users' knowledge, as everyday products are updated with new features from time to time, and some individuals may be unaware of these features. Many positions, such as delivery boy and other workers, will be available as a result of this endeavor. The user must first

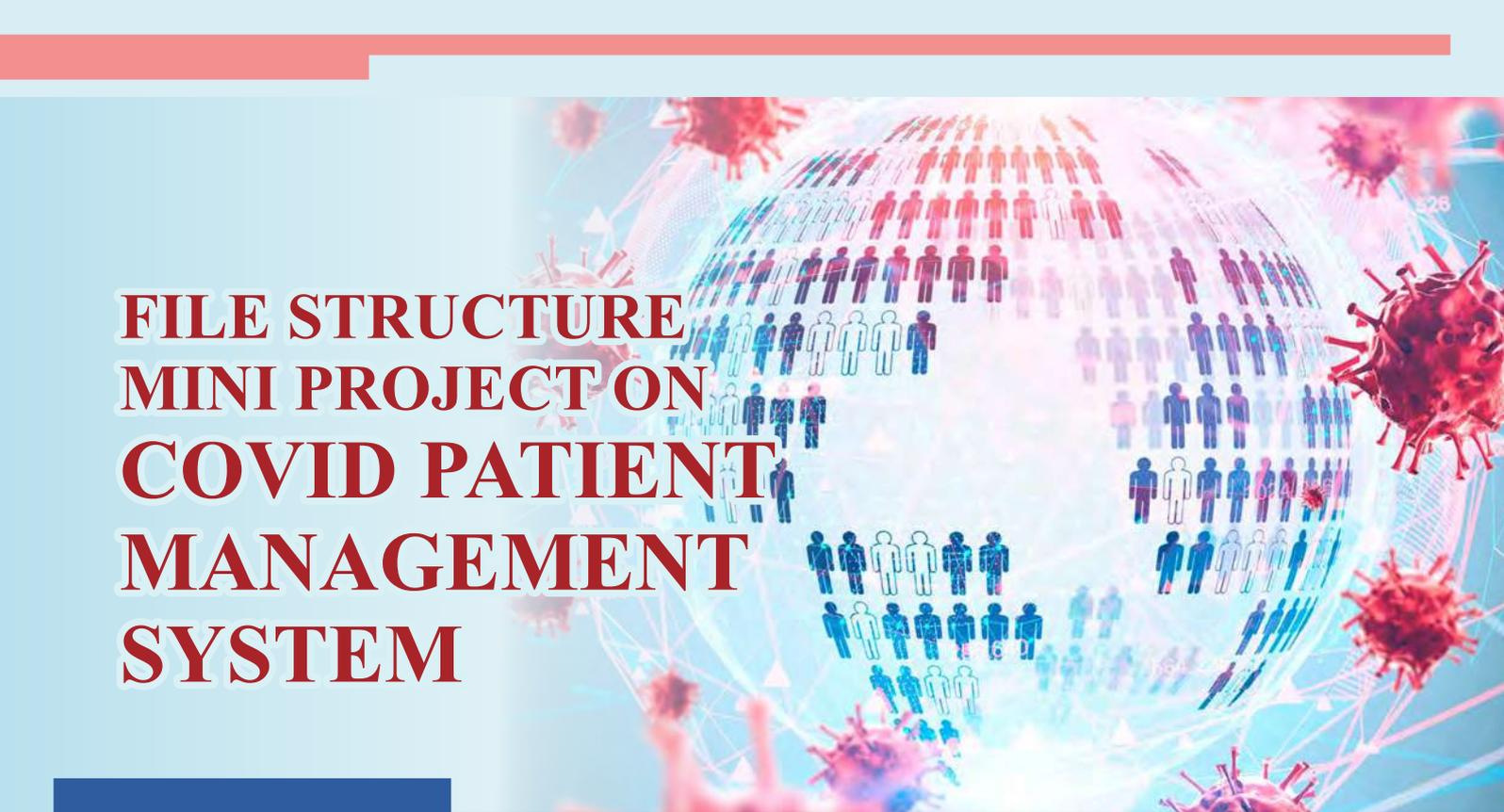
register, after which he can access his account using his credentials. The user will be able to book his orders after logging in to the website. On our website, we have an option for users to sign up and receive a username and password. Everyone will be able to see the book set that the seller has uploaded.

## CONCLUSION

Online shopping is either environmentally friendly or not. There are simply too many variables to consider in a model like this. When we analyze the costs of online purchasing, it appears that it is not very environmentally friendly. While internet shopping offers a lot of convenience, it also encourages risky spending habits like taking advantage of free returns and faster shipping. These difficulties are in addition to the numerous environmental concerns we already have, such as global warming, waste, and pollution. As a result, we must reconsider our e-commerce strategy and become more responsible, less exploitative, and ecologically mindful.

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# FILE STRUCTURE MINI PROJECT ON COVID PATIENT MANAGEMENT SYSTEM

**Abstract:** Corona patient management system is very useful for managing, input, output, and finding data in order to make the jumbled hospital data into ordered data. In terms of software, various computer configurations such as input and output capacity, internal memory and external memory capacity can meet the needs of users.

This project is mainly developed for the health sector to provide better interface for doctors and personnel. This system is aimed to give a better outlook to the user interface.

## INTRODUCTION

The Covid virus spread throughout the world was in a matter of months and was a nightmare on the hospital systems all over the world. The hospital systems worldwide faced difficulty in managing the large intake of patients coming with the virus and increasing the spread out of control.

To tackle this issue with the least amount of work, the patient management system can be made use to keep track of the patients who has the disease and who is in treatment as well as who has been cured. With all these data available with ease, it is easier for the healthcare professional to keep track of the patients as well as the surroundings of these patients to make sure the spread can be kept under control.

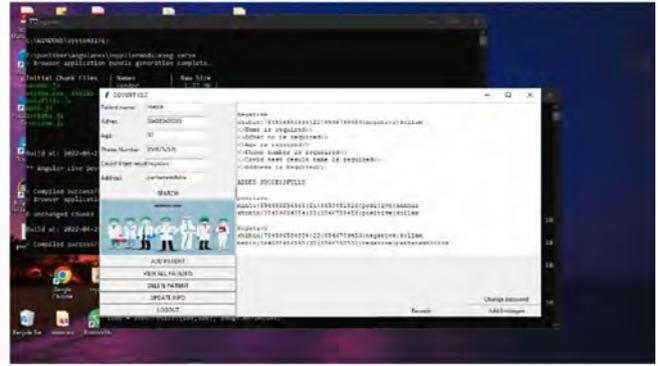
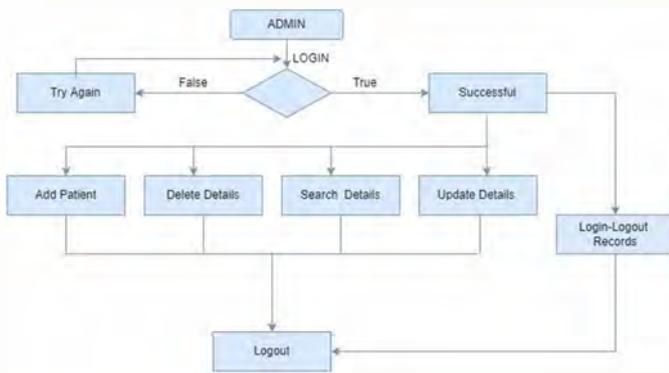
A file structure is a combination of representations for data in files and of operations for accessing the data. A file structure

allows to read, write, and modify data. It might also support finding the data that matches some search criteria or reading through the data in some particular order.

An improvement in file structure design may make an application hundreds of times faster. The details of the representation of the data and the implementation of the operations determine the efficiency of the file structure for particular applications.

The time it takes to get information from even relatively slow electronic random-access memory (RAM) is about 120 nanoseconds. Getting the same information from a typical disk takes 30 milliseconds. So, the disk access is a quarter of a million times longer than a memory access. Hence, disks are very slow compared to memory. On the other hand, disks provide enormous capacity much less cost than memory. They also keep the information stored on them when they are turned off.

# METHODOLOGY



# CONCLUSION

The Corona Patient management system has implemented the record and control of COVID-19 patients so as to facilitate the management and decision of treatment and reduced a big burden for hospitals and hospital management. It also can help to improve the work efficiency of hospitals.

# APPLICATIONS

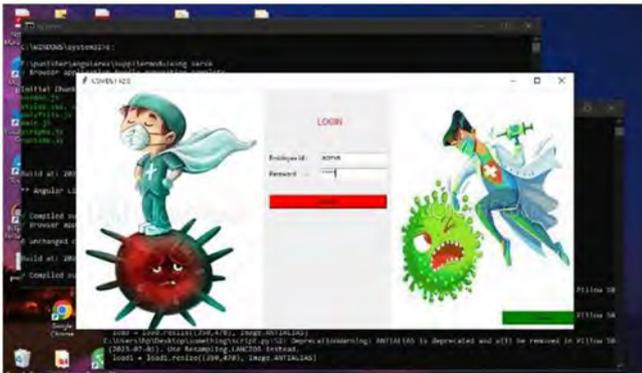


Fig 1.1 Login Page of admin

The requirements are to provide the basic information maintenance function of COVID duty staff, patients and hospitals so that the administrators can go through the function to add, delete, and modify the basic information of employees and the employees can go through it to add, modify and delete the basic information of patient and their conditions.

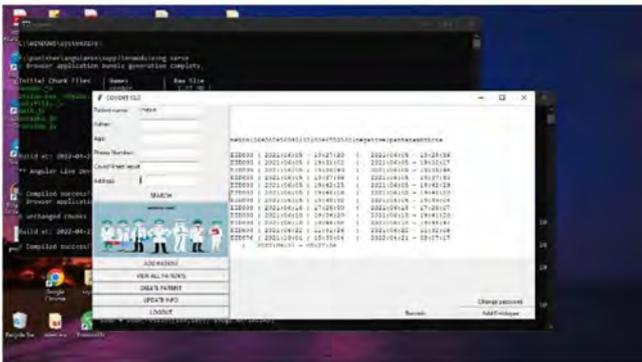


Fig 1.2 Log details of administrators

The Corona Patient Management System provides a user-friendly, interactive graphical user interface (GUI). The miniproject uses 3 files: An ADMIN file, to store the admin data, a positive file, to store the patient data who have tested positive, a negative file, to store the patient data who have tested negative.

