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Implementation of Embedded Student Day Book based on Biometric by using Raspberry PI

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Abstract- Students play an important role in building one's nation, hence it is mandatory to have a glance on student attendance. Generic methods is based on paper method which may create errors which is further modified to RFID in which each student has unique QR code for scanning, though this doesn't create errors any student possessing card can misinterpret other's attendance in their absence. All these limitations can be overcome in the proposed system where the aadhaar number of student is linked to scratch card. Only the card bearer can enroll student attendance as it works on thumb impression. Not only attending classes ensures responsibilities of student, the complete academic information, along with his personal details will be stored and there will be no misinterpretation as aadhaar is unique.

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Naga Sucharitha Gavini [α] & Nagaraju Sonti [σ]

Abstract- Students play an important role in building one's nation, hence it is mandatory to have a glance on student attendance. Generic methods is based on paper method which may create errors which is further modified to RFID in which each student has unique QR code for scanning, though this doesn't create errors any student possessing card can misinterpret other's attendance in their absence. All these limitations can be overcome in the proposed system where the aadhaar number of student is linked to scratch card. Only the card bearer can enroll student attendance as it works on thumb impression. Not only attending classes ensures responsibilities of student, the complete academic information, along with his personal details will be stored and there will be no misinterpretation as aadhaar is unique.

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I. Introduction

Mostly, in universities and colleges attendance are taken by calling students names, while, in others, passing attendance sheet, where student are asked to sign just next to their names. Both methods have disadvantages in the first case, for instance, lecturers with large class may find hassle to check all of these students by names and it might take precious time of each lesson; in second case, some students may unintentionally or deliberately sign another student's name or manual signing of attendance by students are troublesome and may distract teacher from teaching. This paper based student attendance registration cause loss of time for students and the teachers and lack student attendance authentication. Therefore, it is essential for educational institutions to have solutions that simplify and increase the speed of data collection and boost the lectures efficiency. Technological enhancements can useful tools to help in the development of new attendance systems to eliminate the disadvantages of the manual methods while improving its advantages during which by using latest technology like biometric and RFID Technology.

In this paper, an application for attendance management is developed for managing the records of attendance of group of people belonging to an organization. Group of people can either be the students of a college or employees of an organization. For attending attendance, user makes contact with the attendance reader and after finding a valid card, user insert finger for biometric authentication. Apart from being used for multiple applications like net banking to pay the fee online, and for checking personal information.

Using this technology, the method of attendance is based on RFID card used to store data on the card that consists of the user's information. All that data is encrypted into the card which is used as a key to access and record when the user arrived. For providing security to the user's information, data will be displayed on the screen only if their biometric matches with database. The reason of the development of biometric system is to take student attendance more efficiently. The listing of students will be automatic, quicker and more security intensive than current methods of registration.

II. Results and Discussion

The proposed system has Relay to provide communication between Biometric module and RFID Reader. Raspberry pi is a development board which communicates between computer and other peripherals. To retrieve the data from the server, MYSQL and PHP is used.

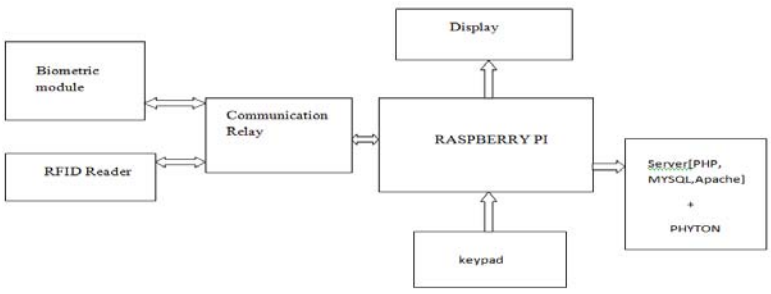

Fig.1: Block diagram of proposed system

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a) Working of proposed system

RF reader scans the QR code of student and displays attendance, fee particulars, academic details and personal information as four icons. If the student have any fee pending then corresponding link will be enabled and redirected it to net banking to pay the fee and also personal information along with academic details will also be displayed. If any student wants to take attendance then the particular student can give their thumb impression then after the successful attendance will be displayed on monitor screen and same will be sent to their corresponding guardian.

