# Student Presence System Using Rfid With Iot Technology

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*Abstract- This paper describes the development of a student attendance system based on Radio Frequency Identification (RFID) technology. The existing conventional attendance system requires students to manually sign the attendance sheet every time they attend a class. As common as it seems, such system lacks of automation, where a number of problems may arise. This include the time unnecessarily consumed by the students to find and sign their name on the attendance sheet, some students may mistakenly or purposely signed another student's name and the attendance sheet may got lost. Having a system that can automatically capture student's attendance by flashing their student card at the RFID reader can really save all the mentioned troubles. This is the main motive of our system and in addition having an online system accessible anywhere and anytime can greatly help the lecturers to keep track of their students' attendance. Looking at a bigger picture, deploying the system throughout the academic faculty will benefit the academic management as students' attendance to classes is one of the key factor in improving the quality of teaching and monitoring their students' performance. Besides, this system provides valuable online facilities for easy record maintenance offered not only to lecturers but also to related academic management staffs especially for the purpose of students' progress monitoring.*

*Keywords*- RFID passive tag, RFID Reader , online Registration , RaspberryPi.

## I. INTRODUCTION

In earlier days supervision system was cumbersome to detect the location of student and it is very tedious task to take attendance manually. As technology has advanced, integrating the monitoring system with an automation technology will provides more convenient way in monitoring the student. The Radio Frequency Identification (RFID) technology is one of an automation technology that is beneficial in improving current traditional way of monitoring student. As every tag has its own unique ID, it is easy to differentiate every tag holder. In addition, a Graphical User Interface (GUI) provides more efficient way to review the attendance. Thus, the integration of RFID technology and the GUI in an attendance system will produces an automatic system which give better performance and efficiency than the traditional method of monitoring student. Furthermore, RFID technology can help to identify and to monitor items (products, people, animals, etc) wirelessly within a specified distance (a few centimeters to hundreds of meters). In this paper, we describe the proposed RFID system for identifying and monitoring attendance. In this system, the RFID tags enable the school/university management people to supervise the student movement in and out of the campus. When the RFID tags pass through the RFID reader in read range zone, then system will record the data from the RFID tags to the database systems. After that we transmit the student data on to the cloud by using IOT technology .In case if student are absent then the message will send to student id and their respective faculty by using IOT.

Also if parents, faculty and student want to check there attendance in particular date and time then it can be possible. In this project allocate a uniq user id with password to one student. By using this user id and password they can check the students present by online.

## II. LITERATURE SURVEY

Student's attendance is an intriguing topic of research and researchers have been working on it with different techniques. This section gives a brief description about the existing solutions for attendance system:

I. Mahesh Sutar et al [1] have proposed a an effort is made to solve regular lecture attendance monitoring problem in developing countries using RFID technology. The application of RFID to student attendance monitoring as developed and deployed in this study is capable of eliminating time wasted during manual collection of attendance and an opportunity for the educational administrators to capture face-to-face classroom data for allocation of proper attendance scores and for further managerial decisions, Pushpa S. Gagare, et al [2] developed a model to In this System, Smart Attendance System using RFID can replace the manual system that transformation of information can be delivered without a

hitch. This system will ease is school/collage to monitor the student. The system can reduces manpower. Although there are different methods of tracking student but this system is very easy to handle and very convenient for college/university level. This system gives time saving, easy control and reliability. T.S. Lim, et al [3], have proposed a Students or workers only need to place their ID card on the reader and their attendance will be taken immediately. With real time clock capability of the system, attendance taken will be more accurate since the time for the attendance taken will be recorded. The system can be connected to the computer through RS232 or Universal Serial Bus (USB) port and store the attendance taken inside database. An alternative way of viewing the recorded attendance is by using HyperTerminal software. A prototype of the system has been successfully fabricated. Herdawatie binti, et al [4], have proposed a increase the safety of students It is proven that tags give better performance when they are aligned with the transmit antenna and RFID performance is low when it operates in the presence of an interfering signal. In this research they will consider the security issue of the system to enable the system to be immune from any attack; unauthorized data read and manipulation, sniffing of radio signal for replicate/ modify signals and infected by RFID virus. Hanisah Binti Hamid, et al [5] have proposed to describe the early stages carried out before a more thorough study is done to develop this system. This chapter also discussed the information should be recorded and the process flow for the development of systems to be built.

