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# SMART ATTENDANCE CLASSROOM MANAGEMENT SYSTEM

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## Abstract

Student attendance is one of the important issues for colleges,because many colleges evaluate students'attendance and while giving the final grade,professors consider their total number of appearances on classes during the whole semester.Some colleges prefer to use paper sheet for controlling attendance,whereas some colleges prefer to use paper sheet for controlling and after this,fill out this information into a system manually generally students' performance in studies is depending on the attendance.

There is a need to develop system that reduce burden in analyzing the attendance and enhance smooth functioning of schools,colleges and colleges and to help the parents.So,we are using these properties of RFID reader monitor the student.Also include module to make system better like in biometrics thumb detection for security and send message to parent if with respective student absent in class.

## INTRODUCTION

Thus,this paper describes a brief introduction to application of attendance system and reviews some application of attendance system and techniques system and reviews some application of attendance system and techniques of data retrieval such as smart card, biometrics and RFID itself. This system would be applicable in collecting student attendance in classroom using passive RFID technology.

Our project is monitoring of student using RFID.In this we are using RFID reader and contactless smart card.Reader is located on fixed location sends signal to passive RFID chip detected in range of reader.Chip re-transmits the acknowledgement signal with its unique identifier code,hence chip is identifier.Also a single reader can identify many no of chips in very short period of time.

The Smart Classroom Management System for light and fans is designed to optimize energy consumption and create a comfortable learning environment.This system utilizes IOT-enabled device,sensors detect occupancy to automatically turn lights,fans on or off, while environmental sensors adjust their operation based on factors such as ambient light and temperature.

The quality of education is a vital demand in today's competitive setting.Technology has affected us in each facet.Intuitive categories are a progressive approach of education within the education situation in India that offer quality teaching and learning opportunities to lecturers and students by action.In efforts to grow academically it should be considered that differentiated modalities of teaching and learning area unit necessary to implement deeper levels of growth and abstract creation and distribution of curricula for lecturers and students.

New teaching ways are introduced that are called intelligent category.It uses instruction ,material,3D animated modules and videos,and every one frame instructional institutions use this idea.The idea of intelligent schoolroom has not solely created an interesting education however a chance for college kids to boost their performance.The possibilities or blessing of good lecture room area unit endless.

## I. EXISTING SYSTEM

In most universities,teachers take attendance by calling out the names and surnames of students,and the marking them,while,in others,teachers pass around a sheet of paper,asking students to sign in attendance sheet just next to their surnames. Both practices have the drawbacks.In the first case,if numerous groups attend the lesson,checking all of these students by name and surname might take about 10 minutes out of each lesson;in the second case,friends of absent students may write down their names and surnames. These practices plan university teachers and their institutions at considerable disadvantages when it comes to taking attendance.

## II. PROPOSED SYSTEM

We developed automated student attendance system RFID trough SMART CARD system we improve the student monitoring system.Use RFID and smart card.With the help of that improve security .There will RFID transponder will detect and store the student's last known position in the database and display on OLED.The complete process will be automated and no one need to be monitoring the system .As every tag has its own unique ID, it is easy to differentiate every tag holder.This is uniquely student identify.We manage attendance database.

## III. METHODOLOGY

The methodology for Smart Classroom Management System to install RFID card readers at the classroom entrance.Issue RFID cards to student for identification and strength monitoring.Then temperature sensors are measure the classroom temperature in real time.Then light sensors to detect natural light intensity.Control devices is connect lights and fans to smart switches or relays for automated control.Use a microcontroller or cloud server to process data from RFID reader and sensors.

Light sensors to detect natural light levels.Smart switches or relays connected to lights and fans for automated control.A microcontroller or cloud-based system processes the collected data.The number of students present.Classroom temperature based on predefined conditions,the system determines whether to turn lights and fans on or off.Fans speed is adjusted proportionally based on temperature and the number of students.If no students are present,fans are turned off.

RFID based attendance of each student taps their RFID card when entering or leaving the classroom.The system records students strength by counting active RFID cards.Temperature sensors track the room's temperature .Light sensors detect ambient light levels.Fan speed adjusts dynamically based on temperature and the number of students the fans turn on or off.When the first student enters,the system checks temperature and light condition to activate appliances as needed When the last student leaves,the system automatically turn of lights and fans.based on the data,the system turns lights and fans on or off and adjusts fan speed.

