

RFID BASED ATTENDANCE AND DOOR LOCK SYSTEM

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Abstract - The main purpose of this paper is to design and implement an digital attendance and digital door security system which can deploy in secured zone where only authorized person can be entered and also mark their attendance. Radio-frequency identification (RFID) is a technology that uses radio waves to transfer data from an electronic tag, called RFID tag or label, attached to an user, through a reader for the purpose of identifying and tracking the user. We have designed this system containing attendance and door locking system using passive type of RFID which can activate, authenticate, and validate the user and unlock the door in real time for secure access mark the attendance easily. This system will not only simplify the process but also ensure a good process. For managing the attendance software will be installed in the host computer that will manage the attendance of the valid user.

Key Words: RFID based attendance and door lock system

1. INTRODUCTION

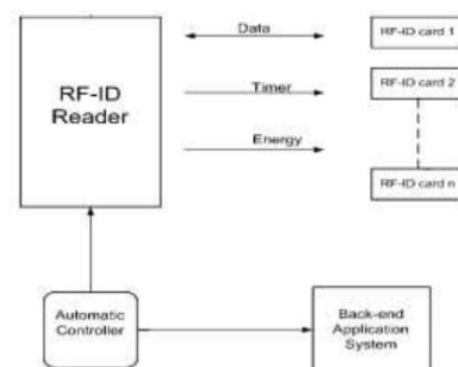
In the traditional attendance system, requires students to sign attendance form each time they attend class. While it may seem like there are many, such a system lacks automation and many issues can arise. This includes time spent by students

Calling and signing the name on attendance sheet; some students may accidentally or intentionally sign on behalf of another student. Also timeline will display incorrectly. Same Issue face with the security, an unauthorized person can access in an organization or any other safe place by taking over human security

Digital attendance and door locks are also used and controlled by RFID readers that identify the valid users, if the user is valid then green led will light up, attendance mark into the database and open the doors. It also keeps records of users' check-in and check-out. It is important to identify users before

they enter a safe place, and RFID offers a solution to this problem. The system allows users to check-in and check-out quickly, safely and easily.

In this research, we use RFID technology to provide a solution for secure access and for attendance to the site while storing user information. Here we used the passive RFID mode. Passive RFID types do not have a battery, they obtain energy from the reader to operate. The main advantage of passive RFID is its cost effectiveness and small size.



2. PROPOSED WORK

In this Research Paper, We proposed security system which is also used to control attendance and lock doors using passive RFID. The system is used in our location using a central database system. Safe areas in the same or different buildings. In this system, we have used hardware as well as software. Hardware components are RFID tag, reader, USB cable, buzzer, LED, Arduino etc. and used software is database.

Here is some more information about proposed project:

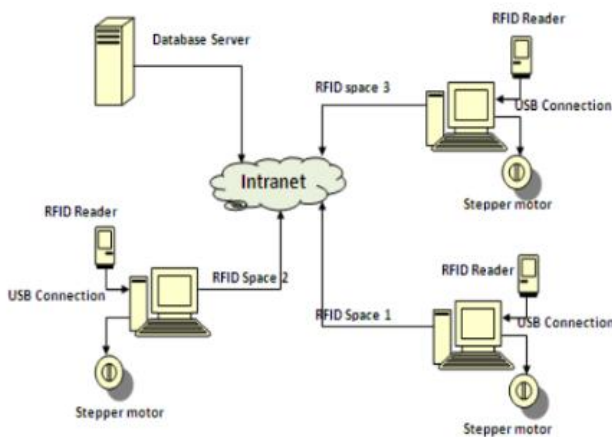
- RFID reader read the information that is containing by the RFID tags when it comes within a few millimeters of the reader.
- After the reader receives all the information, it sends the information to the database for verification. If true, save the file for further processing.

iii) After the central server receives the reader's query, it queries the data and stores the corresponding data.

iv) The reader calculates the time stamp (date, time) and creates a log after receiving the response from the server.

v) After the data tag is verified, the system generates a control signal from the parallel port and controls the opening and closing of the door with the Solenoids.

The RFID reader can detect the RFID tag when it touched the reader or come very close to the reader. The tag is automatically detected by RFID reader in every mille second and reader sent the information to the database. The database contains information about different registered user. The signal data from the RFID reader is matched with the data stored locally and centrally. When the data matches the stored data, the system displays the data. This file contains user information such as name, ID number, category, check-in time, check-out time.



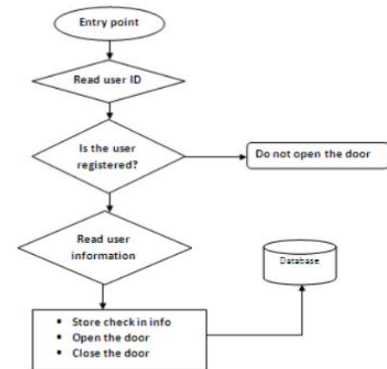
The RFID reader is connected to the system via a USB port to enable communication between the system and the RFID reader. The control signal output is generated by the system from the parallel port, and the opening and closing of the door is controlled by the Solenoids. RFID technical specifications are as follows:

- ☐ Power
- ☐ Read speed
- ☐ Capacity
- ☐ Maximum reading range
- ☐ Card format
- ☐ Battery life

3. WORKING OF THE PROJECT

The system stores all necessary information about users. New users are registered to the system for the first time and the relevant information is written to the RFID tag. This RFID card can be used by the system. When a registered user comes to the entrance and puts the token in the reader, the system checks whether it is a registered user or an unauthorized user. If the user is registered, the data tab reflects the user's data stored in the system on LCD display. After the authentication is successful, attendance is mark to the database and the door

opens to allow users to enter and closes after the specified time. Checks are also stored on file with date and time. The system will also generate logs based on the defined data.



4. DISCUSSION AND RESULT

The system has a PC controller that keeps information about user attendances. Users must have an RFID card with personal information about the particular user. The door and lock system is driven by solenoids. The solenoid acts as an actuator, which can open and close the door. The RFID reader detects the tags in real time and automatically opens the door and closes it again after a while. In this application, the customer's accreditation is first loaded into the database. If the user has not saved the information in the database, unauthorized access is prevented by not opening the door and red led is light up and buzzer makes sound. In this study, we have developed a attendance management and security system that can be used to record attendance in the classroom, which can also be used in a safe area that can only be accessed by real people for a safe place. When the user's data is mixed with the data stored in the data center, the user can only access the closed area because the door is opened only when the data exactly matches the data. The system can be sent to multiple security locations in a building. The system is also capable of managing user information such as the number, time, and area of user check-ins. All data is stored on database server and local server. The database can be access by the Admin.

5. CONCLUSION

In this Research paper, we have implemented a digital attendance and digital security system that includes a database and a door lock using passive RFID. The central system is called RFID based attendance and door lock system. When the user touches the RFID tag with the reader, the door opens and the attendance is stored on the database.

6. REFERENCES

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