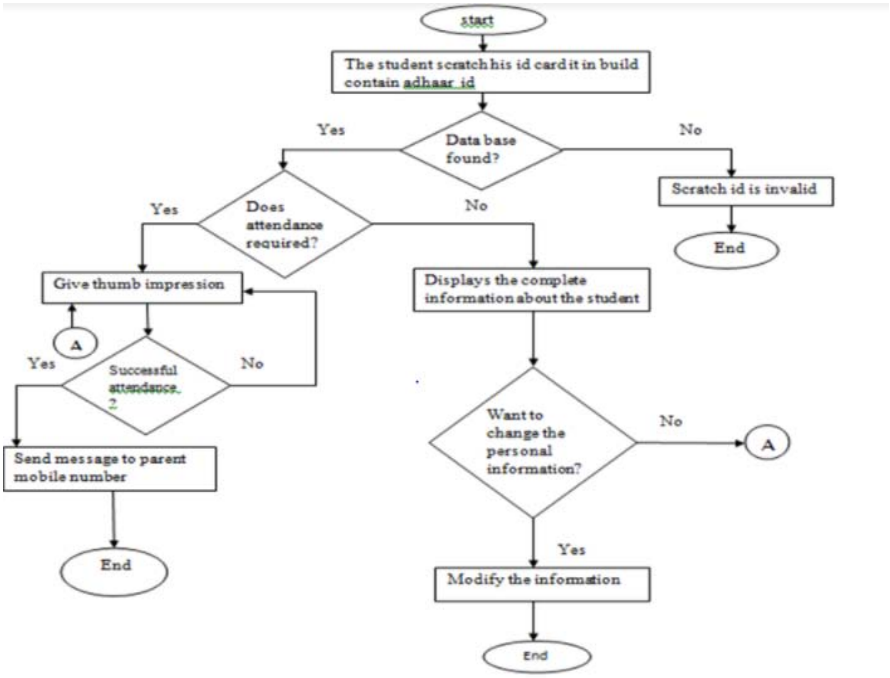


Fig. 2: Flow chart of the system

The above flow chart clearly explains the operation in fig2. When student scratch, their matrix card in built contain aadhaar number, if student details is available in database then displays four icons as attendance, fee particulars, academic qualifications, personal details. Whether student details are not available in database then displays students matrix card is invalid and end the process.

b) Experimental Results of proposed syste

The software development tools used in this are server (PHP), MYSQL and PYTHON for working of my project. The PYTHON IDE combines project management, make facilities, source code editing, problem debugging and complete simulation in one powerful environment that provides a seamless embedded project development environment. The PYTHON IDE is the easiest way for most developers to create embedded applications, which allows us to easily access the features of RASPBERRY PI development board.

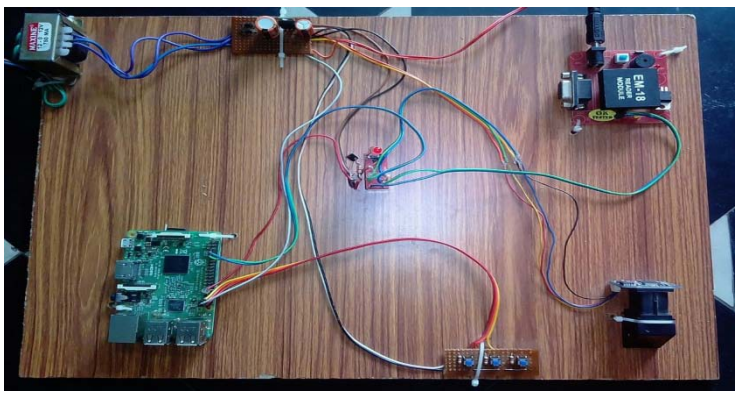


Fig. 3: Proposed system hardware

The following are the results of my project.