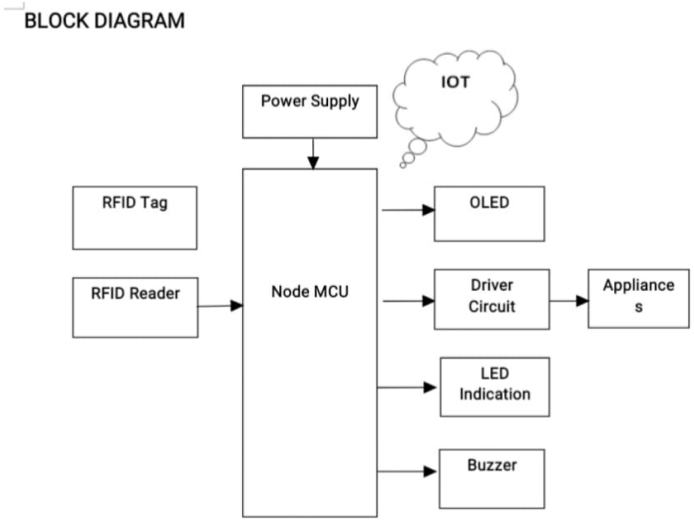


Fig.1 Block Diagram of Smart Attendance Management System

### Applications

- Students top their RFID cards,updating attendance and student strength in the system.
- Conduct system testing in a controlled environment to ensure accurate RFID tracking,sensors data collection,and appliance operation.
- Deploy the system in classrooms and integrated the application for feedback and fine-tuning.
- Use IOT data analytics to evaluate energy usage trends and recommend optimizations.
- Provide regular reports to administrators on energy savings and system efficiency
- When first student enters,the system checks the temperature and light conditions to activate appliances as needed.

## IV. HARDWARE DETAILS

**Microcontroller**:Computer-on-a-chip used to control electronic devices.It is a type of microprocessor emphasizing self-sufficiency and cost-effectiveness,in contrast to a general interfaces needed for a simple application,whereas a general-purpose microprocessor requires additional chips to provide these functions.

**OLED(Organic Light Emitting Diode):**OLED is a flat light emitting technology,made by placing a series of organic thin films between two conductors.When electrical current is applied,a bright light is efficient than LCD displays.OLED displays are not just thin and even rollable and stretchable in the future.OLEDs represent the future of display technology.

**RFID Reader and Tag:** The reader,or scanner,functions similarity to a barcode scanner;however,while a barcode scanner uses a laser beam to scan the barcode,an RFID scanner uses electromagnetic waves.To antenna.The tags antenna receiver data from the scanner and transmits its particular chip information to the scanner.

RFID tag is a small device which stores and sends data to RFID reader.They are categorized in two types-active tag and passive tag are those which contain an internal battery and do not required power from the reader.They do not contain an internal battery and thus depend on RFID reader for operating power and certainly have a low range limited up to few meters.

**LED Indication:**Visual indicators to display system statuses like power on,successful attendance logging,or errors.Modern indicator LEDs packed in transparent molded plastic cases, tubular or often tinted to match the device color.Infrared devices may complex packages have been adapted for efficient heat dissipation in high-power LEDs.

**Driver Circuit**:Interfaces the microcontroller with high-power devices such as lights fans,enabling their control.A driver circuit is a component or circuit that regulates current flow to control another circuit or component.Receive image data from microprocessor or microcontroller and deliver analog voltage to activate display pixels.

**Appliances**:Lights and Fans connected to the system for automated operation based on occupancy and environmental conditions.Students can request absences online, and teacher can accept or reject them.The system can also generate attendance lists for teachers and managers to download.

**Buzzer:** Used for audio alerts to signal events like successful RFID scanning,errors,or specific system notifications.A buzzer is a game element that can be used in a smart classroom to help with group play and classroom management.A buzzer can be used to get students to race to finish an activity first.

Classroom management is important for both students and teachers,and can lead to better academic performance, stronger engagement,and fewer behavioral problems.A timer can be used to limit the time students have to compiete an activity,while a randomizer can be used to call on students by randomly selecting numbers from a hat.