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- <https://github.com/ShibinChristin/File-Structure-Mini-Project>

# SUPERMARKET INVENTORY AND SALES MANAGEMENT SYSTEM



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**Abstract:** The supermarket management system has realized the transmission and control of enormous goods. It facilitates the management and decision of sales, and reduce a giant burden for supermarkets and supermarket managers. It can also help to boost the work efficiency of supermarket. The project comes with an environment where the manager or the super admin is able to add the employees to the system. Even the manager is able to work on the system by using his login credentials. The admin and the employees of the system are able to change the password credentials in future if they feel like the credentials become insecure. Supermarket management system is extremely convenient for managing the Supermarket by the input and output of data to the system. It makes the messy supermarket data to be specific by the use of convenient visualizations. On the aspect of software, the supermarket management system using Python programming language and text files to store the information. By the use of this text files in the project it can meet the various requirements of users.

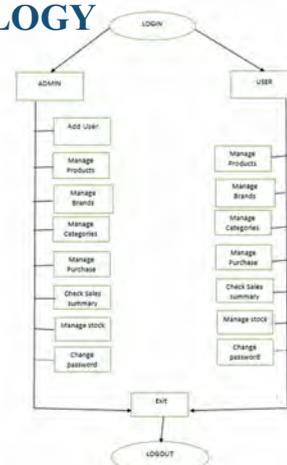
## Keywords:

- Python • Qt • File structure
- Delimiter PySide

## INTRODUCTION

The Supermarket Inventory System Management provides a user-friendly, interactive Graphical programme (GUI). All the data is stored in files for persistence. The mini project makes use of 5 text files: A User file to store the user data, a Brands file to store the brands data, a Category file to store the category data, a Products file, to store the products data, a Sales file to store the sales data. The project make use of PySide 6 library available in python for developing the fundamental.

## METHODOLOGY



## APPLICATION

- The supermarket inventory and sales management system can be used to manage a supermarket in an effective way.
- An effective management of products, category and brands can be done here.
- The project can be used to track the sales, monthly performance and easy analysis of the product availability.

## CONCLUSION

The project has created an effective way for managing a supermarket. The project reduces the need of lot of paper work for managing the supermarket.

Effective management of products, categories and brands can be made possible through this system. Easy filtration of out-of-stock supplies can be made through the system which makes one of the biggest problem faced by a supermarket irrelevant.

Easy tracking of all the sales made and monthly sale report can be used for financial management and evaluation of sales and profit.

All over, the use of text file to store the data makes the project easy and adorable. It reduces the complications of using large database systems.

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# ONLINE MEDICINE SHOPPING SITE



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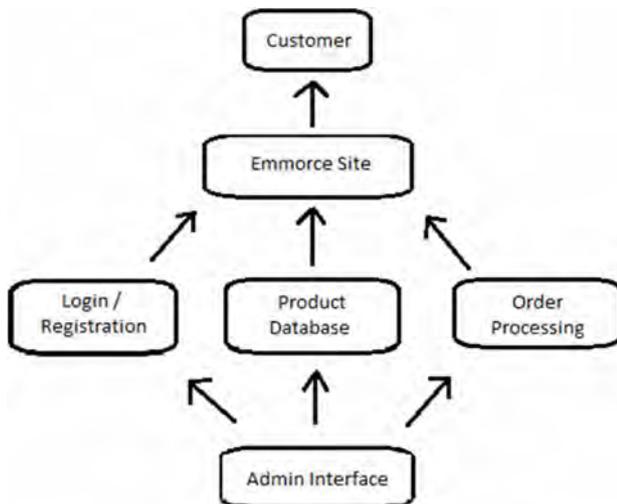
**Abstract:** With the popularization and application of the Internet, the growing popularity of online shopping in the country, and e-commerce has made great progress, the future development of space is unlimited. In various industries, e-commerce marketing model is a new way. In this paper, the status quo of the medicine industry, through research on the current application of e-commerce medicine industry, the basic situation and empirical research on the purchase through e-commerce medicine consumers, e-commerce model analysis under the influence of many consumers to buy medicine factors, and propose targeted marketing strategies. Designed to guide enterprises to increase the number of domestic medicine e-commerce applications efforts to promote medicine industry to enhance the overall performance and enhance overall competitiveness.

**Keywords:** Django, HTML, Python, Java Script, SQLite, E-Commerce.

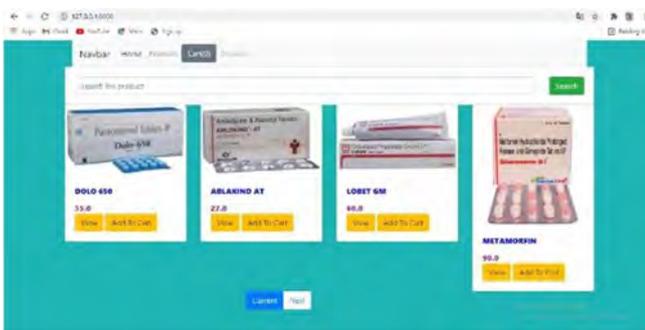
## INTRODUCTION

Shopping of medicines and other medical products online is a good deal because it saves time, money, fuel and lots of problems like traffic jam. Also, one medical may not provide all the medicines. So may go to another medical it wastes lots of time, money etc. will be saved. This will lead profit in the Government money also and it is environment friendly. Nowadays, almost every literate person mainly youngsters wants to shop online as they don't have time to go to market and shop. One more thing it also saves some money. Once they shopped then the purchased items will be sending to their home or wherever they mentioned as their delivery addresses by Courier Company. This is the modern way of shopping as we have various options to buy different products from different sellers in different prices. This study examines whether the quality of online buying experience represents a competitive advantage for +Internet firms focused on business to consumer ecommerce also. This is the modern way of shopping as we have various options to buy different products from different sellers in different prices. This study examines whether the quality of online buying experience represents a competitive advantage for Internet firms focused on business to consumer ecommerce also

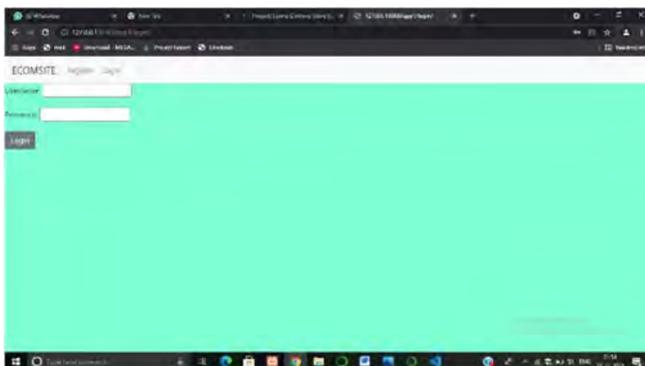
## METHODOLOGY



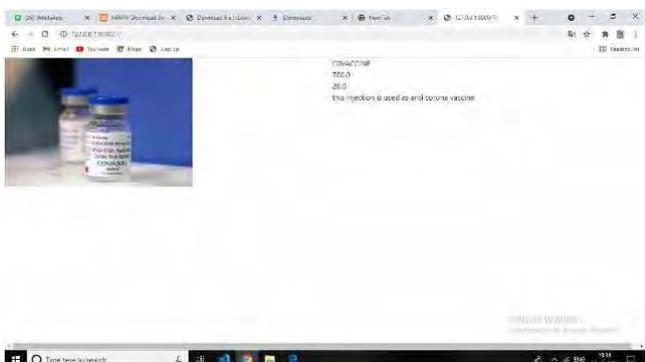
**Fig 1: BLOCK DIAGRAM**



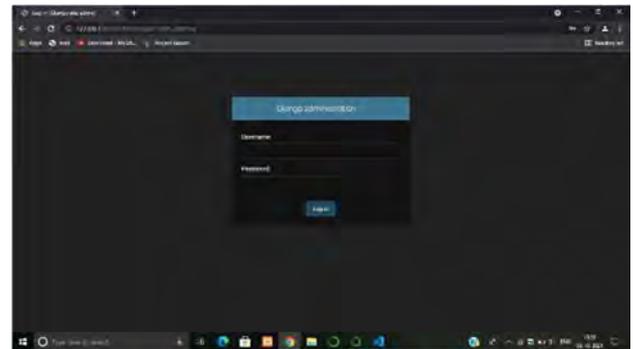
**Fig 1: MAIN PAGE**



**Fig 2: LOGIN PAGE**



**Fig 3: DETAILS**



**Fig 4: ADMIN LOGIN**

## APPLICATIONS

The Target user of this system includes all the Internet users that would like to purchase Medical item online. The main application of this website is that the registered user can order medical item online without going to the shop.

## CONCLUSION

Technology has made significant progress over the years to provide consumers a better online shopping experience and will continue to do so for years to come. With the rapid growth of products and brands, people have speculated that online shopping will overtake in-store shopping. While this has been the case in some areas, there is still demand for brick-and-mortar stores in market areas where the consumer feels more comfortable seeing and touching the product being bought. However, the availability of online shopping has produced a more educated consumer that can shop around with relative ease without having to spend a large amount of time. In exchange, online shopping has opened up doors to many small retailers that would never be in business if they had to incur the high cost of owning a brick-and-mortar store. At the end, it has been a win-win situation for both consumer and sellers.

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# OxyGreen (ONLINE NURSERY)

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**Abstract:** The purpose of developing an ONLINE NURSERY system is to replace the traditional way of taking orders with a computerized system. As part of this project, we also developed a way to generate order summary reports quickly and in the appropriate format at any time. This system is very comprehensive.

**Keywords:** HTML, CSS, Bootstrap, PHP, MySQL, Web Development.

## INTRODUCTION

The goal of the ONLINE NURSERY System project is to use a digital platform to replace the traditional method of taking orders. Another significant purpose for creating this project is to be able to rapidly and accurately create order summary reports whenever they are needed.

The Online Nursery System has a lot of potentials. This project is simple, quick, and precise. It takes up less space on the hard drive. "ONLINE NURSERY" Website is the project that is considered here in this case. To complete the design, Python, CSS, Javascript, and HTML have been implemented.

## SCOPE OF WORK & IMPORTANCE

The admin side of the Django and Python Framework-based online nursery system has an admin side and a customer side where the admin may control sales, and orders. The administrator is critical to the system's management. Customers can place orders online and view their orders in their shopping basket.

