Applied GIS

ISSN: 1832-5505
Vol-6 Issue-04 Oct 2018

Tracking and Monitoring Students using RFID

A. Mishra[1] , S. Kothari[2], S. Kothari[3], M. Kasar[4],
Computer Department, Pune University,

ABSTRACT

Radio-frequency identification (RFID) systems have been effectively used in a wide variety of fields in recent years, including transportation, healthcare, agriculture, and the hospitality sector. Using electronic passive and active tags and the proper readers, automated wireless identification is made possible by the Internet of Things. In this work, we explore the feasibility of adopting radio frequency identification technology to address the issue of frequent student monitoring in third world nations. This study's application of RFID to student monitoring has the potential to save teachers and school administrators valuable time by capturing in-person classroom data that can be used to assign accurate attendance grades and inform administrative decisions.

Keywords— Security, RFID passive tag, RFID reader, online monitoring, RFID antenna, and Apache tomcat are all terms associated with the Internet of Things (IOT).

INTRODUCTION

Everyone carrying a tag may be easily identified thanks to their own ID. Furthermore, a Graphical User Interface (GUI) offers a quicker method of reviewing the pupils' tracking. Therefore, an automated system will result from combining RFID technology and the GUI in a tracking system, providing higher performance and efficiency than the conventional technique of student monitoring. And within a certain range (from a few millimeters to hundreds of meters), RFID technology may be used to wirelessly identify and track objects (things, persons, animals, etc.). In this study, we present the RFID technology that has been suggested for this purpose.Using this technology, administrators at schools and universities may track students' entrance and exit from campus using RFID cards. Data from RFID tags will be recorded to the system whenever they enter the RFID reader's read range zone.Storage and retrieval system databases. Smart cards and barcodes were formerly used for a wide variety of purposes, including but not limited to attendance tracking, student monitoring, and employment tracking, before the advent of the RFID technology. To enhance the effectiveness of the current tracking and monitoring system and to ensure the safety of the students, we want to include an RFID system into our proposal. RFID stands for radio frequency identification, and a tag is any device that may be attached to or implanted into a product, person, or animal for this purpose. Some tags can be read from a distance of several centimeters or meters, even when the tag is not in the reader's direct line of sight.

Existing System

- • The traditional method of keeping track of students' whereabouts was a time-consuming and laborious ordeal.
- Barcodes are less reliable since they are simple to copy.
- Time-consuming manual attendance systems

A) **Proposed System**

Our suggested technique enhances the current means of keeping tabs on students. Radio-frequency identification (RFID) technology is one kind of automation that may be used to enhance the standard monitoring methods now in use. Everyone carrying a tag may be easily identified thanks to their own ID. A Graphical User Interface (GUI) also offers a faster method of monitoring the display. Consequently, an automated system will result from combining RFID technology and the GUI in a monitoring system, providing superior performance and efficiency than the conventional approach of keeping tabs on students.

