

Espier- A Lectures Monitoring System

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Abstract

Presence of a human in any particular area needs to be recorded at various places including colleges, schools for students, and industries. Attendance is also mainly required for the login and logout time of employees. Radio Frequency Identification — RFID based attendance management system can be used in any college or university or company. The main objective of RFID based Lectures monitoring System project is to take the record of ongoing lectures with employees. The microcontroller does the task of storing the attendance of the respective person in the Microcontroller memory.

The existing attendance system is manual and it is taken on paper and it consumes a lot of time. Though, The RFID based attendance already exists and it works more efficiently but using the same technology in different way may reduce a cost of project and also helps the institutions to keep a track record of lectures day by day. As we are aware that many traditional “Attendance system” uses an attendance register to note down attendance. It has less accuracy. Also, the administrative person needs to maintain the attendance papers/sheets. This project will also help the higher authority of educational institutions to have an idea about the Daily routine of each and every class.

In many industries, an attendance register is used to note down the attendance of their employees. In many of the government school's employees appoint the third person at their own place by giving some amount of salary. And this can

cause the problem with the existing attendance system is that wrong attendance can be entered. For example, in an industry, an employee can enter an invalid/incorrect login/logout time. They can come at 10 am and can enter the time as 8 am. Also in colleges, one student can give proxy attendance of another student. The probability of this is very less but it does happen.

At primary stage we are only working for the schools/colleges then after we'll start making it for the industries as well as the other small-scale firms.

In contemporary attendance is an intense issue of each foundation. The conventional method of admitting the attendance is a paper-based system. The difficulties incorporate trouble in keeping the attendance list over a significant piece of time, fair amount of time wastage amid composing and marking, forged documentation, students are neglecting as well as ignorance to sign the attendance paper, lecturers overlooking the attendance list in the study hall, students signing or marking unlawfully for a truant among others. It is necessary to move away from this conventional system and need to provide better solution for the problems which are being faced. Internet of Things (IoT) is one of the key medium to solve the said issue. This paper analyses the very recent development and implementation of IoT attendance system using the concept of RFID. This analysis found that, Radio Frequency Identification (RFID) is a very advanced technology for automatic attendance system and it provide very higher accuracy and performance than traditional paper-based system. In addition, it has been concluded that, even though RFID is used, a second verification method is highly essential to mitigate the cheating and increasing reliability level. Eventually all the systems discussed in this analysis has its own advantages and disadvantages. Some certain characteristics are good for some systems and some are not. To overcome this, a hybrid model is necessary and which must confirm higher security, reliability, low cost and better performance of the system. In that respect, "RFID four tire systems with biometrics" could be used along with adequate number of RFID tag readers and finger print devices in order to confirm the security and the reliability of the system. Web server could be replaced by

PHP and MYSQL result cheaper, better accuracy and high performance. This hybrid model could be applied and practiced in schools and higher education institutions effectively.

Keywords: *Spy, RFID, Presence, Employees, Daily Routine, Timetable, Lectures, Microcontroller.*

INTRODUCTION

We have implemented an automated record system that utilizes RFID cards to avoid all such problems. Thus, it is also RFID based attendance system. In this system, each user or employee will have an RFID card. The RFID reader will be placed on the door or the entry gate of the company or on the door of the classroom or school. Whenever an employee wants to enter in the office; he/she has to show the RFID card to the reader. He/she has to take the RFID card near the RFID reader.

Then the RFID reader will note down the RFID card number and the time at which the employee has logged in. And in the same manner, while leaving employee has to show the card. So the exit time will be noted. Commonly used RFID cards are of the size of credit cards and are white in colour, these are used in many RFID projects. However, nowadays RFID cards are also available in small or RFID key tags are available. And normal RFID cards can be stucked together with the ID card of

employee's students. Or we can even print the ID-card information on the RFID card itself. This means that there are no extra efforts required or no extra trouble is caused for carrying this card since employees always carry their I-cards in college and industries respectively.