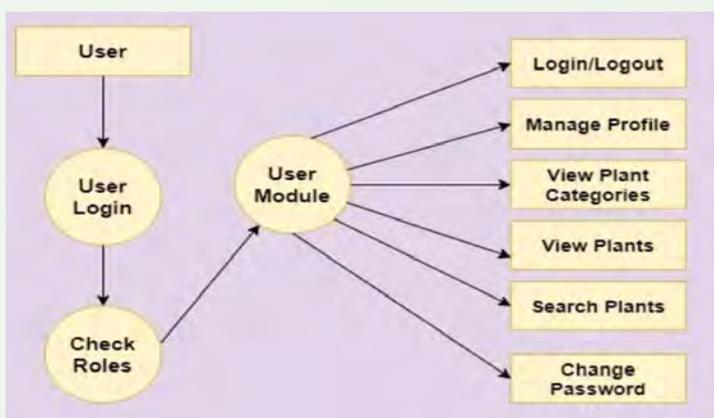
There is no risk of unauthorized personnel tampering with records. The records in it are all password-protected. On paper or in memory, files or lists can be wiped off or misused, but not with this technology.

## DI. METHODOLOGY / WORKING PRINCIPLE



### A. BACK END DESIGN

Django is a Python-based open-source web framework that follows the MTV architectural pattern. Its main goal is to make building complex database-driven websites easier. Even settings, files, and data models are written in Python. Django also includes an administrative create, read, update, and delete interface, which is generated dynamically using introspection and configured using admin models.



### B. FRONT END DESIGN

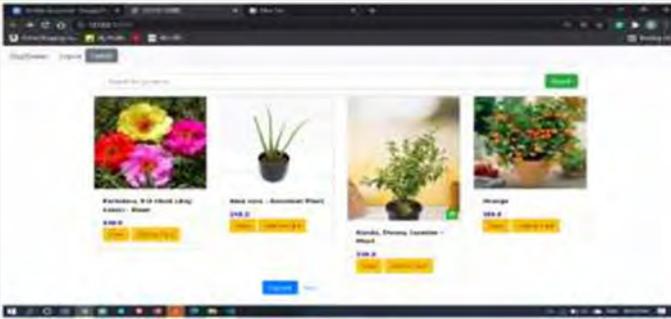
Anaconda Navigator is a desktop graphical user interface (GUI) included in the Anaconda distribution that lets users launch programs and manage conda packages, environments, and channels without having to use command-line commands. Navigator may look for packages on Anaconda Cloud or in a local Anaconda Repository, install them, execute them, and update them.

Bootstrap is an HTML, CSS, and JS library aimed at making the creation of informative web pages easier (as opposed to web apps). The main reason for including it in a web project is to apply Bootstrap's color, size, font, and layout options to it. In the form of jQuery plugins, Bootstrap also includes various JavaScript components. They offer features like dialogue boxes, tooltips, and carousels to the user interface.

Visual Studio Code is a source code editor that supports Java, JavaScript, Go, Node.js, Python, and C++. It is built on top of the Electron framework, which is used to create Node.js Web apps that employ the Blink layout engine. Rather than having a project system, it allows users to open one or more directories, which can subsequently be saved in workspaces for future use



*Fig. Login Page*



*Fig.Home Page*

## APPLICATIONS

The Django and Python Framework were used to create this online nursery system. Businesses will rely on AI solutions and delivery droids to handle deliveries, necessitating the adoption of delivery tracking websites/apps. The website, which comprises a number of admin and consumer modules, gives registered customers who want to order plants and seeds from our website better access.

## CONCLUSION

A variety of user-friendly coding has been implemented. This package will prove to be a powerful bundle in meeting all of the users as well as a plant and seeds outlet's needs. The "ONTINE NURSERY" website, which comprises a number of admin and consumer modules, gives registered users who want to order plants and seeds from the site easier access. The system provides information about the plant and seeds that are available, as well as the ability to order them, while the admin handles all of the other tasks.

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# WEB DEVELOPMENT PROJECT ON ONLINE FLOWER SHOP

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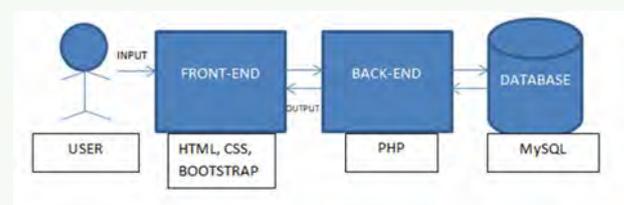
**Abstract:** With the rapid development of Internet, e-commerce had been widely using by more and more people, so had shopping online. The online flower shop is a web development project, developed using HTML, CSS, bootstrap & MySQL. In this website the customer can order Online & has the option of cash on delivery or online payment. Online flower shop is divided into two main sections: customer section and Admin section. Customer section allows the Internet users to browse and make order on the available times. On the other hand, the Administrator Section includes the user interfaces for authorized online shop's administrator to maintain their database and others administrative tasks. This website is very useful as it helps in maintaining minimum contact during the pandemic & also saves times.

**Keywords:** HTML, CSS, Bootstrap, PHP, MySQL, Web Development

## INTRODUCTION

The internship work named as "Online Flower Shop". Online flower shop is a website designed for customer to order flowers and bouquets online. Here the customer can choose from the given variety of flower bouquets and pay online or after the delivery of the order. This website also consists of an admin page where the orders from the customer are tracked by the admin of the flower shop. Once the payment is done and the order is delivered to the customer the data is deleted from the database.

## METHODOLOGY



**Fig 1: BLOCK DIAGRAM**

## FRONT END: HTML, CSS, BOOTSTRAP

Hyper Text Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser. The Fig 1 describes the block diagram of the website design. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page.

Cascading Style Sheet (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. It is designed to enable the separation of presentation and content, including layout, colors and fonts.

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS and JavaScript-based design templates for forms, buttons, navigation and other interface components.

## BACKEND: PHP AND MySQL

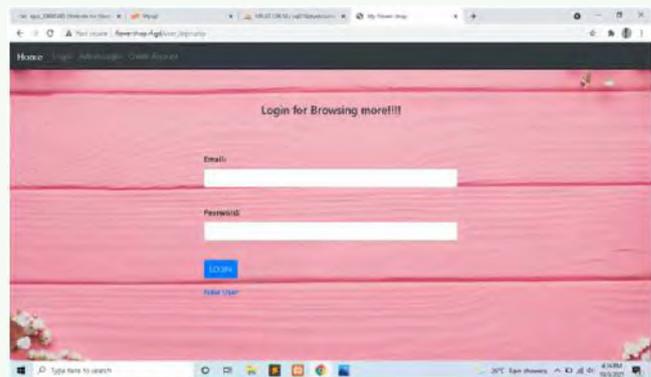
PHP is a general-purpose scripting language geared towards web development. PHP code is usually processed on a web server by a PHP interpreter implemented as a module, a daemon, or as a common gateway interface executable. It is especially suited to server-side web development, in which case PHP generally runs on a web server.

MySQL is the database used to store the data about the user and details of the customer and product. From this database admin can access all the information about the registered users and the customers.

## SNAPSHOTS



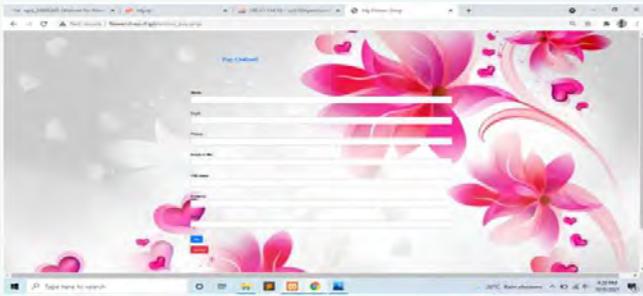
*Fig 2: MAIN PAGE*



*Fig 3: LOGIN PAGE*



*Fig 4: MENU*



*Fig 5: ONLINE PAYMENT*

## **APPLICATIONS**

The Target user of this system includes all the Internet users that would like to purchase flower online. The main application of this website is that the registered user can order flowers online without going to the shop. The customer has the privilege to select the flowers and make payment online or after the delivery. The admin has the privilege of tracking the order and also can delete the user account if necessary. Admin can track the delivery and payment details of the customer.

## **CONCLUSION**

The online flower shop system is a start to computerize the operation and transactions in the business organization towards the effort of paperless concept. Although development the whole system is not easy task because various objectives has been targeted, but it still can be considered as a contemporary effort to achieve the goals. This project helped in learning new technologies like sublime text, winSCP, xampp etc. and also the languages namely HTML, CSS, Bootstrap and PHP. Overall, this project has achieved and fulfilled the objectives and requirement as determined during the analysis phase.

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# DESIGN AND FABRICATION OF BLADELESS WIND TURBINE”

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## ABSTRACT

ABSTRACT: At present there is existing blade windmill to produce energy, but its capital cost, maintenance cost, friction loss is high. So in our project we are going to generate electricity by using BLADELESS WINDMILL. Bladeless wind generation uses radically a new approach of capturing wind energy. It works on principle that when wind is allowed to strike the column mast, it tends to vibrate and this vibrational energy is further converted to mechanical energy. The spring is provided inside mast which is connected to crank shaft. The vibration is transmitted to crankshaft which is then supplied to generator. It is an eco-friendly project and it reduces the friction losses.

Keywords: Wind mill, vortex, power, energy.

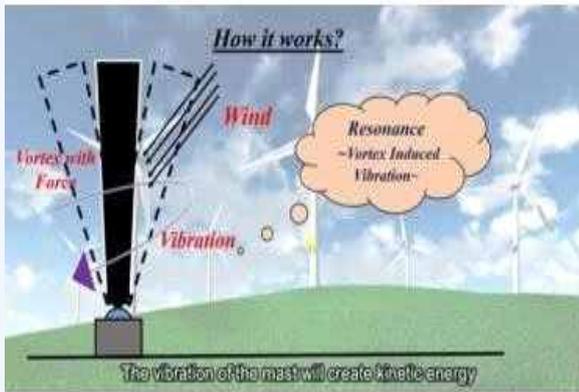
## INTRODUCTION

In these days non-renewable energy sources are gone to the depth of earth, so we can obviously produce energy by renewable energy sources. Wind energy has become a legitimate source of energy

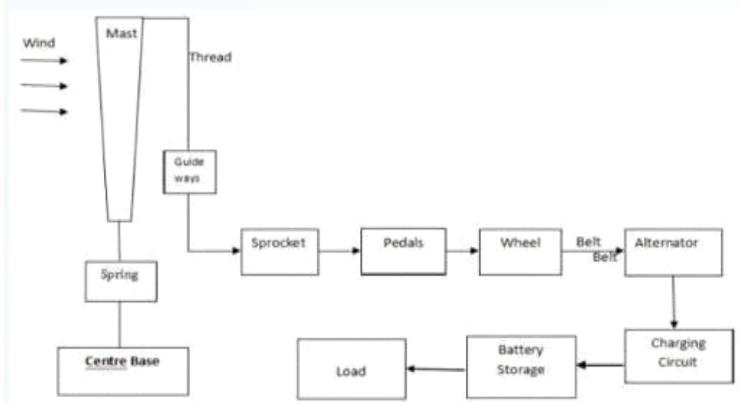
over the past few decades. The construction of bladeless windmill is quiet simple. The conical mast is pivoted vertically with the help of cylindrical rod which is held within roller bearing in such a way that it vibrate in one direction only. The portion below pivot is covered with help of metal sheet. The upper part of mast flutters in wind while crank shaft is connected to lower part. This is a wind generator without blades. The main advantage of this underlies the absorption of energy through the vortices of a rigid member similar to an effect of aerodynamics. We are going to generate electricity by using the bladeless windmill.

