

RFID BASED ATTENDANCE SYSTEM USING ARDUINO UNO

**Mukesh Kumar Sharma^{*1}, Nima Donka Tamang^{*2}, Laku Tshering Bhutia^{*3}, Kewal Rai^{*4},
Manita Karki^{*5}, Nima Tenzing Bhutia^{*6}, Bandana Chettri^{*7}, Mani Hangma Limboo^{*8}**

^{*3,*4,*5,*6,*7,*8} Students, Department of Electrical and Electronics Engineering, Centre For Computers and Communication Technology, Chisopani, South Sikkim, India.

^{*1,*2}Senior Lecturer, Department of Electrical and Electronics Engineering, Centre For Computers and Communication Technology, Chisopani, South Sikkim, India.

ABSTRACT

India is a country where huge number of students goes to schools, colleges and universities and they are not concerned about attendance system. And the old method of taking attendance is much more time consuming and bothering, keeping this in mind, we have come across the idea of RFID (Radio Frequency Identification) for upgrading in attendance system. The implementation of this system can brings us on the unique way of monitoring attendance of students and employs in many sectors. This system works along with RFID Tags and RFID Reader, which will immediately record the attendance with the help of real time clock (RTC) system. RFID attendance system is much more accurate and time saving system. The system can be connected using USB port through computers or laptops to see the data stored in along with date and time.

Keywords: RFID, tags, real time clock, USB port, data.

I. INTRODUCTION

Radio Frequency Identification (RFID) attendance system is one of the many wireless technology and it is one most secure and fastest technology. This system works on two main components i.e. reader and tags also known as RFID Card along with SD module, Arduino UNO, LCD, and RTC. RFID tags transmit data through radio wave to the antenna and the reader uses the radio waves to transmit signal that activates the tags. After tags are activated it sends radio waves back to antenna, where it converts into data. Arduino UNO is used to connect the circuits for RFID attendance system, SD module is used for SD card to store data and RTC is to update time and date along with the attendance of the students or employee.

II. METHODOLOGY

Methodology of making this project

- Hardware
- Software

Hardware- Arduino UNO, RFID tags & reader, RTC module, SD card, LED, LCD, buzzer. Firstly we did drew a circuit diagram for the system and we started to assemble all the components in their respective places as shown in circuit diagram, after all connection of components we did verified and executed.

Software- for this project we had used two software

- a. Arduino IDE- Integrated Development Environment (IDE) is an application used in Mac OS, Windows, and Linux). In this software we can write our own program or just simply upload the program, and it creates a hexa code for Arduino UNO.
- b. Proteus 8 professional- This is software where we can design circuit easily and for our project simulation we had used this software.

III. MODELING AND ANALYSIS

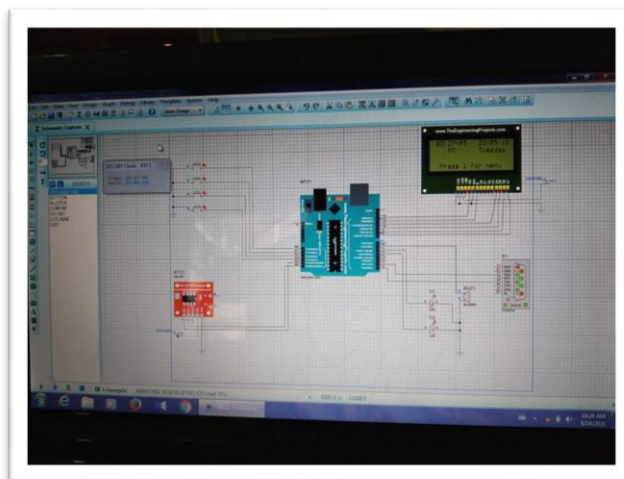


Figure 1: Simulation

This is the simulation circuit connection and output. For our project simulation we used Proteus 8 professional software.