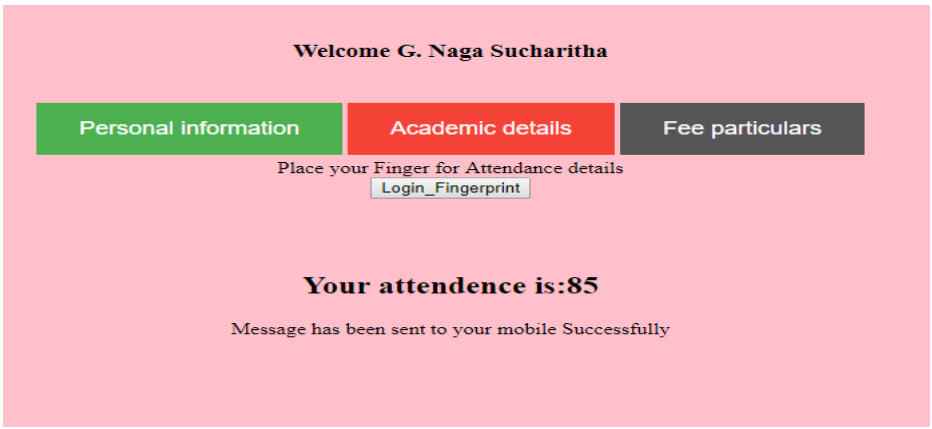
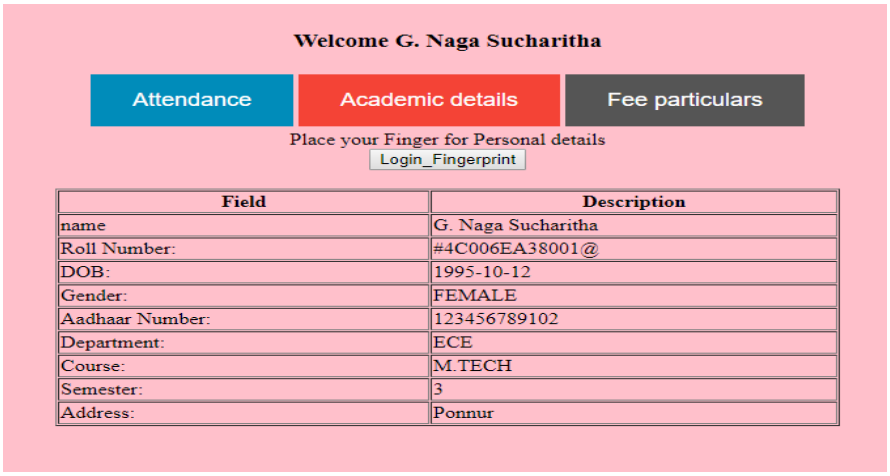


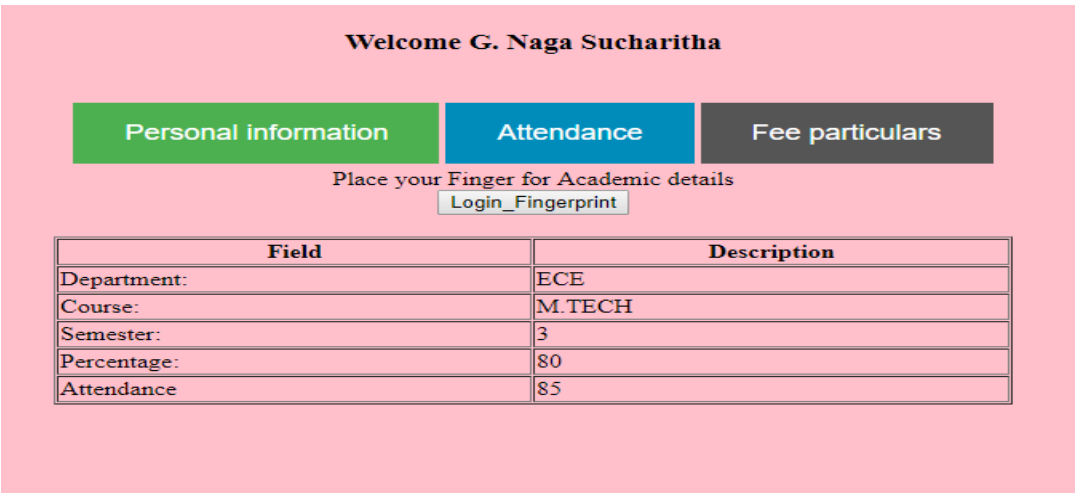
Fig. 4: Represents a window that is displayed when student selects the attendance module