## METHODOLOGY

The energy conversion happens in the mast, in which the wind strikes the column mast to vibrate. This vibration is converted into mechanical energy and then to electrical energy. When the wind impinges on the projected surface area of the mast from one specified direction, stream lines of the wind tend to depart



**Fig.1 Working principle**



**Fig.2 Block diagram**

and get sheared off. Further passage results into the formation of wind currents called vortices or eddies. When they are strong enough to overcome the internal resistance offered by the mechanism (crank shaft or direct linear alternator), the mast vibrates due to spring

## APPLICATIONS

This type of wind turbines are used in remote area and also used in off grid power for rail signaling, remote telemetry etc. it senses the very low velocity wind and generate power

## CONCLUSIONS

Tapping the wind for renewable energy using new approaches is gaining momentum in the recent years. The purpose of this paper is to provide some fundamental results on the bladeless wind system and serve as stepping stones for the future development of bladeless wind power generating system. The forces that are beneficial or useful to generate power in bladeless are different from those in conventional horizontal axial wind turbines. Our device captures the energy of vorticity, an aerodynamic effect that has plagued structural engineers and architects for ages

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# DEVELOPMENT OF PROTOTYPE PICK AND PLACE ROBOTIC ARM USING ARDUINO UNO

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## ABSTRACT:

Robotic arm is one of the major projects in today automation industries. Robotic arm is part of the mechatronic industry today's fast growing industry. On large scale it can be used as in environment, which is either hazardous or not accessible. As the size of the robots scale down, the physics that governs the mode of operation, power delivery, and control change dramatically, restricting how these devices operate. This also include it's characteristics like its extension, positioning, orientation, tools and object it can carry. This paper is on how we can make robotic arm with non-useful materials and its application for small purposes. This paper also says about its advantages, disadvantages, methodology.

Keywords: Robotic, Governs, Industry, Automation.

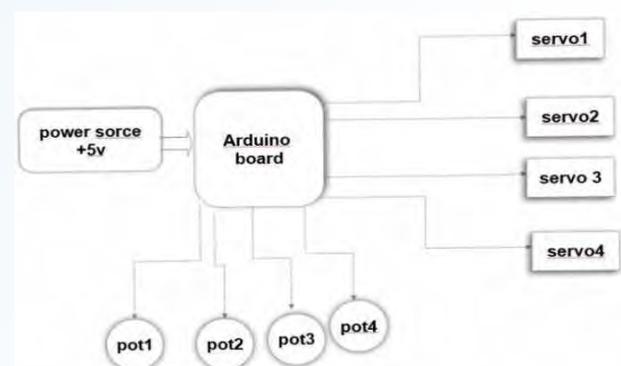
## INTRODUCTION

Robots can do a lot of this work more efficiently than human beings because they are so precise, They always drill in the exactly the same place, and they always tighten bolts with the same amount of force, no matter how many hours, they've been working manufacturing of robots are very important in the computer industry. It takes precise hand to put together in tiny

microchip. We have planned to implement the robotic arm that can be controlled by gesture command and simple algorithm for automatic controlling.

## METHODOLOGY

The arm has been built with plastic the individual parts have been locked to servo motor. Arduino Uno is programmed to control servo motors. Servos motors are acting as joints of arm here and the circuit connection are shown in block diagram fig 1.1.



*Fig 1 Block diagram*

This Robotic arm is controlled by four Potentiometer with which we attach each with potentiometer that is used to control each servo. We can move these servos by rotating the potentiometer to pick some object, with some

practice we can easily pick and move the object from one place to another. Program done using Arduino and connect the circuit as block diagram then supply the power.



*Fig.2 Final model of Robotic arm*

## APPLICATIONS

- Robotic arm is used for packaging in industrial level.
- It's used for pick and place the items in production line.
- It's used for minor product assembling work.
- May it's used for painting and polishing work.

## CONCLUSION

This proposed work is an overview of how we can make use of servo motor to make joints of a robotic arm and control it using potentiometer and arduino uno. Also used for low loaded industrial application work. The study has further shown that the robotic arm that can be reprogrammed in order to adapt it to a variety of task. This could prove to be very useful in an industrial environment, especially in manufacturing, packaging.

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# DESIGN AND STRUCTURAL ANALYSIS OF SINGLE PLATE FRICTION CLUTCH

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## ABSTRACT:

In design of the friction clutches of automobiles, knowledge on the thermo-elasticity a priori is very informative in the initial design stage. Especially, the precise prediction technique of maximum structural stress should be requested in design of mechanical clutches for their durability and compactness. In this study, an efficient and reliable analysis technique for the design of the mechanical clutches by using computer modelling and numerical method is developed. This work contains stress analysis of single plate clutch of the automobile, in which the stresses and forces developed in the clutch is tried to reduce with the help of software approach. The detail study of clutch and modelling of clutch is done in solid edge software and the analysis is to be done in Ansys software. Also in this work efficient and reliable design of mechanical clutch is find out.

Keywords: Clutch, Structural Analysis, ANSYS.

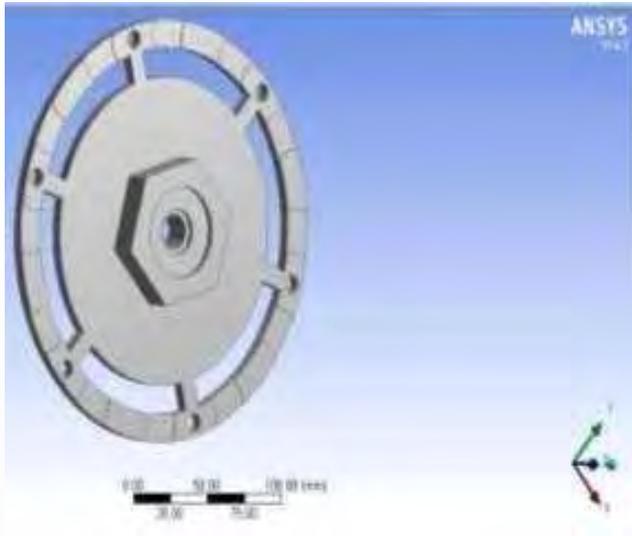
## INTRODUCTION

Clutch is a device used in the transmission system of a vehicle to engage and disengage the transmission system from the engine. It is

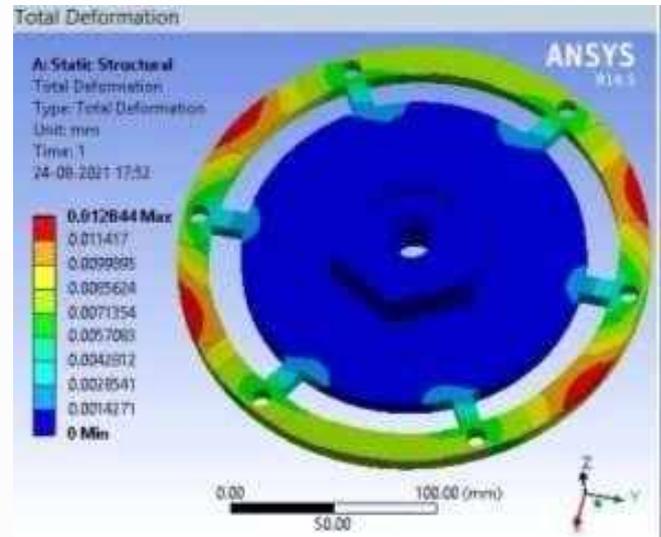
disengaged by operating the clutch pedal i.e. by pressing the pedal towards the floor of the vehicle. The clutch is engaged when the vehicle has to move and is kept in the engaged position when the vehicle is moving. The clutch is located between the engine and the transmission system. A single plate clutch has one clutch plate. This clutch works on the principle of friction. It is the most common type of clutch used in motor vehicles. A single plate clutch consists of different parts for proper working. They are arranged in a systematic order.

## METHODOLOGY

This work focuses on stress analysis of single plate clutch of the automobile, in which the stresses and forces developed in the clutch is tried to reduce with the help of software approach. In this study, an efficient and reliable analysis technique for the design of the mechanical clutches by using computer modeling and numerical method is developed. The detail study of clutch and modeling of clutch is done in solid edge software and the analysis is to be done in Ansys software. Also in this work efficient and reliable design of mechanical clutch is find out.



*Figure 1: Modeling*



*Figure 2: Total deformation*

## APPLICATIONS

A popularly known application of clutch is in automotive vehicles where it is used to connect the engine and the gear box. Clutches are also used extensively in production machinery of all types.

## CONCLUSIONS

After completion of the analysis in ANSYS based on the values of Equivalent stresses for material loading conditions it is clearly seen that these are less than the allowable stresses for that particular material under applied conditions the part not going to yield and hence the design is safe. The result occurred are quiet favorable which was expected. The stresses as well as deformation clear the idea about what parameter should have been taken into account while defining the single plate friction clutch.

