

RFID – Attendance System Project

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Abstract

This paper surveys the recent research and application of radio frequency identification (RFID) in the fields of privacy as well as security and especially in the fields of attendance systems. RFID cards, tags, bands are small wireless devices that have a unique twelve digit code that is stored in a magnetic circuit within the tag/card. Here its use in the field of home automation is discussed making it a more fool proof method of privacy and attendance in an organization.

Keywords—

RFID radio frequency identification; security; small wireless devices

Introduction

The Radio Frequency Identification (RFID) technology that is used for its application in the field of identification of a person or object. Thanks to the dropping cost of technology that a single RFID tag costs only around 20 INR. RFID is the future of identification with an edge over almost all the other technologies existing in the market in terms of size and price.

An RFID tag is basically a small microchip as small as 0.4 millimeter sq. An RFID basically transmits data over the air and this data is decrypted by an RFID reader. Our objective is to install such RFID devices in schools, offices etc in order to make the identification, security, attendance etc a very automated task that will hopefully be better than the other existing RFID technologies as we will be using a counter especially for attendance systems where the attendance

will only be marked if the number of entries are correspondent to the number of card entries otherwise it would states the card as intrusion.

This system will indeed cut down the human efforts involved in attendance marking especially in school and colleges where this becomes a time consuming task.

Ease of Access

RFID The Future Identity

Many of us use the RFID cards routinely in form of metro cards ,debits cards , ration cards etc that are a category of smart cards but just imagine if all of these identifications are put into a single entity i.e. a single card.

Here are the uses of RFID in the attendance system:

- Unique identity: A single card will be allotted to each of the person belonging to a particular organization whether it is school, college or a factory. Each card's information will be put on the cloud.
- Fool proof system: With each entry within the premises there will be a counter that will corresponding accept the number of tag entries and with every exit the tag entry will not be accepted for example, if there is no one in the room then the counter is at zero thus if at this time a person try to punch a tag on the RFID reader it won't accept, it will accept only when the counter reading is one.
- All Information: The tag will hold all the information of a person

thus making it a system of more ease as one wouldn't need to have all the documents regarding when did the person joined the organization, name, address , post etc

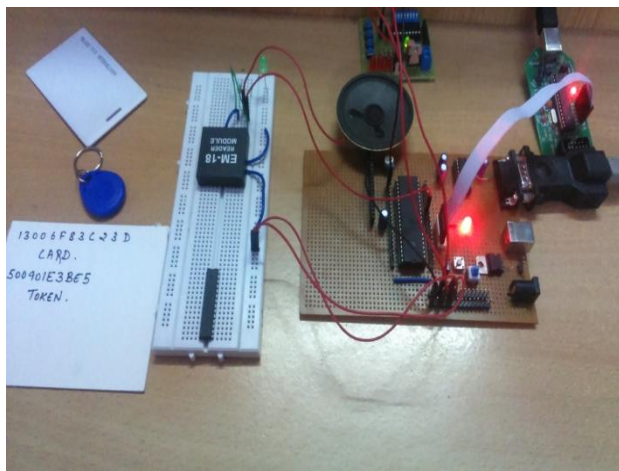
What makes it fool proof?

The RFID reader will be further connected to a microcontroller that will also be connected with the counter. The basic agenda is to cut down the human effort involved in maintaining the attendance records , a student's info like whether he paid the fees or not, his contact information etc. Thus the fool proof criteria is fulfilled by the use of counters at the entry of a rooms and after once entering the room the person will have to punch his card to mark his attendance.

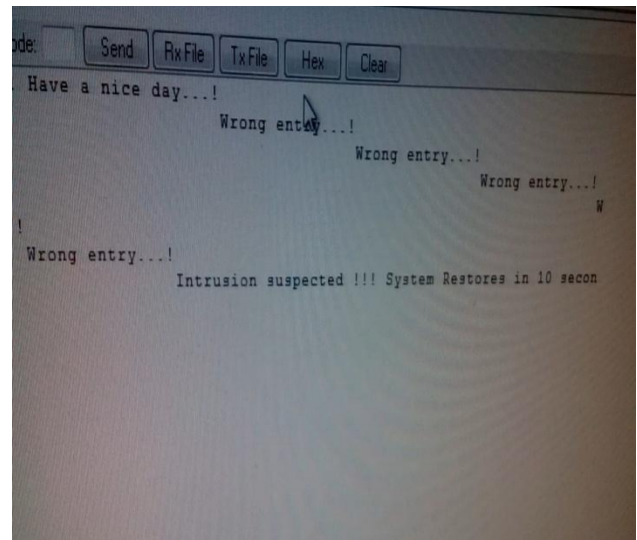
Practical implementation

A single RFID tag will have all the information of the beholder and this information can only be viewed by the person who has the access to the cloud where the entire information database is stored.

Here the cards we will be used is the Low Frequency cards i.e. the LF cards because of their maximum effectiveness and rugged use sustainability



(1)Project prototype setup



(2)Communication with computer

Components required

- Cloud to store the data of students
 - RFID tag
 - RFID card
 - RFID reader (em18)
 - Microcontroller at mega16
 - 16 MHz crystal
 - Connecting wires
 - DB9 (USART communication)
 - USART cable
 - Programmer
- Components are as shown in the figure (1).

Working:

Microcontroller is coded in such a way that every time a RFID is punched it tally's with the microcontroller data for existing records. In case a preexisting entry is detected it cross check with the counter and marks the entry as present in the cloud. in case of a non existing entry the controller responds it to as an intrusion and beeps up , if the intrusion is detected for more than five types then it hang the system for next 1minute .This way the human effort and time involved in marking the attendance and counting the number of students will be cut

shot as well as no need to maintain any register. Thus saving the lecture time.

The prototype working of the model is as follows

As in figure (2) as the card is punched the reader module communicates with the controller and as the entry is preexisting thus it shows the message “Hello, Have a nice day...!”

While As in figure (2) as the card is punched the reader module communicates with the controller and as the entry is not found as preexisting thus it shows the message “Wrong entry...!”

Thus if the intruder keeps on punching the card then after five wrong entries it hangs the system for next 10 seconds and displays “ Intrusion suspected !!! System Restores in 10 seconds “

The further use of counter will enhance the following system.

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