Field	Description
name	G. Naga Sucharitha
Roll Number:	#4C006EA38001@
DOB:	1995-10-12
Gender:	FEMALE
Aadhaar Number:	123456789102
Department:	ECE
Course:	M.TECH
Semester:	3
Address:	Ponnur

Fig. 5: Represents a window when student selects personal information module

In this, development project kit is connected to a personal computer (PC)/Laptop. In my project a system file (application) is being used in PC and if we open browser window for receiving HTML documents from a web server or from local storage is displayed as shown in fig1. By using this system, student can easily access then check their details and also sent details to their corresponding guardians, by specifying the particular mobile number of the parents.



Field	Description
Department:	ECE
Course:	M.TECH
Semester:	3
Percentage:	80
Attendance	85

Fig. 6: Represents a window that is displayed when student selects the academic details module

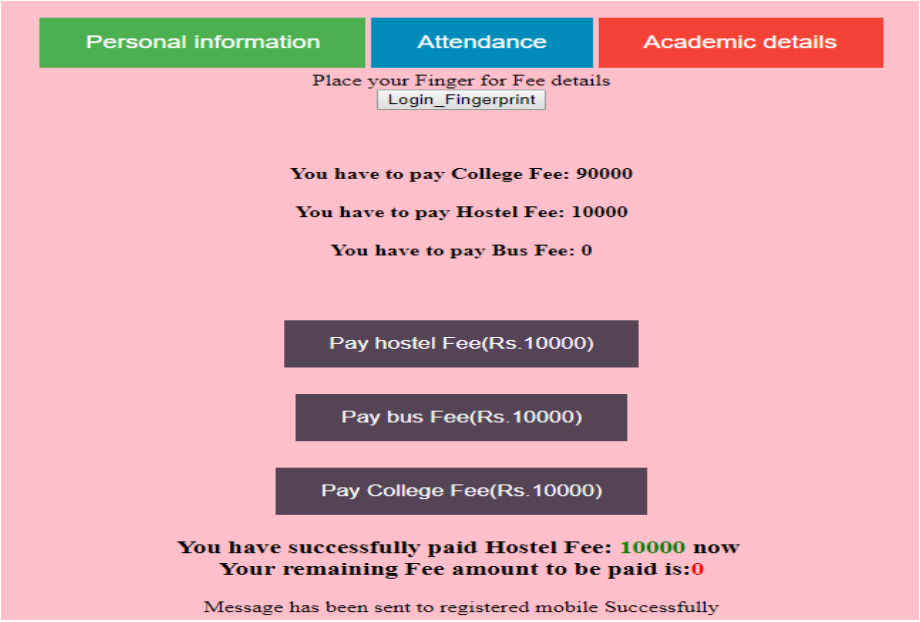


Fig. 7: Represents a window that is displayed when student selects the fee particulars module

In this, development project kit is connected to a personal computer (PC)/Laptop. In my project a system file (application) is being used in PC and if we open browser window for receiving HTML documents from a web server or from local storage is displayed as shown in fig1. By using this system, student can easily access then check their details and also sent details to their corresponding guardians, by specifying the particular mobile number of the parents.

The SMS alerts are received by parents in the following way.