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# DESIGN AND ANALYSIS OF JOINTS

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Mohammed Hussain Razi, Mohammed Naseef  
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## INTRODUCTION

The Failure of cotter joint may cause accident so it is necessary to design cotter joint to withstand under tension without failure. The effective design of mechanical device or assembly demand the predictive knowledge of its behaviour in working condition. It became necessary for the designer to know the forces and stress developed during its operation. In this project we use theoretical method for finding dimensions of cotter joint. After the design of cotter joint, the modelling of cotter joint is done by using SOLID EDGE V20. Here we will be using SOLID EDGE V19 for modelling. After modelling on SOLID EDGE V19, we will analyse cotter joint on software named as "ANSYS V16". A cotter is a flat wedge-shaped piece of rectangular cross-section and its width is tapered (Either on one side or both sides) from one end to another for an easy adjustment. The taper varies from 1 in 48 to 1 in 24 and it may be increased up to 1 in 8, If a locking device is provided. The locking device may be a taper pin or a set screw used on the lower end of the cotter. The cotter is usually made of mild steel or

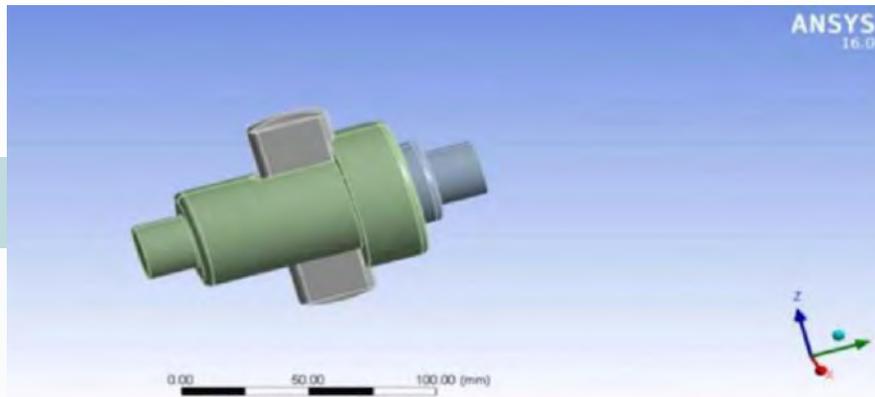
wrought iron. A cotter joint is a temporary fastening and is used to connect rigidly two co-axial rods or bars which are subjected to axial tensile or compressive forces. It is usually used in connecting a piston rod to the cross-head of a reciprocating steam engine, A piston rod and its extension as a tail or pump rod, Strap end of connecting rod etc.

## METHODOLOGY

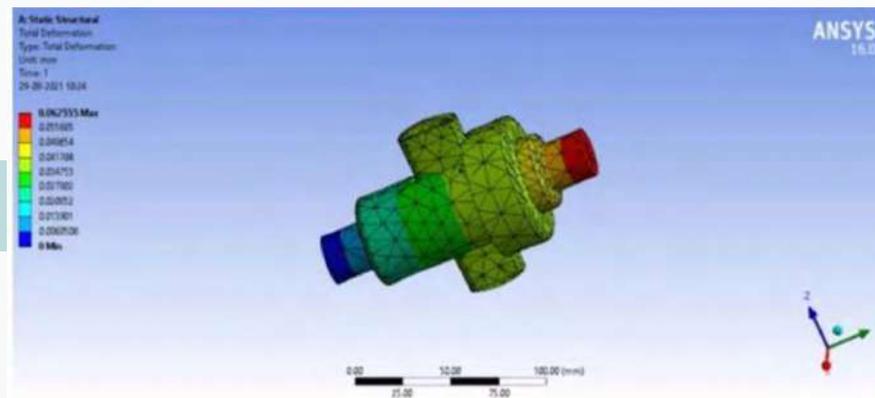
The main objective of the study is to check whether the cotter joint is withstanding the load applied during the working condition or not.

So, the methodology of the study includes

1. CAD Model of cotter joint using SOLID EDGE V20.
2. Design of Socket and Spigot Cotter Joint and Knuckle Joints.
3. CAD Model of Socket and Spigot Cotter Joint and Knuckle Joints assembly.
4. Elemental analysis at various loads.
5. Result and Conclusion.



*Figure 1: Modeling*



*Figure 2: Total deformation*

## APPLICATION

Cotter foundation bolt, big end of the connecting rod of a steam engine, joining piston rod with cross head, joining two rods with a pipe.

## CONCLUSION

Cotter joint is widely used in application in automobiles and other field. So, we designed the cotter joint. Then by SOLIDEDGE V20 we had done the modeling with gives correct design then design we are going to check by ANSYS R16 to find stress in the cotter so we got perfect design of cotter joint.

Based on the analysis results, following conclusion points are summarized. The maximum permissible value of stress of steel is 400 MPA.

From the results achieved at loads 40kN, 50kN and 60kN it has given lower stress values and deformation for the steel.

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# EXTRACTION OF PHYTO- CONSTITUENT FROM INDIAN BAY LEAF

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## ABSTRACT

The most commonly produced forms of biomass are prepared from renewable feedstock, such as plant oils or animal fats. On the other hand, growing environmental awareness and the high cost of fuel is of major concern biodiesel is a potential substitute for petroleum-based fuels. In this work, oil is extracted from the Indian bay leaf using the soxhlet apparatus then it is converted into biofuel. The converted biodiesel properties are characterized by major physicochemical properties such as density, viscosity, fire point flash point, etc. compared with other popular non-edible biodiesels and diesel.

Keywords: Bay leaf, Soxhlet, Biodiesel, B-5.

## INTRODUCTION

Biofuel is any fuel that is derived from biomass that is, plant or algae material or animal waste. Since such feedstock material can be replenished readily, biofuel is considered to be a source of renewable energy, unlike fossil fuels such as petroleum, coal, and natural gas. Biofuel is commonly advocated as a cost-effective and environmentally benign alternative to petroleum and other fossil fuels, particularly within the context of rising petroleum prices and increased concern over the contributions made by fossil fuels to global warming. Many critics express concerns about the scope of the expansion of certain biofuels because

of the economic and environmental costs associated with the refining process and the potential removal of vast areas of arable land from food production.

## METHODOLOGY

In this work, initially, the leaf will be collected and dried for a duration of one week the leaf shall be crushed using a mechanical mixer. The goal of this project is to produce Biofuel from Bay leaf by using the soxhlet method and hexane as solvent. Here, the crushed leaves are stuffed in filter paper. And the crushed powder is tightly packed in filter paper. Then the filter paper is placed inside the soxhlet apparatus and the arrangement for the experiment is done. Then a condenser is attached at the top of the apparatus which consists of an inlet port through which water comes in and an outlet port through which water flows out. Here solvent is already taken in a distillation flask at the bottom, and the extra solvent is added from the top of the condenser which falls on the crushed powder. Then the solvent is heated using an electric heater. Due to the heat, the solvent vapors hit the powder and it starts to release its constituents. And then a series of cycles take place in the siphon and constituents get mixed with the solvent that is

hexane. Then the mixed solvent obtained needs to extract the hexane from it, after extracting the hexane the biofuel obtained is pure.

Physicochemical Properties of the biodiesel are determined.



Fig.1 Soxhlet Apparatus



Fig.2 Extraction of Hexane



Fig.3 B-05

## RESULTS

Table.1

PROPERTIES	DIESEL	B-5
Density (kg/m <sup>3</sup> )	830	838
Viscosity (Pa-s)	2.9	3.4
Flashpoint (°C)	50	43
Fire point (°C)	60	48

## CONCLUSION

Biofuel production from Indian bay leaf is environmentally friendly. It will be used in diesel engines without any modification and the durability of a vehicle's engine can be increased. Reduces dependence on importing fossil fuels from other countries and helps to boost the economy of the country.

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# SMART BLIND WALKING STICK

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YIT, Moodbidri

## ABSTRACT

Technologies are growing very fast, which helps people to get a better and easier life. The smart stick is a technique to help sightless people to recognize their way. Sightless People suffer from the lack of ability to do their daily activities, from walking in the street to visiting friends or relative or any daily things. Therefore, the solution for this major problem is proposed by designing a stick that can aid the person to walk safely without having fear of hitting someone on the way or any solid objects. The stick has been designed using Solid edge software. The electric circuit was simulated using Proteus software for designing and simulating electrical circuits. In this paper, we have used two ultrasonic sensors. One sensor has been placed in front of the stick and the other have been placed on down. To detect the motion from two side, it has been used vibrating motor and buzzer alarms to alert the person if some obstacle is detected near him.

Keywords: Arduino uno , Ultrasonic sensor, vibrating motor , buzzer .

## INTRODUCTION

According to the World Health organisation (WHO) statistics, around 30 billion people are blind on the earth. This project proposes to design and develop a

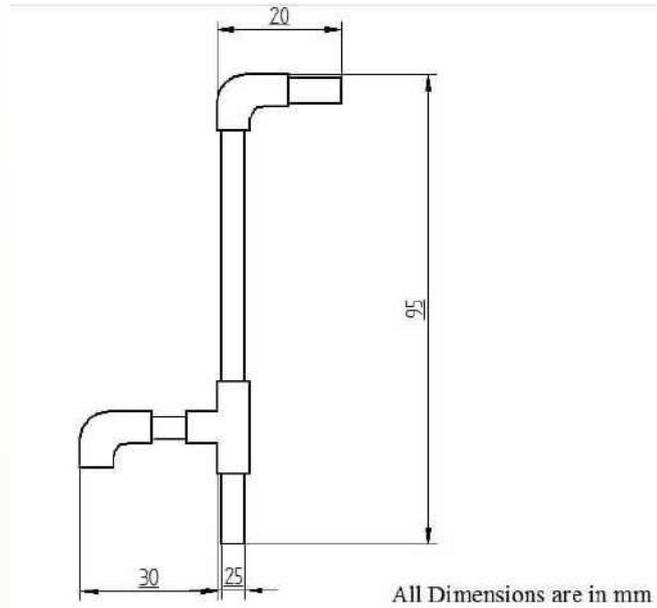
portable unit (stick) for them for easy usage and navigation in public places. The blind stick is integrated with ultrasonic sensor along with light and water sensing. Our proposed project first uses ultrasonic sensors to detect obstacles ahead using ultrasonic waves. On sensing obstacles the sensor passes this data to the microcontroller. The microcontroller then processes this data and calculates if the obstacle is close enough. If the obstacle is not that close the circuit does nothing. If the obstacle is close the microcontroller sends a signal to sound a buzzer. It also detects and sounds a different buzzer if it detects water and alerts the blind.

## METHODOLOGY

In this system the ultrasonic sensors are used to sense the obstacle (if there is any). The sensors are set a threshold limit if any obstacle is found within that range it gives beep speech through speaker. Obstacles found in different directions are indicated with different pattern beep and speech to identify them easily. The ultrasonic sensors emit soundscapes with frequency lying in ultrasonic spectrum, which is inaudible to human ears. The sound waves hits the obstacle and bounces back to detectors. The ultrasonic sensor is used for detecting objects.



**Figure 1: Model**



**Figure 2: Model design**

### APPLICATION

To help visually challenged people to navigate with ease using advance technology. In this technology controlled world, where people strive to live independently, this project proposes an ultrasonic stick for blind people to help them gain personal independence. Since this is economical and not bulky, one can make use of it easily..

### CONCLUSION

It is worth mentioning at this point that the aim of this study which is the design and implementation of a smart blind walking stick for the blind has been fully achieved. The Smart Stick acts as a basic platform for the coming generation of more aiding devices to help the visually impaired to navigate safely both indoor and outdoor. It is effective and affordable. It leads to good results in detecting the obstacles on the path of the user in a range of three meters. This system offers a low-cost, reliable, portable, low power consumption and robust solution for navigation with obvious short response time. Though the system is hard-wired with sensors and other components, it's light in weight.

