

Experiment No. 1

Aim: Conduction of a survey of several available literatures in the preferred field of study.

Summary of IEEE papers:

Paper 1:

In recent days, we have seen a sudden increase in the usage of Radio Frequency Identification (RFID) systems in the fields of industrial technologies, health, agriculture, transportation, etc. Also, the Internet of Things is blooming parallelly. Therefore, using these, an attempt has been made to solve the attendance management and monitoring problems. Attendance Management System is the implementation of the Internet of Things through Raspberry Pi 3 and RFID Technology in order to reduce the time consumed by the traditional system of recording daily attendance in schools and institutions. So, everything here in turn gets automated. An attempt has also been made to develop an Android application(app) and help the students to view their attendance anywhere, anytime.

Paper 2:

Studies on two-factor authentication based on RFID and face recognition have been carried out on a large scale. However, these studies didn't discuss the way to overcome the weaknesses of face recognition authentication in the access control systems. In this study, two authentication factors, RFID and face recognition, were implemented using the LBP (Local Binary Pattern) algorithm to overcome weaknesses of face recognition authentication in the access control system. Based on the results of performance testing, the access control system has 100% RFID authentication and 80% face recognition authentication. The average time for the RFID authentication process is 0.03 seconds, the face recognition process is 6.3885 seconds and the verification of the face recognition is 0.1970 seconds. The access control system can still work properly after three days without being switched off. The results of security testing showed that the capabilities spoofing detection has 100% overcome the photo attack.

Paper 3:

Most of the institutional authorities are troubled with the cumbersome method of maintaining manual attendance of their employees. The manual process of signing on a paper is prolonged and insecure. An efficient attendance monitoring system needs to be enforced at such places. Radio Frequency Identification (RFID) based attendance system provides us with a solution that caters to issues like proxy attendance. This paper describes the design of an RFID based attendance monitoring system which uniquely identifies each employee/student based on their RFID tag which is attached to their ID card. This makes the mechanism of recording the attendance effortless, quicker and protected as compared to conventional method. This system is designed to be used at different educational institutions, corporate offices, government offices etc. The proposed system consists of both hardware and software components based on IoT Technology. The hardware component consists of RC522 RFID card reader and RFID tags/cards. The software

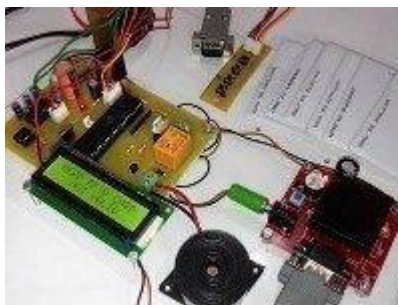
component consists of the Web-based GUI for viewing the employee's or student's attendance, which is hosted on a web server and which stores the data in a database server. The employees or students just need to place their RFID card or tag on the reader and their attendance will be recorded for the day. Also, the attendance recorded will be more accurate as the system is synced with a real-time clock.

Identified Problem Definition:

- Authentication needs to be taken at various places including colleges, school for students and in the industries for the login logout time of employees.
- Radio Frequency Identification (RFID) based authentication management system can be used in any college or university or company.
- The existing authentication system is manual and it is taken on paper and it consumes lot of time. As we aware that many traditional “Authentication system” uses authentication register to note down the authentication. It has less accuracy.

Proposed Solution:

- To overcome the manual authentication system problem RFID based authentication system is used.
- The concept of the use of RFID based authentication system is gradually gaining momentum in Smart schools Currently.
- RFID tags help automatically record student’s authentication. Teachers can thus devote more time in effective teaching.
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To avoid all such problems, we have implemented automated authentication system which utilizes RFID cards. Thus, it is a RFID based authentication system. In this system each user, student or employee will have a RFID card. And 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 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 to the RFID reader. Then the RFID reader will note down the RFID card number and the time at which

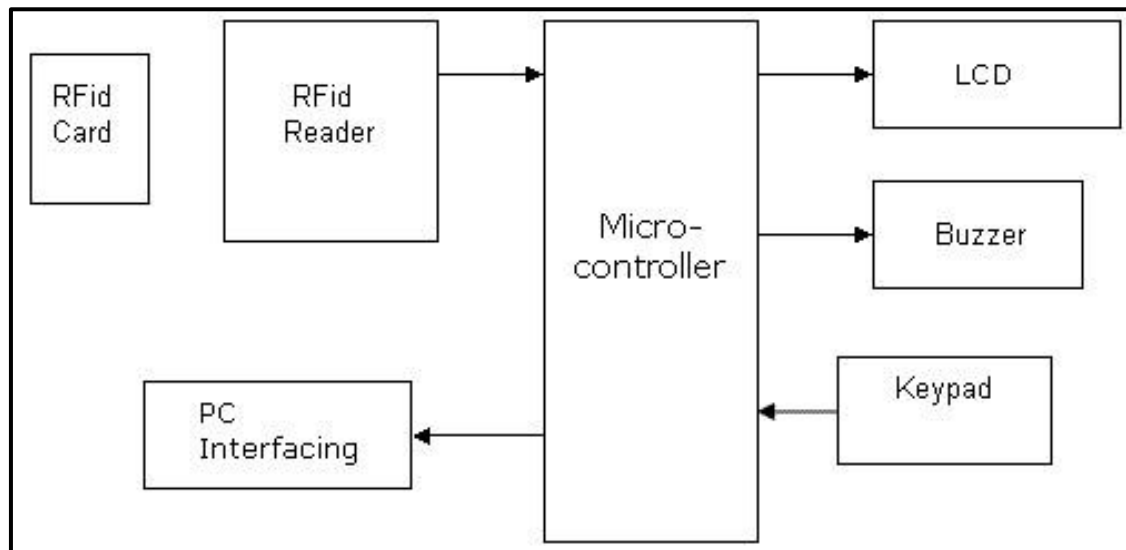
the employees / student has logged in. And in the same manner while leaving employee/student has to show the card. So, the exit time will be noted.

Commonly used RFID cards are of the size of credit card and are white in color, these are used in many RFID projects. However now days RFID cards are also available in small or RFID key tags are available. These key tags can be connected with the key-chain. And normal RFID card can be stick 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. Credit card needs to be swapped or need to be inserted inside the credit card reader machine.



But RFID card does not need to be inserted, user just needs to take it near the RFID reader. So, student/employee can even keep it in wallet and they can just take wallet near the RFID card reader without removing card from wallet. This way RFID module will read the card information.

Block Diagram:



Conclusion:

Regularity of student authentication is a key concern in schools and universities alike.

Their overall academic performance depends on authentication to a great extent.

RFID based authentication system facilitates auto authentication saving time for both teachers and students besides also enhancing the school's monitoring system.

The fully automated technology is highly flexible and reliable to use. It gives accurate results and reduces paper-based work, thus reducing environmental impact.

References:

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