The credit card needs to be swapped or needs to be inserted inside the credit card reader machine. But the RFID card does not need to be inserted; the user just needs to take it near the RFID reader. So employees can even keep it in wallets and they can just take the wallet near the RFID card reader without removing the card from the wallet. This way RFID module will read the card information. employee/student has logged in. And in the same manner, while leaving employee/student has to show the card. So, the exit time will be noted.

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However, nowadays RFID cards are also available in small or RFID key tags are available. These key tags can be connected to the key chain. And normal RFID cards can be stuck together with the ID card of employees or students. Or we can even print the ID-card information on the RFID card itself. This means that there are no extra efforts required or no extra trouble is caused for carrying this card since students and employees always carry their I-cards in college and industries respectively.

Figure Description

It contains the following blocks:

1. **RFID Reader:** Full form of RFID is “Radio Frequency Identification”. Wireless communication is used between RFID tags and RFID readers. The reader does not require line-of-sight communication with tags. It means that Reader detects the RFID

tag even if there is some object between Card and Reader. Thus, it is a non-contact type of reader. The Radio-frequency used in our reader is 125 kHz which is a Low Frequency (LF). RFID reader When an RFID tag comes in the range of the Reader module, then the RFID reader detects the RFID card. And at that time RFID reader sends out a series of alphanumeric unique codes on the serial port. So, while adding the employees/student card number in the program memory. First, we need to store this series of alphanumeric codes in program memory and later on this unique series of codes will be compared with the incoming card number. RFID card reader module requires 9-volt power supply and output is given on the DB9 connector port.



Figure 1:



Figure 2: RFID cards

There are two main types of RFID cards, Passive and Active. In this project we have used Passive RFID tags. As given in the introduction, we can use normal RFID cards which are of the size of credit card.

These are rectangular in shape and white in colour and can be attached with the ID-card. Or even we can use RFID tags which can be attached with keychain.



Figure 3: Microcontroller

It is the main component of the project. It is the heart of the system. Microcontroller communicates with all input and output devices. Various functions of

Microcontroller are as follows:

- Displaying clock on LCD

- Reading input from RFID reader
- Comparing it with the data / RFID card number stored in Microcontroller memory
- Turning on buzzer if the cards does not match
- Logging/Storing time into memory if cards match
- Reading input from keypad and adjusting time according to the keypad entry given by user.
- Sending data to computer.

Keypad: We have used 4by 1 keypad. It is a simple type of keypad. It gives low output to Microcontroller when key is pressed. It has 4 keys. Functions of these keys are Increment, Decrement, Enter and Escape. These are used in Time setting mode.



Figure 4:

Buzzer: We have used 12-volt buzzer for demonstration purpose. Buzzer will be turned on for invalid card access.



Figure 5:

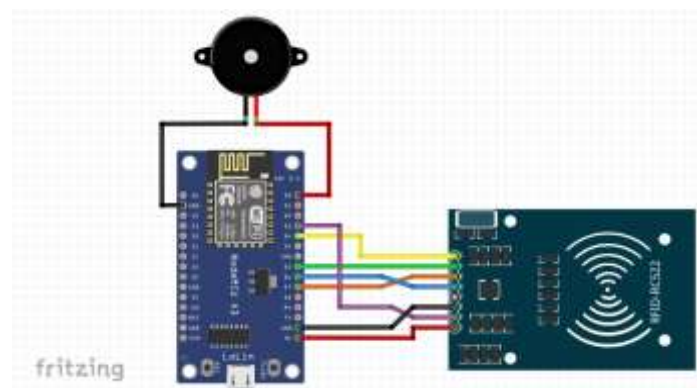


Figure 6: Working of this project / How to operate this project?

For operating this project, the user has to insert the card numbers into the microcontroller memory. It can be done by a company authority person or a college administration person while issuing the card. Whenever a new student joins or a new employee is recruited in an organization/company at that time, a card will be issued. And same entry will be made in the microcontroller program memory. In the current project, these numbers are stored in the microcontroller's program memory. This means while burning the program into memory, we

need to add these card numbers into the program. Then this card will be issued to the respective person.