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# AUTOMATIC WASTE SEGREGATOR

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## ABSTRACT

An automatic waste segregator can segregate waste without any human effort. All waste products can be broadly classified into dry waste and wet waste. Dry waste is non- biodegradable while wet waste is biodegradable Automatic waste segregation helps to solve this issue. An automatic waste segregation unit can differentiate between dry and wet waste using sensors, and segregate them.

Keywords: Dry waste, Sensors.

## INTRODUCTION

The mini-project is aimed at building an automatic waste segregator. This waste segregator can differentiate between dry and wet waste based on the moisture sensor reading. This data is used for deciding the direction of a servo motor which is used to input waste into 2 segregated sections. The waste product which needs to be segregated is inserted on a sensing plate which acts as a common lid for both dry and wet waste containers. Upon deciding the type of waste inserted the servo motor is used to rotate the sensing plate to the required bins. This type of segregator can be very useful in industrial-scale waste management. Dry and wet waste segregation is very important in the field of waste recycling and reusing wet waste for manure and biogas production. Since this device does not involve any human interaction, it can be helpful when segregating dangerous materials.

## METHODOLOGY

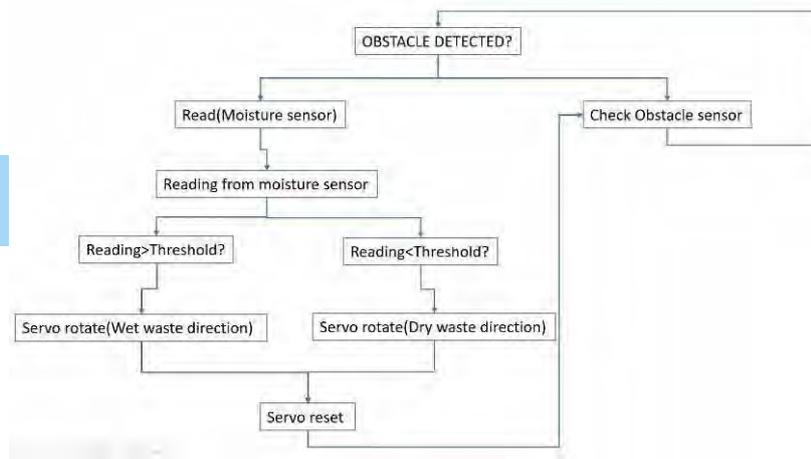
- Arduino microcontroller is used to implement the logic required for segregator operation
- Obstacle sensor detects the presence of waste when inserted.
- Microcontroller takes the input data from moisture sensor and decides the type of waste.
- Upon deciding the type of waste controller directs the servo motor to rotate in the correct direction to segregate the waste.
- The program logic is as shown in the flow chart

## APPLICATION

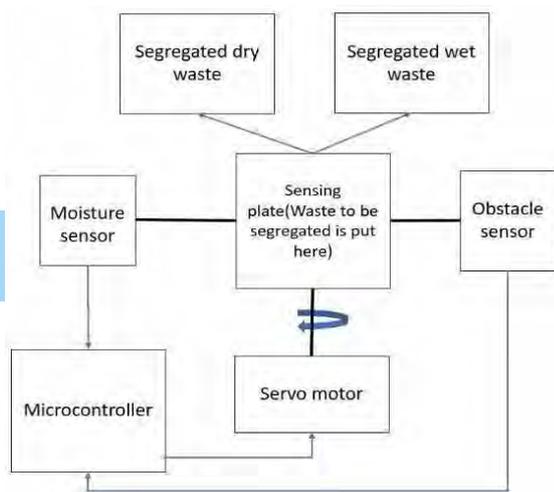
An automatic waste segregator can be used in household applications on a small scale with a low budget.

## CONCLUSION

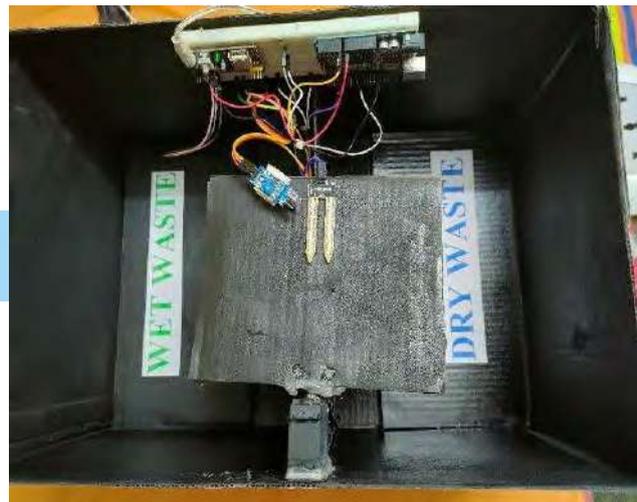
It is worth mentioning at this point that the aim of this study which is the design and implementation of a smart blind walking stick for the blind has been fully achieved. The Smart Stick acts as a basic platform for the coming generation of more aiding devices to help the visually impaired to navigate safely both indoor



**Fig .1: Program flow chart**



**Figure 2: Block diagram of the segregation system**



**Figure 3: prototype model**

and outdoor. It is effective and affordable. It leads to good results in detecting the obstacles on the path of the user in a range of three meters. This system offers a low-cost, reliable, portable, low power consumption and robust solution for navigation with obvious short response time. Though the system is hard-wired with sensors and other components, it's light in weight.

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# PHOTOELECTRIC SMOKE DETECTOR

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## ABSTRACT

A photoelectric type smoke alarm consists of a light-emitting diode and a light-sensitive sensor located in a sensing chamber. The presence of suspended smoke particles in the chamber scatters the light beam. This scattered light is detected by the light-sensitive sensor which sets off the alarm. We intend to design a smoke detector that is very efficient in terms of power consumption, durability & sensing and is also cheap compared to the available models in the market so that it can be used even at the household level & thus preventing any casualties at the time of an accident with least possible maintenance.

Keywords: Light sensor, Smoke detector, Light-emitting diode.

## INTRODUCTION

A smoke detector is a device that senses smoke and gases, typically as an indicator of fire. Smoke detectors are a vital commodity in every occupied building in the world. Smoke detectors help to detect and indicate a threat to nearby inhabitants in the event of a fire. It also allows people to become aware of their surroundings and alert them to seek safety. A smoke alarm is a device that senses smoke, typically as an indicator of fire. It may issue a signal to a fire alarm control panel as part of a fire alarm system, especially in commercial security devices, or may issue a local audible or visual alarm in the household. Fire detection has become a crucial aspect in the design of buildings, both commercial and domestic, as opposed to about 70 years ago when automatic detection was rarely provided in buildings.

## METHODOLOGY

Photoelectric alarms work using a photoelectric sensor and a light source. As smoke enters the chamber and crosses the path of the light beam, light is scattered by the smoke particles, aiming it toward the

sensor, which in turn triggers the alarm. Photoelectric light obscuration smoke detectors also employ a light source and a light-sensitive device. When smoke particles block the light beam, the light-sensitive device identifies the reduction in light, and its output is modified. The change in output is sensed by the detector's circuitry and when the pre-set threshold is passed, the detector produces an alarm.



Figure 1: Modeling



**Figure 2: Working**

## APPLICATIONS

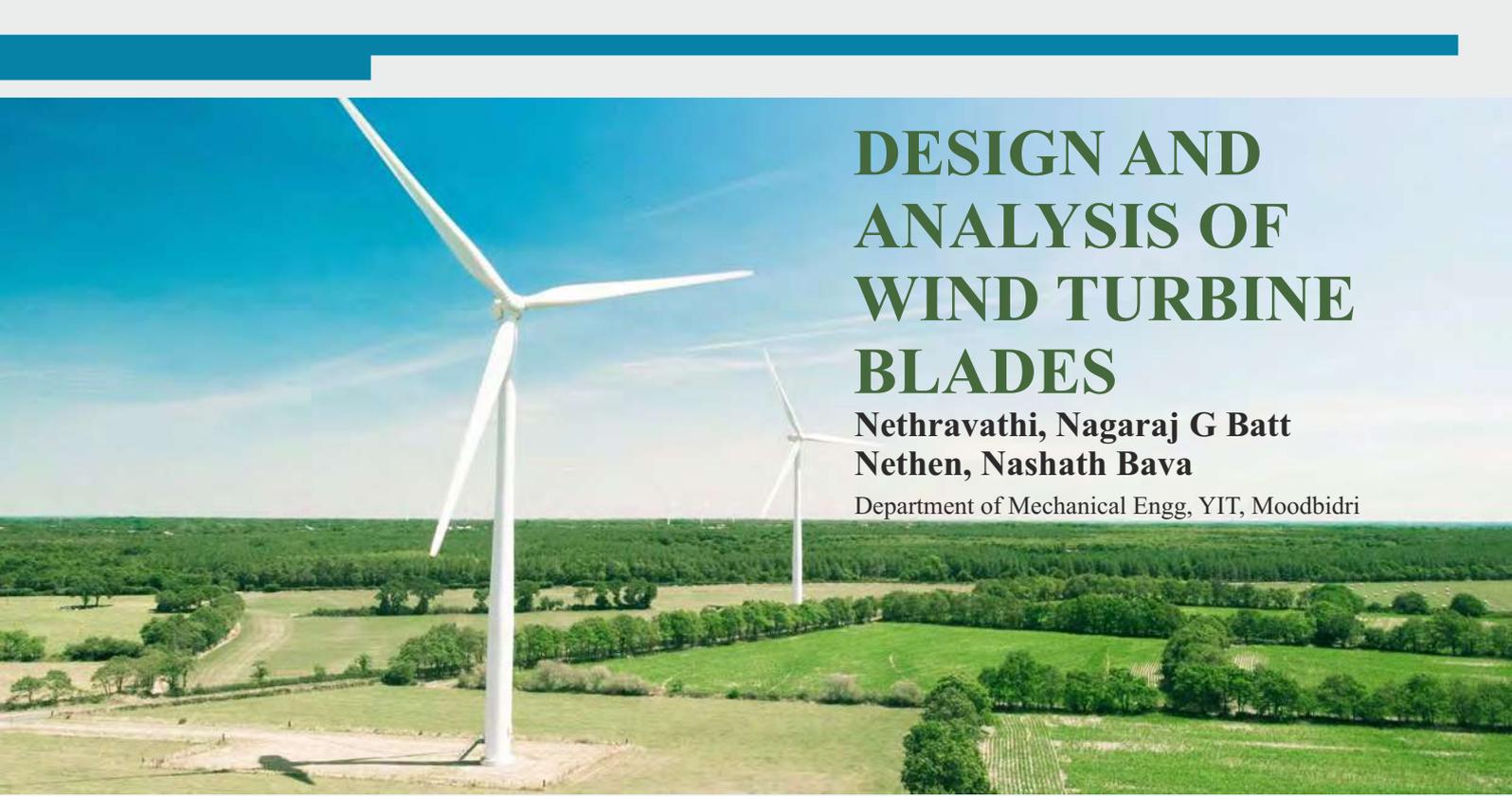
A smoke detector is a device used to warn occupants of a building of the presence of a fire before it reaches a rapidly spreading stage and inhibits escape or attempts to extinguish it. On sensing smoke, the detectors emit a loud, high-pitched alarm tone, usually warbling or intermittent, and usually accompanied by a flashing light

## CONCLUSION

The cost of implementing this system is relatively low since the components used are relatively cheap and are easily available in the market. The single microcontroller can be used to interface several sensors with alarms located in different locations as long as more pins are freed for multiple inputs and multiple outputs.