### III. METHODOLOGY

For operating this project first user has to insert the card numbers into the micro SD card of raspberryPi memory. It can be done by company authority person or college administration person while issuing the card. Whenever a new student joins or new employee is recruited in an organization/company at that time, card will be issued. And same entry will be made in the raspberiPi program memory. In the current project, three numbers are stored in the raspberryPi program memory. Which 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 .Once the project is switched on, it will display time clock and date on LCD. We have provided keypad for setting the time. Administrative person can press the setting key and use the increment / decrement and enter button to set the current time. Once the time is set then the LCD will display current time and date set by administration person. Then this project operates in normal mode.

Whenever user comes near RFID reader module and shows RFID tag then raspberryPi will store 3 information or 3

types of data will in the memory. First is the card number, second is the time and third is date at which user has shown the card. In this project single RFID card reader module will be used for In operation. While in actual implementation in industries or colleges, user can install 2 RFID reader modules. One will be placed at the outer side and second at the inner side of the door. 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 raspberryPi 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 raspberryPi memory.

If in case of lost card or person left the college without returning the card and if these cards are shown to RFID reader then invalid card number massage will show on lcd display will. Lets take an example that any outside/unauthorized person get a RFID card. And these cards does not have entry in our system. Or if existing employee manages to get a RFID card, and if he/she shows card, then raspberryPi will check and find that this card is not stored in the memory. It means card number is not found in memory then lcd show invalid massage on screen .
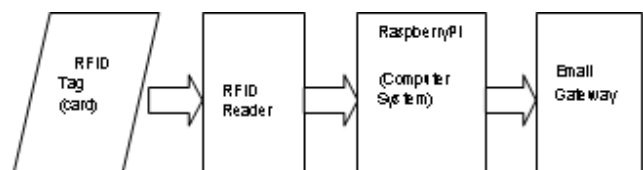


**Fig : Basic Block Diagram Of Project**

In above block diagram it is clearly show that the RFID card which is given to students having unique number to that respective person and already registrat in code memory . This card will scan with RFID reader . After that the scanned data will passed over to computer system which is nothing but over RaspberryPi system .

Then this data will check with our store data if it is match then the students attendance will taken and pass to the server where the each student having their login id with password . the data whichever scanned and monitor by system is update on the server.

If the student/employee where absent then automatically mail is send to him, parents and to manager of their respective field .And if student or head of department want to get any student attendance then they can. While registration the student card number the authorized person give login id and password to student. By using these id and password they can be access the students profile page . Where

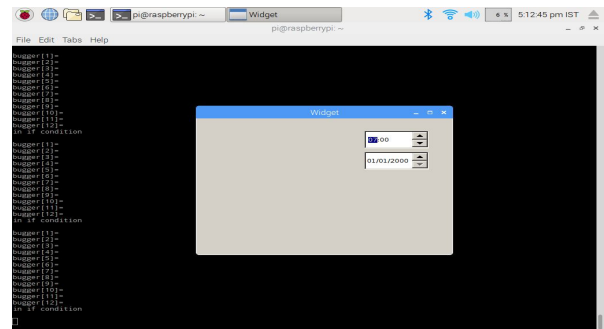the students absentee and presenty both are display by respective time and date.

