

IOT BASED AUDITORIUM MONITORING SYSTEM

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1. Abstract:

The main purpose of this project is to inform humans about applicable seating preparations which are divided into blocks inside the auditorium. Our challenge is to take care of people by using the metal detector that detects any hazardous weapons carried with the aid of any individual so that we can block the entry of such human beings into the auditorium. Through this project, we install a fire sensor to detect the presence of fire in the auditorium which helps in saving humans living inside the auditorium. Electric power has become the basic necessity in day to day life of every human being. So we have to utilize the power-saving techniques to control and monitor the lighting system in the auditorium.

2. Introduction:

In our project, we guide human beings into preferred seating arrangements. The seating association is divided into blocks so that the target market can without difficulty occupy the vacant seats. This is done by using the sensor that counts the number of people going in and out of the auditorium. Because the conventional manner of counting human beings is not an environment-pleasant way as more time is needed to count each and everyone entering and exiting the auditorium. So, our project helps in saving time and money by eliminating manual processes concerned with counting and saving many hours attended for counting.

In addition to this, we supply safety at the entry level by detecting hazardous

hands and weapons. This detection is finished with the aid of a metallic detector. Whenever metal is detected by the metal detector buzzer buzzes, This signals hazardous objects.

As we are using fire sensors to indicate an emergency so that we can rescue ourselves from the hazardous event that may occur within the auditorium. Whenever the hearth sensor detects the fireplace the buzzer rings and warns the humans that there may also be a hearth and to evacuate the auditorium. In case anybody is caught internal the auditorium the rescue group can comprehend the precise rely on human beings as we have included the counting system. This ensures that no existence stays unsaved.

3. Literature Survey:

[1] Rachida AitAbdelouahid, Olivier Debauche. In this paper, they have proposed a smart auditorium using raspberry pi. They aimed at controlling air temperature and humidity and even carbon dioxide using sensors like DHT22, and MH-Z19 respectively. HC-SR501, a motion sensor is used to detect the presence of external intrusion whenever the auditorium is empty. They have used

tiny YOLO v3 to identify the presence of humans in the auditorium thereby ensuring to

switch off the lights, reducing the temperature, and stopping ventilation..

[2] Athmika Rai, Bindushree B D, Divya T, Nidhi V P. In this paper , they have worked on signaling to people whether the auditorium is empty or not through LCD. LED lights will get activated in such a way that it shows the path i.e particular row where a person who enters the auditorium can be seated using an IR sensor counting the number of people entering and exiting the auditorium can be one security is provided using a metal detector.

[3] Mrs K Maheshwari, Ms Sangeetha D, Dr. T Kalaikumaran. The main aim of this paper is to manage the power consumed by the auditorium. Firstly sensors are placed at the doorstep which detects the count of people and switch on the light at the first row for the first few count this process will continue until the last count. If the count has negative value then the lights will turn off one by one when count decreases.

[4] Ansh kapoor, Sarthak Shah, Shashank Agrawal, Preeti Kathiria, Smita Agrawal .This project works in such a way

that an empty auditorium is clicked and made it into equal halves depending on the size of the auditorium and then image of original

auditorium is compared with the empty auditorium image, if the difference is found between corresponding images then the signal is sent to particular sensor of respective half resulting in switching on lights and air conditioner.

3.1 Proposed System:

In activity to control the downsides of the existing framework, this venture thus, investigates an automated hall observing framework to check the stemming challenge to various auditoriums. The capacity to give security at the entry level of the auditorium would permit the audience to feel good without truly controlling them.

4. SYSTEM DESIGN AND ARCHITECTURE :

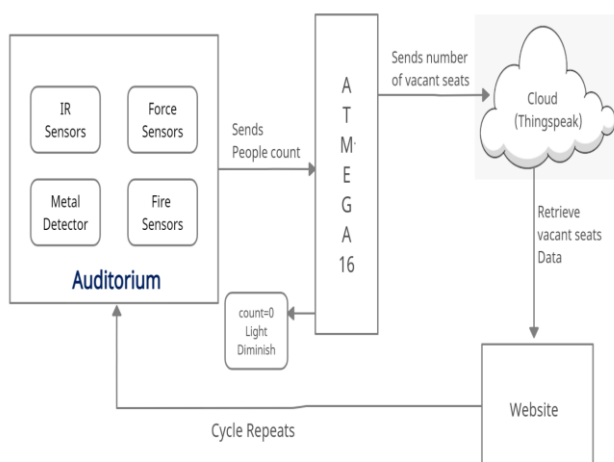


Fig : System architecture

4.1 Components Used:

IR sensors: Used to detect a number of people entering and exiting the auditorium.