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# DESIGN AND ANALYSIS OF WIND TURBINE BLADES

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## ABSTRACT

Wind turbine rotor blades are commonly manufactured from composite materials by a moulding process. The wind turbine blades are often subjected to a phenomenon of fluttering which leads to structural damage. Therefore it is necessary to predict fluttering behavior while designing. The main scope of this is to make an efficient and strong wind turbine blade. The analysis shows the ability of the wind turbine blade. The analysis is carried out in the ANSYS workbench and the design is done using SOLID EDGE software.

Keywords: Blade, analysis, ANSYS.

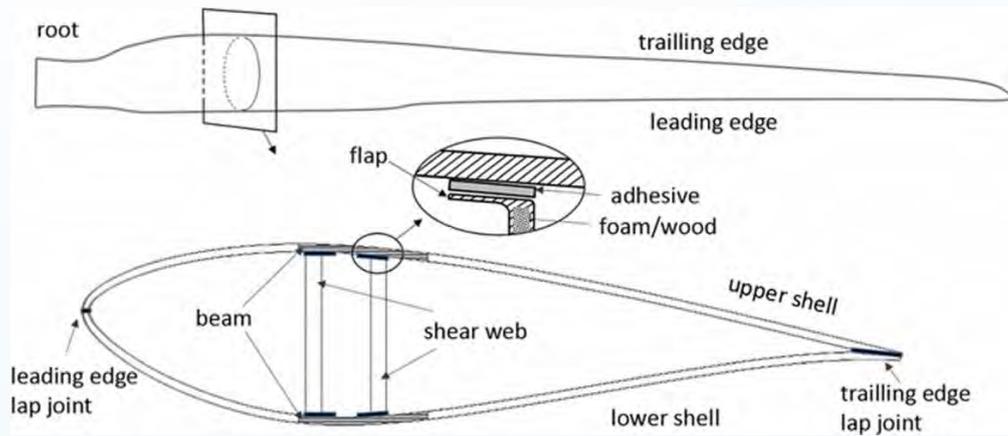
## INTRODUCTION

The aerodynamic performances (APs) are used to determine the shape and dimensions of the wind turbine blades (WTBs). In this wind turbine (WT) the wind movement is not straight forward. The air flow is varying in the airfoil section; this causes air to be deflected by the WT to extract energy. For efficient power generation the speed of the wind turbine blade (WTB) should be maintained within the designed speed and torque limits controlled. Using wind turbine as electricity generator has some advantages and disadvantages. This increase in diameter creates design issues for many of the components, with the blade length being the first parameter affected. Little information is publically available on the structural design process of

multi-megawatt blades since it is kept confidential by most manufacturers. Thus, there is a need for large scale reference blades that are openly available for research projects. In this study, a detailed blade model was developed and analyzed with respect to industry standard failure criteria to specify the structural components and composite ply layups of the blade.

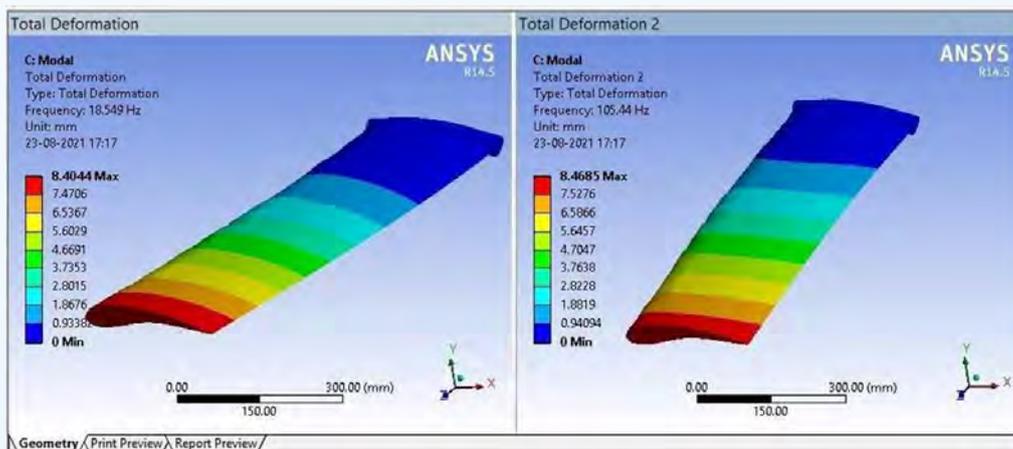
## METHODOLOGY

Material selection and design parameters. Designing and drafting a wind turbine blade (HAWT) using solid edge software .Structural analysis of the wind blade using Finite Element Method



*Fig.1 Cross section of a wind turbine blade*

## RESULTS



*Fig.2 Total Deformation.*

*Fig.3 Total Deformation 2*

## CONCLUSION

Design and analysis will help us to have better efficiency of the blade. We can understand the structural fatigue failure point of wind turbine blades through analysis. We can able to predict or manage the aerostatic phenomenon without affecting the performance and efficiency of the blade.

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# FABRICATION OF SOLAR AIR COOLER

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Sharan, Sharon Herick**

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## ABSTRACT

**ABSTRACT:** Mechanical Engineering without production and manufacturing is meaningless and inseparable. Production and manufacturing process deals with conversion of raw materials inputs to finished products as per required dimensions, specification and efficiently using recent technology. The new developments and requirements inspired us to think of new improvements in air conditioning Engineering field. Nowadays air cooler is available in market. In our project, solar power is stored in a battery. This power is used to run the air collar whenever we required. Solar energy means all the energy that reaches the earth from the sun. It provides daylight makes the earth hot and is the source of energy for plants to grow. Solar energy is also put to two types of use to help our lives directly solar heating and solar electricity. Solar electricity is the technology of converting sunlight directly in to electricity. It is based on photo-voltaic or solar modules, which are very reliable and do not require any fuel or servicing. Solar electric systems are suitable for plenty of sun and are ideal when there is no main electricity. Our objective is to design and develop a solar system normally “solar air cooler”.

## INTRODUCTION

Energy is the primary and most universal measure of all kinds of work by human beings and nature. Energy is a crucial input in the process of economic, social and industrial development. Day by day the energy consumption is increasing very rapidly. The rate of energy consumption is increasing. Supply is depleting resulting in inflation and energy shortage. This is called the energy crisis.

According to law of conservation of energy "energy can neither be created nor be destroyed but can be transformed from one form to another form. Energy can be transported from one place to another place. Alternative or non-conventional or renewable energy resources are very essential to develop for future energy requirements. The energy demand increases day by day because of population increasing industrialization increases and transportation increases etc.

## METHODOLOGY

The following methodology is followed in this mini project:

- Finalizing Mechanisms: Make a list of required hardware outputs, examine the mechanism architecture, Select the architecture, Identify Motion Needs, Start searching for mechanisms & Parts, Examine Costs and Power Constraints, Check part availability, Calculate Sizes, Fabricate parts.
- Project Design: Mechanical Design or Machine Design is one of the important branches of Engineering Design.
- Parts Procurement: Once the design is complete parts are to be procured so that project development may proceed
- Project Assembly: Mechanical assembly is a common term in the industrial and manufacturing context. It is the process used in the line of assembly production. As products are moved through the chain, parts are added at certain points of the line.
- Testing processes: Mechanical testing includes testing each part of the machine/robot individually followed by the complete testing after which the project is ready to be used.

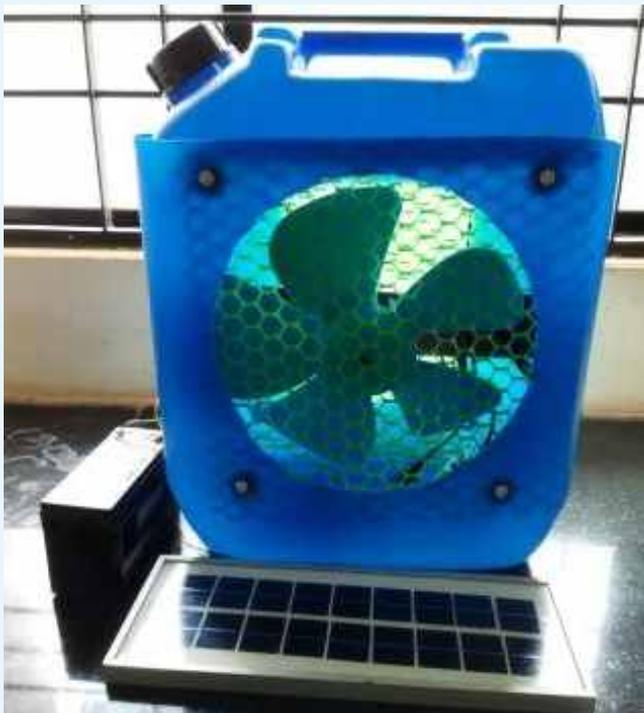


Figure 1: model of solar air cooler

## APPLICATION

The solar air cooler with auto tracking is used in home, industries, meeting hall, seminar hall, by adding control circuit, we can maintain the room temperature at required level.

## CONCLUSION

Comparing the cost of this product with the existing products in the market is solar product appeals better and affordable by common people. This solar product perfectly suits for villages, schools and offices and thus an alternate to the power cut problems. It comprises of many attractive features such as usage of solar energy, cooler and cooling cabin at lower cost. It is eco-friendly and natural, electricity savers. Durability of the product is more thus minimizing the cost. No electricity is used so this product saves the energy and saves environment from getting polluted.

