SMART SITTING ARRANGEMENT IN CLASSROOM

MANTRI SWATHI , Assistant Professor, Department of EEE, Satya Institute of Technology and Management , Vizianagaram, Andhra Pradesh ,India.Email: - swathikurimineni86@gmail.co.in

ARATIKATLA MANIKANTA , B Tech Student, Department of EEE, Satya Institute of Technology and Management, Vizianagaram, Andhrapradesh , India. Email: -manikanta221313@gmail.com

PATHIVADA SUDHEER,B Tech Student, Department of EEE, Satya Institute of Technology and Management , Vizianagaram, Andhra Pradesh ,India. Email: - sudheerbharath72@gmail.com

ABOUTHULA TARUN KUMAR ,B Tech Student, Department of EEE, Satya Institute of Technology and Management, Vizianagaram, Andhrapradesh , India. Email: - tarunabouthula201@gmail.com

TAMMINANA KUMAR SWAMI , B Tech Student, Department of EEE , Satya Institute of Technology.andManagement,Vizianagaram,Andhrapradesh,India.Email: - kumartamminana@gmail.com

ABSTRACT

Attendance management is important to every single organization; it can decide whether or not an organization such as educational institutions, public or private sectors will be successful in the future. Organizations will have to keep a track of people within the organization such as employeesand students to maximize their performance. Managing student attendance during lecture periodshas become a difficult challenge. The ability to compute the attendance percentage becomes a major task as manual computation produces errors, and wastes a lot of time. For the stated reason,an efficient Web-based application for attendance management system is designed to trackstudent's activity in the class. This application takes attendance electronically and the records of the attendance are storing in a database. The system design using the Model, View, and Controller(MVC) architecture, and implemented using the power of Laravel Framework. JavaScript is adding to the application to improve the use of the system. MySQL used for the Application Database. The system designed in a way that can differentiate the hours of theoretical and practicallessons since the rate of them is different for calculating the percentages of the students' absence. Insertions, deletions, and changes of data in the system can do straightforward via the designed GUI without interacting with the tables. Different presentation of information is obtainable from the system. The test case of the system exposed that the system is working enormously and is readyto use to manage to attend students for any department of the University.

INTRODUCTION

Due to student's interest in classrooms, and whose is the largest union in the study environment of university or institution, so recording absence at a department having a large number of students in a classroom is a difficult task and time-consuming. Moreover, the process takes much time, andmany efforts are spent by the staff of the department to complete the attendance rates for each student. So in many institutions and academic organizations, attendance is a very important criterion which is used for various purposes. These purposes include record keeping, assessment of students, and promotion of optimal and consistent attendance in class. As long as in many developing countries, a minimum percentage of class attendance is required in most institutions and this policy has not been adhered to, because of the various challenges the present method of taking attendance presents. The process of recording attendances for students was in the form of hardcopy papers and

the system was manually done. Besides wasting time and taking efforts for preparing sheets and documents, other disadvantages may be visible to the traditional one due to loss or damage to thesheets-sheet could be stole This project examines the contribution of classroom students' seating positions to learning gains.Data were gathered from a sample of 1907 grade six students who sat for the same seat twice overan interval of about 10 months. They were drawn from a random selection of 72 low and high performing primary schools. Results of a multi-level regression show that seating in the front rowin a classroom led to higher learning gains of between 5 percent and 27 percent compared to seating in other rows that are farther away from the chalkboard. The policy implication to education is that student's seating position can be manipulated in a way that it optimizes learning gains for slow learning.