Force sensor: Used for weight detection which can be detected by the microcontroller through an analog to digital converter.

Metal detector: Used to detect the presence of any harmful metal objects.

Fire sensor: Used to detect the presence of fire or existence of combustion.

ATMEGA16: It is a microcontroller and can process 8-bit data at a time.

Atmel studio: It is an integrated development platform for developing and debugging all AVR and other microcontroller applications.

ThingSpeak: It is an open-source cloud for IoT applications and API to store and retrieve data using the HTTP protocol over the internet.

Blynk application: It is a platform that permits us to make interfaces for controlling and checking our equipment projects from ios and android gadgets.

5. Methodology:

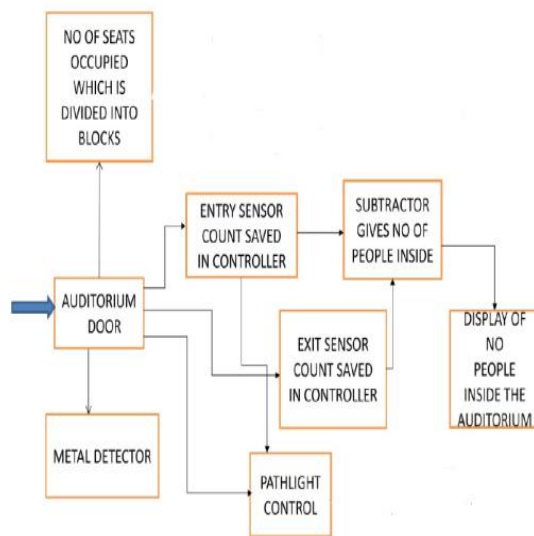


Fig: Methodology

5.1 Working Procedure :

The functionality of this project begins with providing security using a metal detector. A metal detector will be placed at the entrance of the auditorium which detects whether a person is carrying any harmful metal devices or not, if it finds any harmful devices then the buzzer buzzes to indicate that a person is carrying something harmful. Sensing the number of people entering into the auditorium and the number of people exiting the auditorium. Once people entered, where they have been seated and which are the seats available to occupy will be shown to people through blynk application and once a person enters the auditorium, the sensor senses the

presence of the person resulting in switching on lights, if there are no people inside the auditorium then the lights will be turned off automatically.

Future Scope:

By implementing this project we can provide security to the audience and can save power and even we can maintain social distancing as we will get to know the seating arrangements before entering the auditorium. For future scope we can save power by implementing automatic working of fans and temperature inside the auditorium can be monitored.

Conclusion:

Implementing this project helps in power saving by automating the switch on and off of auditorium lights and as we can see the seating arrangements through blynk app there will be no headache regarding getting vacant seats which helps in maintaining social distancing in this covid situation. Hence this project is necessary and even efficient to use in auditoriums, conference halls, etc..

Reference:

- [1]. An open source and low -cost smart auditorium, Rachida Ait Abdelouahid, Universite Hassan || de Casablanca and Olivier

Debauche, University of Mons / University of Liege.

[2]. Smart auditorium with security system, Athmika Rai, Bindushree BD, Divya T, Nidhi V P, Department of electronics and communication engineering, Mangalore institute of technology and engineering, Badaga Mijar, Moodabidri-574225, Karnataka.

[3]. Intelligent power management for college auditorium, Mrs. K Maheshwari, Ms. Sandhya S, Ms. Reshma U, Ms. Sangeetha D, Dr. T. Kalaikumaran.

[4]. Smart auditorium automation system based on object recognition, Ansh Kapoor, Sarthak Shah, Shashank Agrawal, Preeti Kathiria, Smita Agrawal.