Synopsis
On
“SMART AUDITORIUM WITH SECURITY SYSTEM”

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ABSTRACT:
The main purpose of this project is to design and employ of power saving in general public places like auditoriums, shopping malls and theatres etc. To control and monitor all these equipments or appliances we need man power or controlling system. This project describes the smart working of electrical and electronic devices with automatic control with the help of arduino controller. For the security purpose metal detector is used which is placed at the entry door and fire alarm in the auditorium is employed. Power saving is achieved by controlling fan speed depending on the temperature and seating arrangements in the auditorium. All these process have been achieved using very less power supply.

INTRODUCTION:
The “Smart auditorium with security system” project mainly focuses on guiding a person into desired seating arrangements which are divided into blocks and also the control of electrical fittings. The main purpose is to reduce the energy wastage caused due to the unnecessary working of electrical fittings when the auditorium is not full. It also display the number of people seated with the help of sensors at entry and exit doors. The guiding system is activated only when the entry sensor will sense the entry of a person.

When a particular row is filled then the LED corresponding to that row goes off permanently. The fan speed is controlled by the temperature sensor placed inside the auditorium which is automatic in nature. Metal detector is placed at the entry of the auditorium in order to provide security.

LITERATURE SURVEY:
There are many projects undertaken for smart controlling of electrical equipments in the public places like shopping malls theaters etc. Various technologies have been used to implement this keeping power saving as a main motto. Following are the few projects that used microcontroller as the base similar to our project.

- Sunil Kumar.Matangi, Sateesh.Prathapani[1]. The main aim of this paper is to design and employ of power saving in general public places like auditoriums, shopping malls and theatres etc. To control and monitor all these equipments or appliances we need a person or controlling system. This paper describes the complete working of electrical and electronic devices with automatic control and also power saving in theatres, shopping malls and auditoriums. To implement this they have used MCS 51 family microcontroller, IR sensors/LDR (Light Dependent Resister), 16X2 LCD (Liquid Crystal Display). MCS 51 family Microcontroller is used to control the total operation. In our project we implemented controlling system using arduino which is easier than other microcontrollers.

- Nikita Bagali, Prof. Geeta Navalyal[2]. In this research paper, they have proposed a system to analyze the power usage in gathering hall/auditorium by developing a visitor counter and automatic fan control system.

- Sukanya Reddy, Rajesh Kaki, Venkataramana Sarparapu, Kranthi Kumar[3]. The main aim of this paper is power saving. Automatic controlling systems are preferred over manual controlling. The design of power controlling and saving project can handle controlling of electrical and electronic devices, appliances etc. Through this
project we have tried to show a smart way to control the power consumption and power saving in Auditoriums, Shopping malls and Theatres etc. Now in all cities/areas we have shopping malls, theatres and auditoriums. In these monitoring and controlling appliances becomes very crucial. If less number of people enters into the auditorium then no need to switch on all the devices. If all the devices turns on then there will be loss of power. If maximum people enter into the auditorium then automatically all the devices will be switched on.

**OBJECTIVES:**

- Detecting the number of people present in the auditorium.
- Guiding the audience to the un-occupied rows starting from the first row.
- Through guiding our main motto of power saving is achieved.
- Metal detector is placed to ensure the security.

**METHODOLOGY:**

The functioning of the system starts with detecting the entry of the people to the auditorium and keeping a track of number of people in it. This count is the parameter to control the appliances like fan. The metal detector which is placed at the entry door detects for the presence of metal and buzzer will be turned ON.

The entry sensor and exit sensors are kept at the entry and exit doors to detect the people entering and leaving the auditorium which gives a signal to the microcontroller which will have the count of number of people inside and will be displayed on the LCD screen. When a person enters into auditorium the path light will guide the person into the vacant seat starting from the first row.

The temperature sensor will sense the temperature inside the auditorium and give a voltage corresponding to temperature which controls the speed of the fan inside the auditorium.
RESULT AND ANALYSIS:

Initially when the auditorium was empty, all the fans were OFF and the message “Empty auditorium” was displayed on the LCD. The guiding LEDs were activated and path to the particular row is shown and count is displayed on LCD (fig1).

At the same time, the control signal for fan of the first block was activated and fan is turned ON. When the person enters into the second block, the fan corresponding to that block is turned ON. The IR sensor at the entry door activated indicating the entry of person (fig.2). Similarly exit IR sensor detects for the people who exits from the auditorium. The metal detector is placed at the entry of the auditorium door which works on the principle of colpitt’s oscillator(3). The buzzer gets activated if metal is present.
CONCLUSION:

The main aim of the project is to save the power which is wasted in the auditorium due to the running of fan in case when auditorium is empty. The guiding system is simple system which is ultimately implemented to achieve power saving. Security is achieved by the metal detector at the entry door.

The arduino controller is the backbone of our system, because everything from sensing the entry and exit, turning on the fan and its speed control depending on the temperature is managed by it. Constant power supply is required to maintain smooth functioning of the system.

REFERENCES