Then this project operates in **normal mode**. Whenever user comes near RFID reader module and shows RFID tag then microcontroller will store 2 information or 2 types of data will in the microcontroller memory. First is the card number and second is the time at which user has shown the card. Same situation happens for logout. For logging out also student will show the card. In this project single RFID

card reader module will be used for in and out operation. While in actual implementation in industries or colleges,

When a student or employee has lost his/her card. Then in such situation he/she has to report this incident to the administration person.

Then admin person can remove the card number from microcontroller memory. Also, when any employee / student leave the office and they forget to return the card then at time also authority person will remove the card information from microcontroller memory.

user can install 2 RFID reader modules. One will be placed at the outer side and second at the inner side of the door.

So in case of lost card or person left the company without returning the card and if these cards are shown to RFID reader then buzzer will be turned on.

Actual Project:

- ESPIER (Lectures Monitoring System)
- Working on RFID Cards
- Connected to The PHP Dashboard named "SIT SYSTEM".
- Cloud Computing – Used to store the records of RFID Cards after scanning (Google-Firebase).

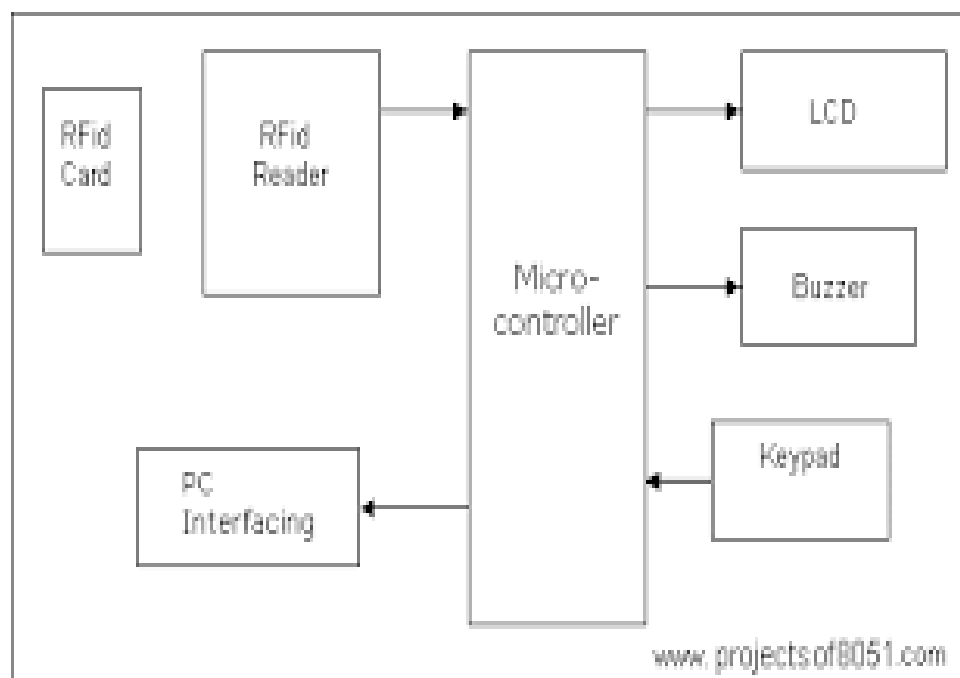


Figure 7:

Add Teachers

Teacher Name:

Address:

Contact No.:

Email ID:

Department:

Class:

File:

Figure 8:

View Teachers

#	Name	Address	Contact	Email	WFO	Dept	Class	File
1	Raj Patel	Kohapur	9884759588	rajpatel@gmail.com	972770331	DIPLOMA CS	DIPLOMA	
1	Amit Patel	Kohapur	988522245	amtpatel@gmail.com	974119431	DIPLOMA CS	DIPLOMA	
1	K E Mhetar	(chakranji)	90274280	kmhetar@gmail.com	978272711	Computer Science	DIPLOMA CS	

Figure 9:

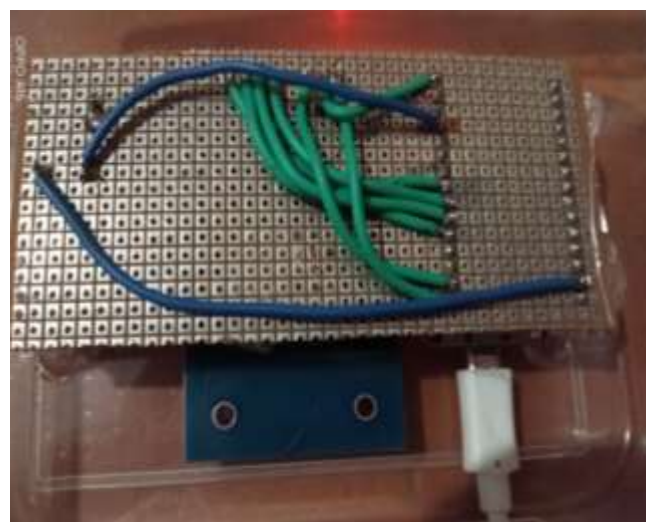


Figure 10:

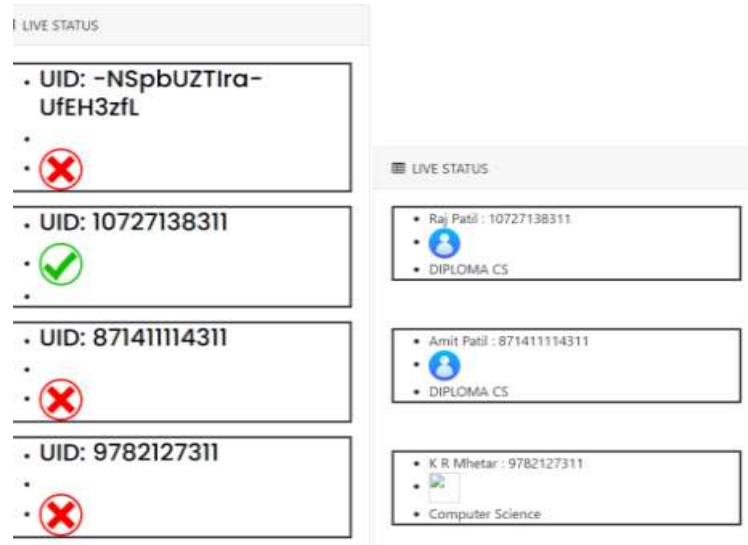


Figure 11:

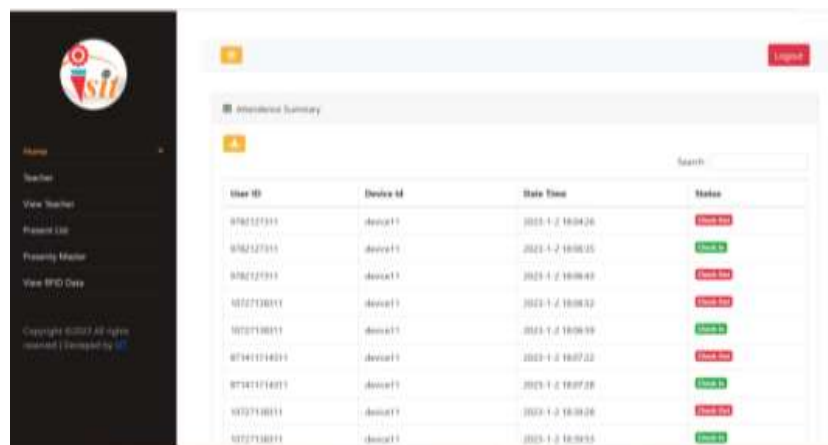


Figure 12:



Figure 13:

CONCLUSION

In conclusion, 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. By using databases, the data is more organized.

This system is also a user-friendly system as data manipulation and retrieval can be done via the interface, making it a universal attendance system. Thus, it can be implemented in either an academic institution or in organizations. However, some further improvements can be made on this RFID in order to increase its reliability and effectiveness.

An indicator or an LCD screen can be incorporated into the system to indicate when any unregistered card is scanned. An IP camera can be integrated into this system to monitor the actions like buddy-punching wherein a person cheats by scanning for another person. Finally, this attendance system can be improved by adding a feature where the attendance system indicates when a student is late for work or classes as the case maybe.

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