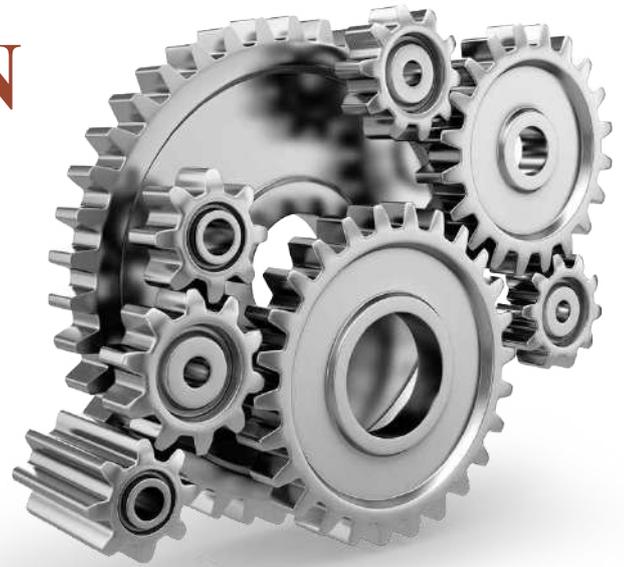
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# GEAR BASED ON QUICK RETURN MECHANISM

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## ABSTRACT:

A Quick Return Mechanism is a mechanical assembly to create a reciprocating motion which is so designed to reduce ideal time required for return stroke. It is a four bar mechanism comprised of fixed link, crank, pin sliding in the slot and a sliding pair. Electric motor runs the driving pinion at a uniform speed. Pinion transmits its motion to gear. Gear has a pin on its surface which is confined to slide inside slot of crank. At the point when the gear nears a full revolution, the arm achieves its farthest position and comes back to its initial position at a faster rate, thus its name. It has many applications such as Shaper, Power driven saw, mechanical actuator and many more.

Keywords: Quick return, reciprocating motion, crank.

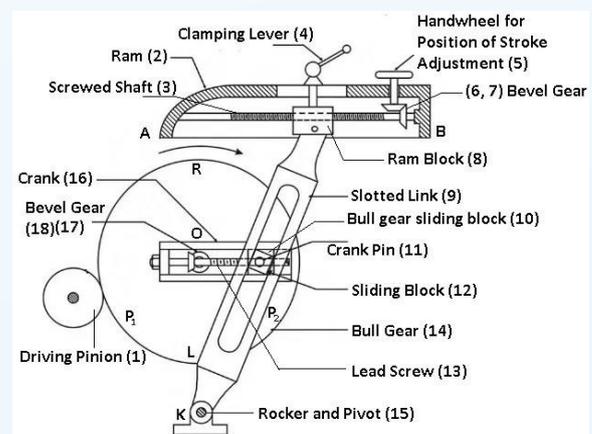
## INTRODUCTION

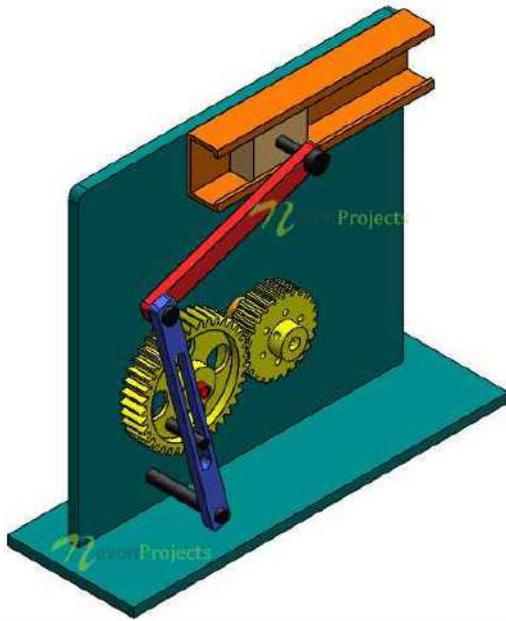
Quick return mechanism feature different input durations for their working and return strokes. The time ratio of a quick return mechanism is the ratio the change in input displacement during the working stroke to the change during the return stroke. Quick return mechanism are used in shapers ,power driver saws, and many other application requiring a load

–intensive working stroke in comparison to a low load return stroke.

## METHODOLOGY

The radial slide is bolted to the center of the bull gear. This slide carries a sliding gear block into which the crank pin is fitted. As the bull gear will rotate, the crank will revolve at uniform speed. The sliding block which is mounted upon the crank pin is fitted within the slotted link. This slotted link is pivoted upon at its bottom end attached to the frame of column. The upper end of the sliding link is bifurcated and attached to the ram block by a pin.





When the bull gear rotates, the crank pin revolves at a uniform speed. The sliding block fastened to the crank pin will rotate on the crank pin circle and at the same time this slider will slide up and down in the sliding link. As the slider will move inside the sliding link, it will provide a rocking movement to the sliding link and this movement will be transferred to the ram providing it a reciprocatory motion . Hence the rotary motion of the bull gear is converted into reciprocatory motion of ram.

## APPLICATIONS

Quick return mechanisms are found throughout the engineering industry in different machines such as shaper, screw press, power –driver saw.

## CONCLUSION

The movements of the forward and the backward are depended upon the construction of the mechanism. The Whitworth quick return mechanism is an inversion and practical type mechanism of the single slider crank chain where the ram (sliding link) will be responsible for the machining of the work piece and the other three turning pairs (connecting rod, crank, and frame) always tries to make the sliding pair to move.

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# FLAT BELT SPECIMEN POLISHING MACHINE

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## ABSTRACT:

Polishing is a surface machining technique to produce a high-quality finished surface on the product. It is a multistage process, in which each subsequent stage uses a fine abrasive. The abrasive paper aims to design a polishing machine that performs initial finishing stages. Flat belt polishing machine is used to polish the specimen in meteorology laboratory. One of basic step for proper metallographic sample preparation is rough polishing.

Keywords: Polishing, meteorology, machining..

## INTRODUCTION

It is the first step of polishing a specimen this is known as polishing. It is done to observe the micro structure of specimen using microscope. This operation is mainly done on the face of components in order to improve the surface finish. Also, it is often done to further improve the looks by creating good surface finish or prevent corrosion. The surface finish obtained depends on grit size of the abrasive used. So, polishing is a multistage process and starts with a rough grit size abrasive and each subsequent stage of polishing uses a higher grit abrasive until the intended surface finish is obtained.

## METHODOLOGY

In order to manufacture this polishing machine, the following methodology has been adopted. The main fabrication of the polishing machine is broken down into miscellaneous components and different processes and fabrication have been performed and then later assembled step by step. The material for the base frame considered is mild steel due to its high weldability, machinability, high toughness and good elastic strength.



Fig.1 Flat belt specimen polishing machine

## CONCLUSION

This machine can be used for polishing stainless steel flat bars, rectangular tubes and square tubes. After the fabrication of these polishing machine it is observed that a good surface machine can be achieved which is comparable to another polishing machine.

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# MINI BELT GRINDER

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## ABSTRACT

Belt grinding is a rough machining procedure utilized on wood and different materials. It is commonly utilized as a completing procedure in industry. A belt, covered in rough material, is kept running over the surface to be handled so as to evacuate material or create the ideal finish. This Belt Grinder project is made from wood. This Mini grinder Project consists of 775 motor which is fundamentally rotates the pulley attached to it, along with a mini grinder, grinding paper and an abrasive belt grinder. The second pulley is attached to the wooden base vertically with the tensioner spring. Grinding paper is then fitted in pulley. To support the mini grinder a base frame is provided, it helps in grinding wooden material. Components used for making this belt grinder are DC motor, spring, base Frame (support frame), abrasive grinder belt, coupling and a pulley. Belt grinder helps to shape the material without putting much effort and produced accurate results.

Keywords: Belt grinder, Abrasive grinding belt.

## INTRODUCTION

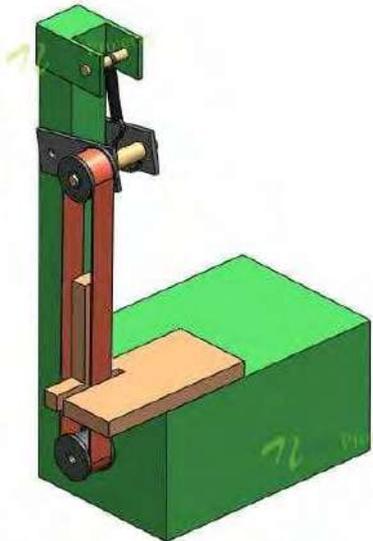
Belt grinding is a common finishing process in the metal and wood working industries. Coated belts are used in the same speed range as bonded wheels, but they are not generally dressed when the belts becomes dull. Belt grinding is a kind of grinding tool with special form, which needs straining device and driving wheel and to make belt strained and moved at high speed, and under certain pressure, the contact between belt and work piece surface can help to realize the whole process of grinding and machining. Belt grinding is a rough machining procedure utilized on wood and different materials. It is commonly utilized as a completing procedure in industry. A belt, covered in rough material, is

kept running over the surface to be handled so as to evacuate material or create the ideal finish.

## METHODOLOGY

This Belt type grinding machine is generally used for polishing the small metallic components and worn the surface of woody components. In this machine abrasive belt fitted on the rollers. The coupling is used for transmission of power from electric motor to the roller shaft. As the first shaft from the motor is rotated then all the rollers rotated with same speed because of abrasive belt wound over the surface. When we keep the any small part on abrasive belt and apply the pressure over the

surface of the belt, then the small component polished. Because of this machine, good quality of glassing also obtained for good looking component. . The abrasive belt is available in various sizes in the market. Belt grinding machine may be dry belt wet belt or combination belt. Belt grinding machine is used for heavy stock removal or for light polishing work depending upon the type of belt grade used.



*Figure 1: Modeling*



*Figure 2: Working model*

## APPLICATION

Finishing: surface roughness, removal of micro burrs, cosmetic finishes, polishing, Deburring: reducing, burr removal, edge breaking, Stock removal: high stock removal, cleaning (e.g. of corrosion), eliminating mill or tool marks, dimensioning.

## CONCLUSION

Grinding is a machining process that uses a grinding wheel as the cutting tool. A wide variety of machines are used for grinding. Although mini belt grinding belt have stronger cutting ability than that on the grinding wheel. But as wheel grinding is having some disadvantages in form of time required to finish the surface, material removal rate, surface finish obtained etc. To over such disadvantages this vertical belt grinding machine is designed using CATIA V5 software to overcome disadvantages of wheel grinding machine.

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