2.1 Block Diagram
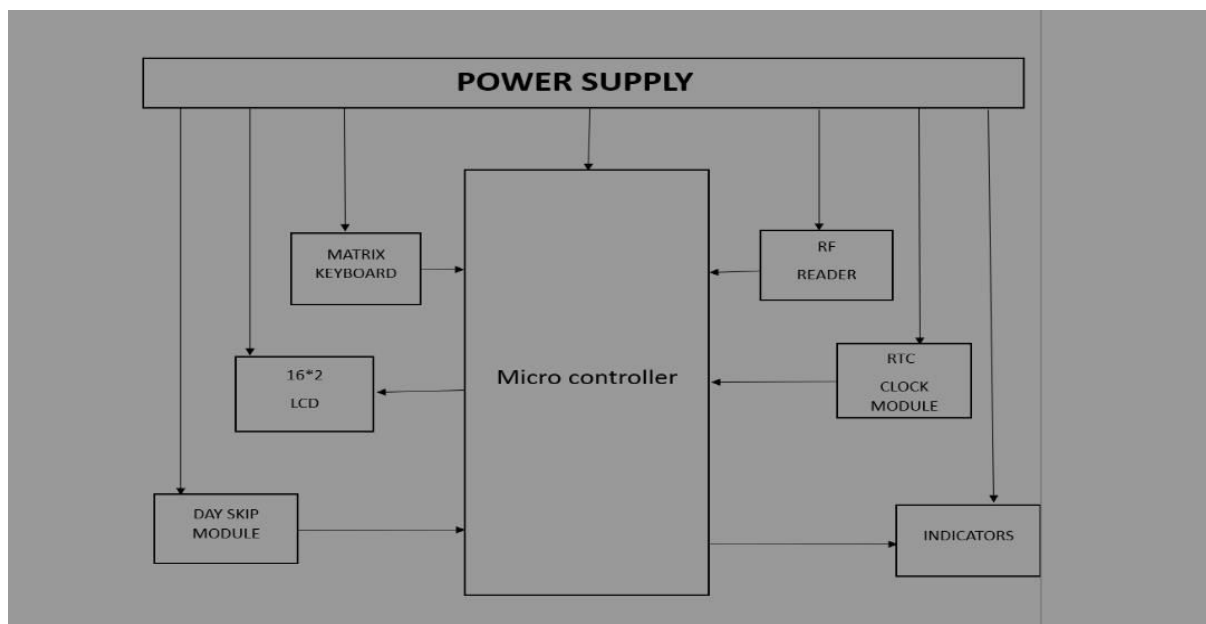
2.2 OPERATION

In this project whenever the student tap the RF id card on RF id card reader then microcontroller read his attendance if he/her in right time and allot a set number for a week (7days) and complete data of student attendance is stored in memory/ cloud. If any student come after timing, system shows YOU ARE LATE and doesn't store the attendance data of that day This is an RFID-based smart attendance system that we are making using an Arduino UNO microcontroller board. You can read the full project on our website as well. The students can enrol themself by just placing the smart card on the reader module. The system is capable enough to record the attendance on the serial monitor screen. Later on, you can extract the information from it. This system works on radio frequency identification that is RFID. The smart card that we use here is pre-coded with the roll numbers of the students. Whenever someone uses a card whose information is not registered in the memory of the system the red LED will go on and the buzzer starts beeping. When the system is on it will ask you to put the smart card on the reader module. For displaying the contents we are using a 16×2 LCD with an I2C module. When the RFID reads the card that is coded with the correct details of the student the Green LED will glow. You can add as many students as you want and also change their names by modifying thecode. In this project, we have designed RFID Based Attendance System using Arduino. EM-18 RFID Reader is a very simple yet effective module. It is an RFID module and is used for scanning RFID cards. It's a new technology and is expanding day by day. Nowadays it is extensively used in

offices where employees are issued an RFID card and their attendance is marked when they touch their card to the RFID reader. We have seen it in many movies that when someone places one's card over some machine then the door opens or closes. In short, its a new emerging technology which is quite useful. In this project, we have interfaced RFID EM-18 Module with Arduino, RTC Module DS3231, and 20*4 LCD display. RFID Based Attendance System is a wonderful project for final year electronics & electrical students. This project examines the contribution of classroom students' seating positions