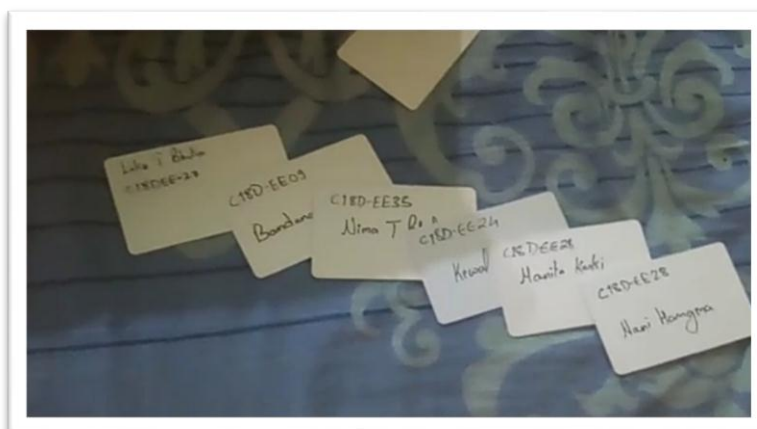


Figure 2: RFID Tags

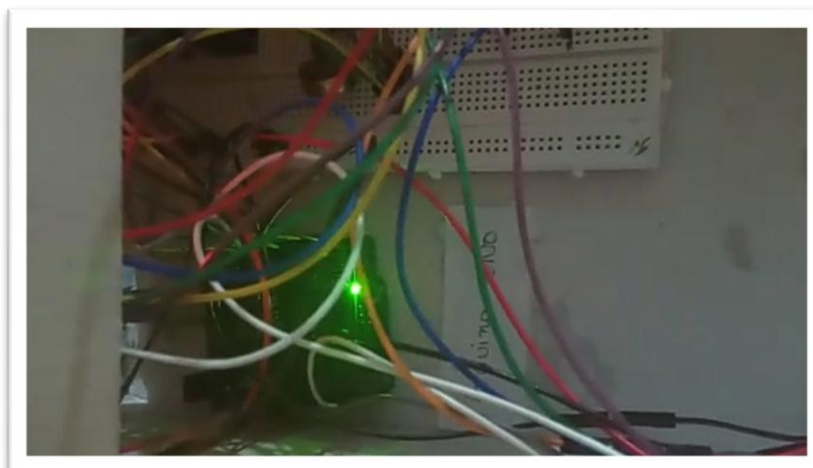


Figure 3: Arduino UNO and connection

Arduino Uno (figure 3) is an open source microcontroller which its board based on micro chip AT mega 328p microcontroller and which is developed by Arduino. This board is supplies sets of analog and digital input and

output which may meet to various shield and other circuits. Radio Frequency Identification (RFID) is widely known as wireless non-contact use of radio waves which helps transfer in data, as shown in figure 2.

IV. RESULTS AND DISCUSSION

Table 1: attendance data

Serial No.	Name	Date	Time	Present	Absent
1	Bandana Chettri	02/06/2021	8:50 am	Present	-
2	Kewal Rai	02/06/2021	8:52 am	Present	-
3	Laku Tshering	02/06/2021	8:54 am	Present	-
4	Mani Hangma	02/06/2021	8:58 am	Present	-
5	Manita Karki	02/06/2021	8:58 am	Present	-
6	Nima Tenzing	02/06/2021	9:00 am	Present	-

We came to know that RFID attendance system works when the RFID tags gets into the radio frequency range of the RFID reader. As soon as the tags match the unique ID number the attendance automatically gets recorded in SD card with the help of SD module along with date and time.



Figure 4: Attendance output

As shown in Figure 4 the output of the attendance has displayed in LCD with name and rolls number after the RFID tags got swiped in RFID reader.

V. CONCLUSION

Radio Frequency Identification (RFID) attendance system, in this paper we have utilized the versatility of RFID in implementation functional and automatic students course attendance recording system that allows student to simply fill their attendance just by swiping or moving their ID card on RFID reader. Our main objective is to build a RFID based attendance system successfully, with the help of guide and team members and their performance and determination towards this project made us easy to complete this project. The system provides an alternative means for registering and attendance through radio frequency response. This system can be used in many fields where the records of attendance are strictly monitored.

VI. REFERENCES

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