## IV. FLOW CHART OF PROJECT
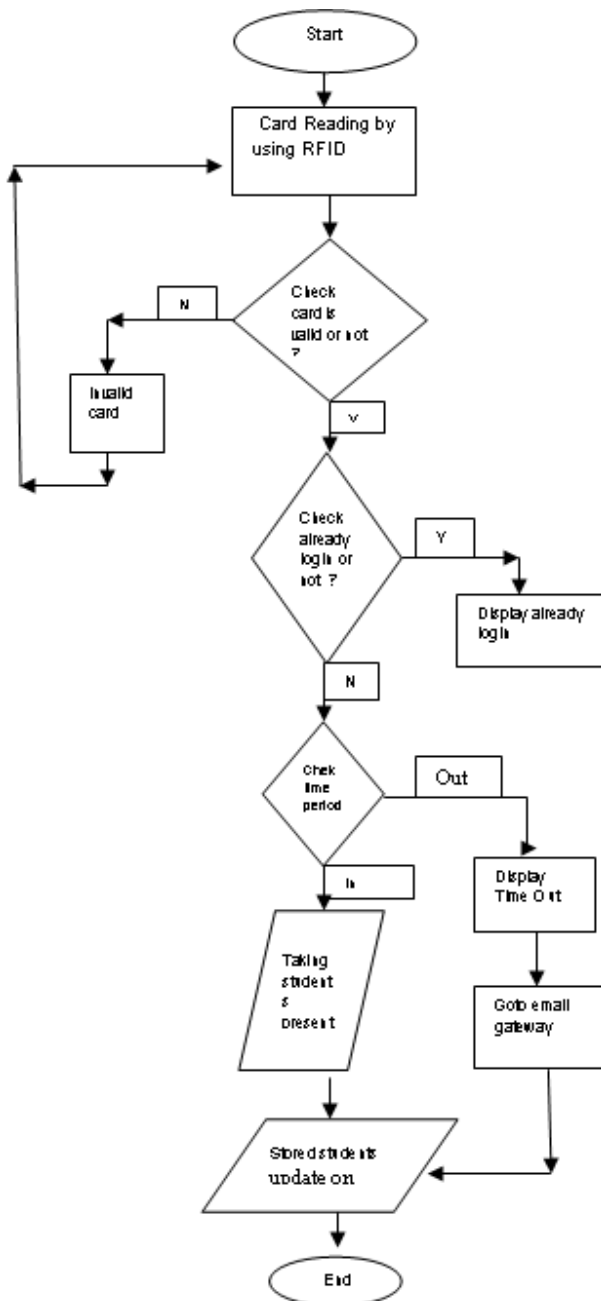


## V. RESULTS

Project implementation using raspberryPi kit

The output of our project is as shown in below image. Where the image shows the authorized person can set the time and date as you shown in fig.1.



**Fig 1 : setting time by authorized person**

The below fig 2 shows that at time 08:01 am and date 01/1/2000 the student1 are login there card and attend the enter into the classroom. After scanned card the LCD will display student1 means student1 has successfully login done.
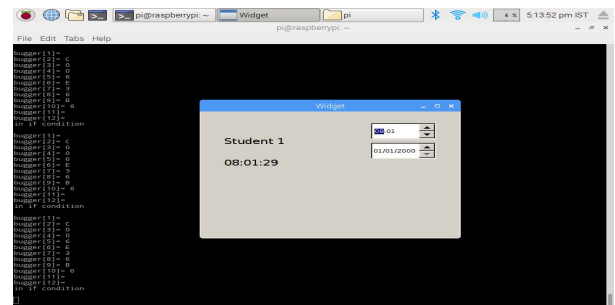


**Fig 2 : Student1 Login**

In below fig3 if any student is already login and he again scanned there card then LCD show error massage like "Already Login Done".
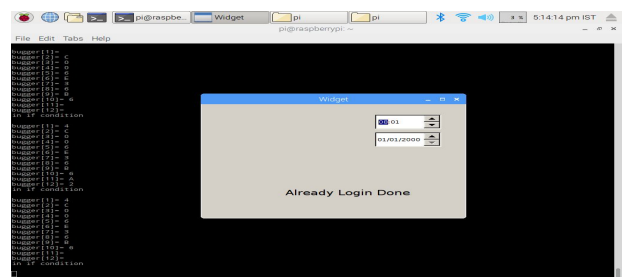


**Fig 3** : Error Display

The below fig 4 shows that after the time 10:00 am there is no one can scanned their card. After these time the student who are not able to scanned there card are absent for whole day. And instantly system forwarding mail to Head of department , parents and students mail id.
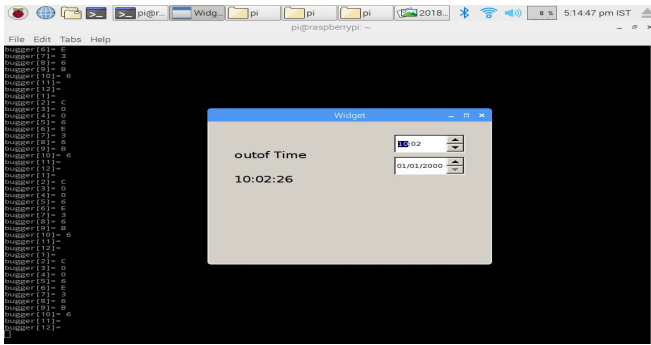
**Fig 4 : Time Out For Login**