3 Hardware Implementation

 3.1 ARDUINO NANO An Arduino board historically consists of an Atmel 8-, 16- or 32-bit AVRmicrocontroller (although since 2015 other makers' microcontrollers have been used) with complementary components that facilitate programming and incorporation into other circuits. An important aspect of the Arduino is its standard connectors, which let users connect the CPU board to a variety of interchangeable add-on modules termed shields. Some shields communicate with the Arduino board directly over various pins, but many shields are individually addressable via an I²C serial bus—so many shields can be stacked and used in parallel. Before 2015, Official Arduinos had used the Atmel megaAVR series of chips, specifically the ATmega8,ATmega168, ATmega328, ATmega1280, and ATmega2560. In 2015, units by other producers were added. A handful of other processors have also been used by Arduino compatible devices. Most boards include a 5 V linear regulator and a 16 MHz crystal oscillator (or ceramic resonator in some variants), although some designs such as the LilyPad run at 8 MHz and dispense with the onboard voltage regulator due to specific form-factor restrictions. An Arduino's microcontroller is also pre-programmed with a boot loader that simplifies uploading of programs to the on-chip flash memory, compared with other devices that typically need an externalprogrammer. This makes using an Arduino more straightforward by allowing the use of an ordinary computer as the programmer. Currently, optboot bootloader is the default bootloader installed on Arduino UNO.[9] At a conceptual level, when using the Arduino integrated development environment, all boards are programmed over a serial connection. Its implementation varies with the hardware version. Some serial Arduino boards contain a level shifter circuit to convert between RS-232 logic levels and transistor– transistor logic (TTL) level signals. Current Arduino boards are programmed via Universal Serial Bus (USB),implemented.

4. Proposed METHODOLOGY

In this project, we have designed RFID Based Attendance System using Arduino. RC522 RFID Reader is a very simple yet effective module. It is an RFID module and is used for scanning RFID cards. It's a new technology and is expanding day by day. Nowadays it is extensively used in offices where employees are issued an RFID card and their attendance is marked when they touch their card to the RFID reader. We have seen it in many movies that when someone places one's card over some machine then the door opens or closes. In short, its a new emerging technology which is quite useful. In this project, we have interfaced RFID RC522 Module with Arduino, RTC Module DS3231, and 20*4 LCD display. RFID Based Attendance System is a wonderful project for final year electronics & electrical students. This project examines the contribution of classroom students' seating positions to learning gains. Data were gathered from a sample of 1907 grade six students who sat for the same seat twice over an interval of about 10 months. They were drawn from a random selection of 72 low and high performing primary schools. Results of a multi-level regression show that seating in the front row in a classroom led to higher learning gains of between 5 percent and 27 percent compared to seating in other rows that are farther away from the chalkboard. The policy implication to education is

that student's seating position can be manipulated in a way that it optimizes learning gains for slow learners.

4.1 LCD

(Liquid crystal Display) LCD screen consists of two lines with 16 characters each. Each character consists of 5x7 dot matrix. Contrast on display depends on the power supply voltage and whether messages are displayed in one or two lines. For that reason, variable voltage 0-Vdd is applied on pin marked as Vee. Trimmer potentiometer is usually used for that purpose. Some versions of displays have built in backlight (blue or green diodes). When used during operating, a resistor for current limitation should be used (like with any LE diode).

5 RESULTS AND DISCUSSION
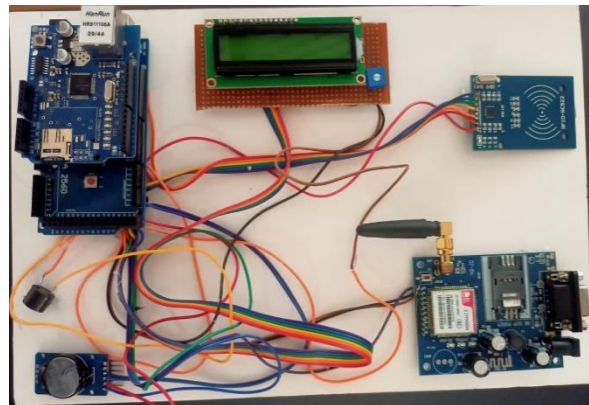
6 Conclusions

Hence by implementing this system the regularity in students will improve along with that the knowledge transfer will happened between all the students from rich to poor in knowledge and good human relations are established.

6.1 FUTURE SCOPE

Implementing smart seating arrangements is vast, integrating AI algorithms with IoT sensors to optimize seating layouts based on user preferences, environmental factors, and real-time data. This technology holds promise in revolutionizing workspace design, promoting collaboration, and improving employee well-being by dynamically adjusting seating arrangements. In public venues, smart seating can enhance crowd management, ensuring efficient space utilization and accommodating diverse needs. Healthcare facilities can benefit from personalized patient seating based on medical requirements and comfort levels. Transportation systems could optimize passenger distribution for improved safety and comfort. Integration with VR and AR technologies opens avenues for immersive and interactive seating experiences in virtual environments. Ultimately, smart seating aims to enhance user experience, efficiency, and comfort across various sectors, driven by advances in AI, IoT, and human-centric design principles.

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