ISSN: 1832-5505
Vol-6 Issue-04 Oct 2018

PROPOSED AND IMPLEMENTED SYSTEM ARCHITECTURE

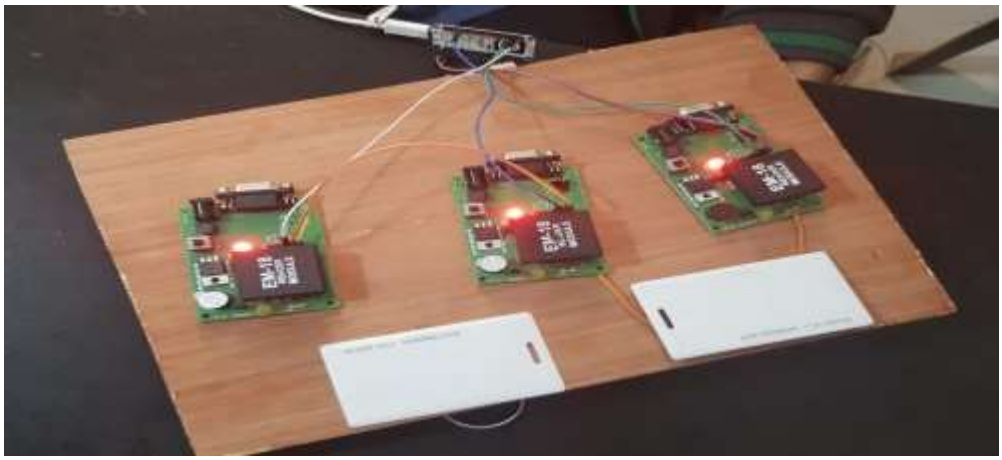

Figure 1- External Components of the system

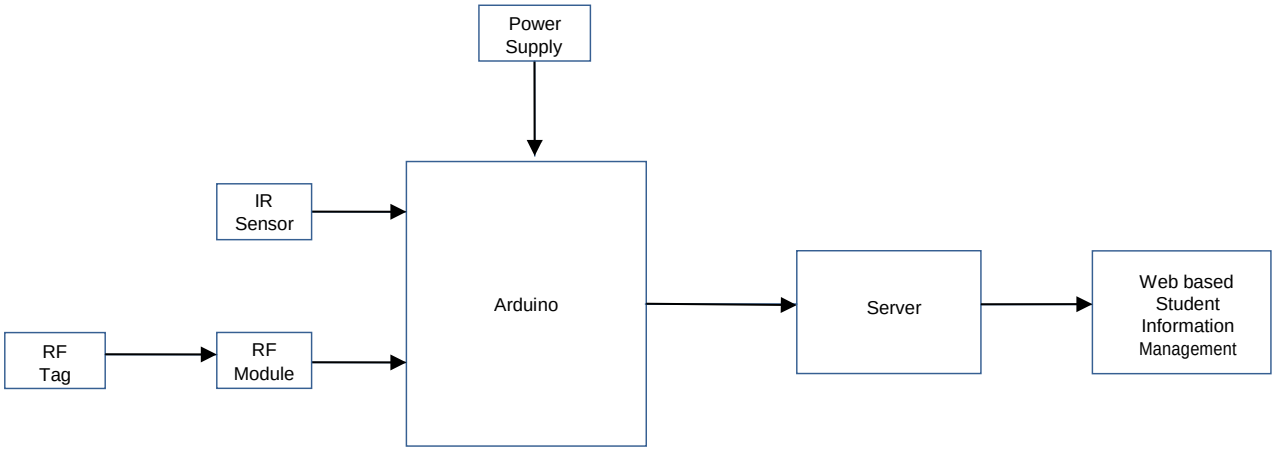

Figure 2- system architecture

CONFIGURATION WITH HARDWARE

EMBEDDED C
Step 1: Start

Step 2: Initialize serial port, & software port.

Step 3: Initialize wifi connection with network.

Step 4: Connect device to wifi network.

Step 5: Get IP address of ESP (Node MCU) & display serially.

Step 6: If no connection then go to step 4.

Step 7: Check serial A data available if yes, then read data & transmit id TCP/IP to server.

Step 8: if no then go to step 9.

ISSN: 1832-5505
Vol-6 Issue-04 Oct 2018

Step 9: Check serial B data available.

Step 10: Check serial C data.

Step 11: go to 7.

PYTHON

Step 1: Import required library (Socket)

Step 2: Establish TCP/IP connection with hardware node.

Step 3: Check TCP/IP port if data present then read and display.

Step 4: Differentiate data with respect to class & IP.

Step 5: Check respective IP with class and time table.

Step 6: If any wrong then send E-mail to the parents.

Step 7: Upload all data in server.

Step 8: Goto step 3.