If head of department and student want to check there attendance with time and date then college provided login id and password to student by using these they can check the attendance and calculate the attendance percentage.
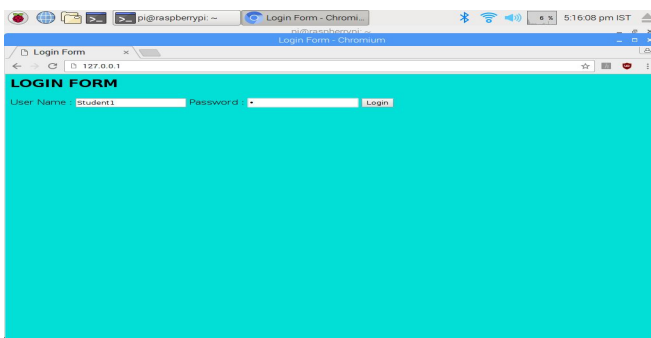


**Fig 5 : Login Form**

These below fig 6 shows the student1 overall attendance information with login time and respective date. By using these data the class teacher can easily calculate the student's attendance percentage.
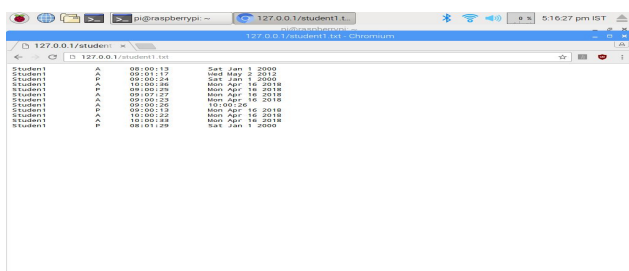


**Fig 6 : Online Student Attendance View**

In below fig 7 shows that the student 3 is absent then the immediately mail is send to the parents, also to the HOD of institute and class teachers also .In below image the yellow in shade shows that the mail is received to parents.
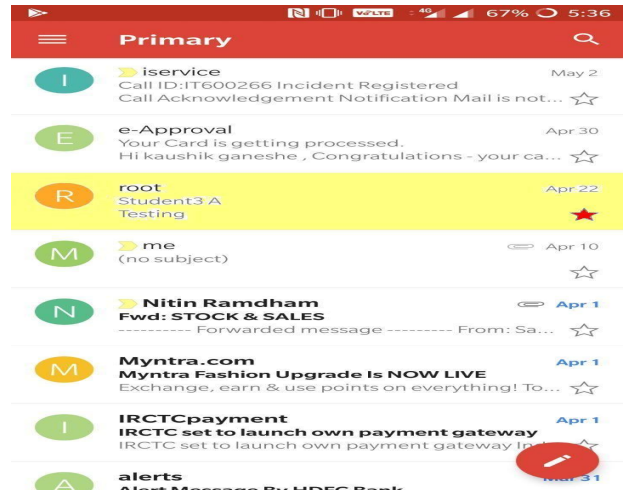


**Fig 7 : Absent Mail Receiving**

## VI. CONCLUSION

In this System, "**Student Presence System Using RFID With IOT Technology**" can replace the manual system that transformation of information can be delivered without a hitch. This system will ease is school/collage to monitor the student. The system can reduces manpower. Although there are different methods of tracking student but our system is very easy to handle and very convenient for college/university level. This system gives time saving, easy control and reliability also easy to calculate the percentage. And if students where absent after 10;00 am then mail will automatically send to parents ,HOD of department and class teachers respectively.

## REFERENCES

[1] Smart Attendance System Using RFID In IOT International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) Volume 5, Issue 4, April 2016 Mahesh Sutar, Mahesh Patil , Sachin WaghmarE

[2] Smart Attendance System Pushpa S. Gagare., Priyanka A. Sathe, Vedant T.Pawaskar, Sagar S.Bhave pushgagare@gmail.com, sathep92@gmail.com,vedantpawaskar@gmail.com,sagars bhave@gmail.co m PVPPCOE SION

[3] T.S. Lim, S.C. Sim and M.M. Mansor "RFID Based Attendance System," in Proceedings of the IEEE Symposium on Industrial Electronics and Applications, October 2009.

[4] Herdawatie binti Abdul Kadir, Siti Nurul Aqmariah binti Mohd Kanafiah Mohd Helmy bin Abd. Wahab, Zarina Tukiran and Zulida bte Abdul Kadir Faculty of Electrical and Electronic Engineering University Tun Hussein Onn Malaysia 86400 Parit Raja, Batu Pahat Johor, Malaysia

[5] Hanisah Binti Hamid, "RFID Based Systematic Student's Attendance Management System" , November 2010

[6] Volume 4 Issue III, March 2016 IC Value: 13.98 ISSN: 2321-9653International Journal for Research in Applied Science & EngineeringTechnology (IJRASET).

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