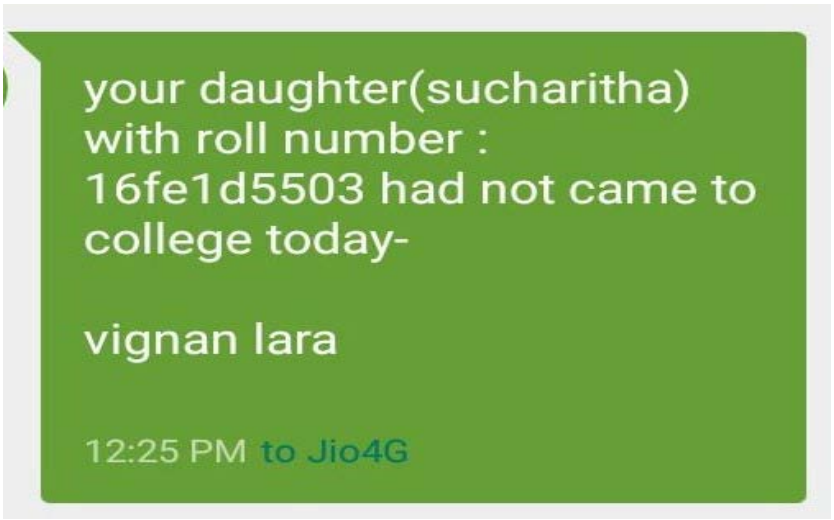


Fig. 8: Represent show an SMS is received to the parents when student not present to college

III. Conclusion

We conclude that with the advancement of this technology and with the increasing demands of the people new procedures are been developed. It will be really beneficial for the students as well as the professors of the respective universities and colleges as with the advancement of this technology they can utilize their lectures in a best manner. Therefore, we can conclude that in future, we can consider this system as a good option in near future to meet the growing requirements of the generation in effective manner. The system is very easy to use. Users are directed as what step to take next by providing them with timely information displayed on their phones. Accidental touching of tags which may result in an unnecessary trigger is avoided since users need to deliberately connect to the terminal via biometric module first before the tag application is activated. The system requires minimal initial calibration to initialize which tag is used as Entry tag or Exit tag. The system is very useful in school environment, work places and any organization that

requires strict authenticated and authorized users to be at the premises.

References Références Referencias

1. P.S.Kiran Kumar, Dr.Shankaraiah, "*Intelligent Students Tracking System In Campus Based on Rfid and Zigbee*", International Journal of Electronics and Communication Engineering & Technology (Ijecet), 2014.
2. Rajan Patel1, Nimisha Patel2, Mona Gajjar3, "*Online Students Attendance Monitoring System in Classroom using Radio Frequency Identification Technology: A Proposed System Framework*", International Journal of Emerging Technology and Advanced Engineering, 2012.
3. K.Lakshmi Sudha, Shirish Shinde, Titus Thomas, "*Barcode based Student Attendance System*", International Journal of Computer Applications, 2005.
4. Vishal Bhalla, Tapodhan Singla, Ankit Gahlot, Vijay Gupta, "*Bluetooth Based Attendance Management System*", International Journal of Innovations in Engineering and Technology (IJIET), 2013.
5. Fadi Masalha, Nael Hirzallah, "*A Students Attendance System Using QR Code*" International Journal of Advanced Computer Science and Applications, 2014.
6. Vaishali Ghodekar, Aboli Kute, Swati Patil, Prof.Ritesh Thakur "*Automated Attendance system with RFID through SMART CARD*", International Journal of Engineering Research & Technology (IJERT), 2013.
7. Shalini Jain and Anupam Shukla, "*Smart Card Application for Attendance Management System*", Springer International Publishing Switzerland, 2014.
8. Amita Dhale, Madhav Mistry, Tushar Zore, "*A Survey on 'SMART CONNECT' an Android and Web Based Application for College Management System*", International Journal of Science, Engineering and Technology Research (IJSETR), Volume 3, Issue 11, November 2014.

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