LITERATURE SURVEY

No.	**Year**	**Paper name**	**Limitations**	**Future making**
1	2017	Attendance recording and consolidation system using arduino and raspberry pi in signal processing, communication, power and embedded system.	Traditional technology such as QR code, Barcode, and imposed a long time for registration and error prone, low data accuracy, traditional manual management, and individual personnel statistics for attendance management records, and it is not eco friendly. .	A student attendance and information system are designed and implemented to manage student's data and provide capabilities for tracking student attendance, grading student marks, giving information about timetable, lecture time, room

ISSN: 1832-5505
Vol-6 Issue-04 Oct 2018

				number, and other related information.
2	2016	Customized NFC enabled ID card for attendance and transaction using face recognition.	Calling student's name or taking student's signature are two traditional methods for tracking the attendance of the students in the classroom and they were more time-consuming.	It provides facilities for both students and staff by reducing time to take absence, as well as, providing a database system that holds all the student's information.
3	2018	Smart Wireless Attendance System.	The transmission range is so short, when the user separates the two devices more than the limited range, then communication is broken.	Smart wireless attendance system is projected to provide some beneficial to the current generation Y students in universities. The main contribution with such move is to completely utilized the smartphone capabilities to maximum and to take advantage with the current smartphone phenomena

ISSN: 1832-5505
Vol-6 Issue-04 Oct 2018

				among young users.

CONCLUSION

Our project succeeds best in the educational setting for which it was designed. The same logic may be used to the issue of absenteeism in our nation's schools. A similar method might be used in workplaces where workers are not required to physically be present during work hours. Our initiative is useful for any company or institution where attendance is a major concern. More complex applications will make advantage of rfid's capacity to accept, store, and send data to a distant sink source as the technology develops. As you may expect, RFID has a wide range of potential uses. In this paper, we show how to put rfid's many strengths to use in creating an automatic system for recording student course attendance. Using rfid readers installed at the doors to classrooms, students can quickly and easily log their presence in each class simply by swiping or moving their ID cards over the reader. Inside of our academic staff. Our goal in developing this system was to find a better, more efficient approach to record student attendance in classroom lectures than the traditional methods now in use.

REFERENCES

[1] D. Mane, “Importance and Analysis of RFID in Attendance System,”

[2] International Journal of Emerging Science and Engineering (IJESE) no. 9, pp. 90–92, 2013.

[3] A. Agrawal and A. Bansal, “Using RFID with Object Counter,” vol. 3, no. 3, pp. 131– 138, 2013.

[4] Yuru, Z., Delong, C., & Liping, T. (2013). The Research and Application of College Student Attendance System based on RFID Technology. International Journal of Control and Automation, 6(2), 273-282.

[5] Sunehra, D., & Goud, V. S. (2016, October). Attendance recording and consolidation system using Arduino and Raspberry Pi. In Signal Processing, Communication, Power and Embedded System (SCOPES), 2016 International Conference on (pp. 1240-1245). IEEE.

[6] Sayanekar, P., Rajiwate, A., Qazi, L., & Kulkarni, A. (2016). Customized NFC enabled ID card for Attendance and Transaction using Face Recognition. International Research Journal of Engineering and Technology, 3(9), pp. 1366- 1368.

[7] Noor, S. A. M., Zaini, N., Latip, M. F. A., & Hamzah, N. (2015, December). Android-based attendance management system. In Systems, Process and Control (ICSPC), 2015 IEEE Conference on (pp. 118-122). IEEE.

[8] Kohalli, S. C., Kulkarni, R., Salimath, M., Hegde, M., & Hongal, R. (2016). Smart Wireless Attendance System. International Journal of Computer Sciences and Engineering, 4(10), pp. 131-137.

[9] Jacob, J., Jha, K., Kotak, P., & Puthran, S. (2015, October). Mobile attendance using Near Field Communication and One-Time Password. In Green Computing and Internet of

ISSN: 1832-5505
Vol-6 Issue-04 Oct 2018

Things (ICGCIoT), 2015 International Conference on (pp. 1298-1303). IEEE.