## V. SOFTWARE DETAILS

Program written using arduino software are called sketches.These sketches are written in the text editor and are saved with the file extension.The editor has features for cutting/pasting and for searching/replacing text.The editor has features for cutting/pasting and also display errors.The bottom right hand corner of the windows displays the configured board and serial port.

**Embedded C:** Embedded system do a very limited resources,particularly the memory.Generally,they do not have secondary storage devices such as the CDROM or the floppy disk.

**Arduino IDE**: Arduino software contains a text editor for writing code,a message area ,a text console,a toolbar with buttons for common functions and a series of menus.It connects to the arduino and genuine hardware to upload programs and communication with them.

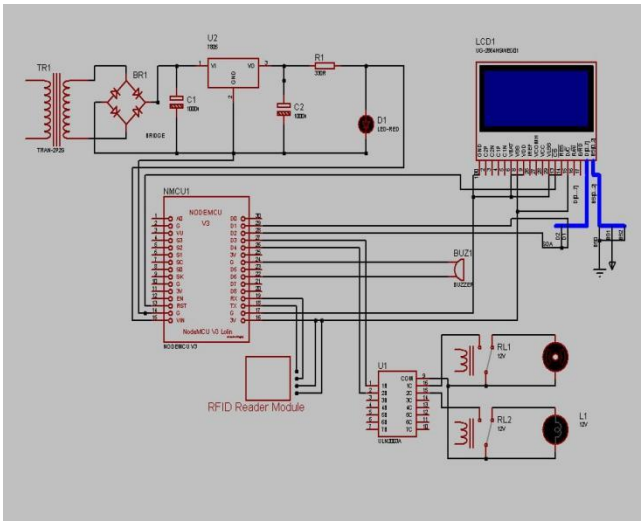


Fig.2 Schematic Diagram of Smart Attendance Management System

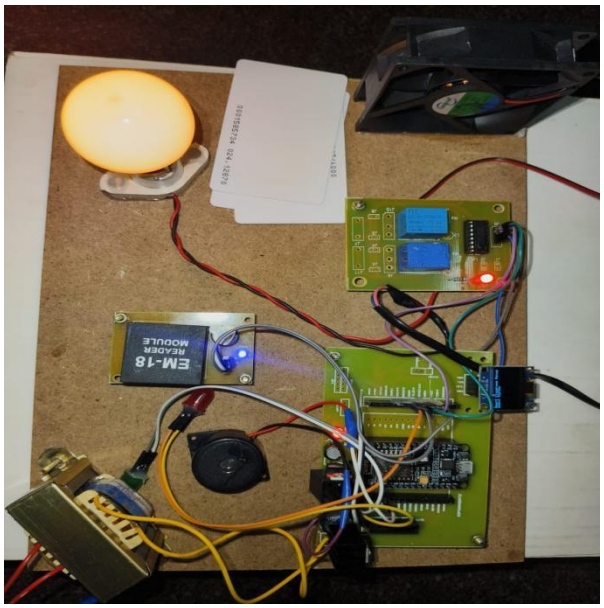


FIG 3 Prototype of Smart Attendance Management System

## VI. CONCLUSION

It has been experimentally proven that classroom automation using the internet of things is working satisfactorily by linking simple device plus device being effectively controlled.The planned system not system not only controls the light,the fans and the projector.but also takes the participation.This will help the teacher and students save times and focus on studying.

If you would like to change the language manually,start the arduino software and open the preferences window .Next to the editor language there is a dropdown menu of currently supported language.Select your preferred language is not supported,the Arduino software to use the selected language. For the boards in the following list,software includes the built in support for the AVR core.The concept of BYOD is being piloted so that it can be used extensively.

The goal of the smart calssroom is to make the use of the computer in the classroom simple,friendly and not intimidating as possible.In recent years,the utilization of distance education system in all types has been mounting .One of the tools for the distance education systems is perhaps intelligent classrooms, concurrent classroom environments.It is for that reason significant to increase the efficiency of the smart classroom to improve the remote learning environment.It is for that reason signification to increase the efficiency of the smart classroom to improve the remote learning environment education.

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