

IOT Based Attendance Monitoring System using RFID

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Abstract: - *Monitoring attendance of people became a very important part of any organization. Earlier, we used paper-based systems to monitor attendance records, which is a very tedious task. Nowadays, many new techniques evolved to monitor attendance records, and RFID (Radio Frequency Identification) based systems are one of them. RFID uses radio waves to transmit data over a short distance. The proposed system uses RFID technology with a Wi-Fi-based microcontroller (ESP8266) to monitor the attendance records. The proposed system provides a way by which we can manage all the attendance related data via a single mobile application. The Firebase Real-time Database will store all the attendance related data. The app provides all the basic features to manage people's attendance like Managing employees, generating and sharing reports, managing departments, controlling multiple attendance management devices, etc.*

Index Terms— RFID, RFID CARD, ESP8266.

I. INTRODUCTION

One of the effective factor that support the system of presence of student. Because in many cases student often absent, so in traditional manual paper based attendance take too much time which is very time consuming, insecure and usually leads to human error. Although work get wasted in organizing and structuring the attendance data in register in traditional method. Besides in many cases there are introduce proxy unauthorized person which leads to insecurities and misleading of organizing structure. As a result we present this system to overcome this different type of disadvantages. RFID (Radio Frequency Identification) technology has been revolutionized the way we track and manage data. Once area where it has proven particularly useful in attendance monitoring system. In this system, RFID tags are used to identify and track individual as the person enter in bus and allowing only authorized persons. In addition to allowing for accurate and efficient attendance recording with the help of Blynk App. They mainly record related to authorized persons namely Date, Time and their name. The

particular system using RFID tags to track attendance and record it in Google Sheet. By accordingly the process, we can save the time and resources while ensuring accurate attendance records.

II. LITERATURE SURVEY

[1] The RFID automated Tracking attendance is presented Shashank Shukla, Pooja sore. The system then records the time and date of the attendance and sends the information to the instructor's computer for easy tracking and record-keeping.

[2] RFID based system for school children Transportation safety is presented by Dr. Sty Shrikant, Shilpa Shree K. The objective of this paper is the technology being used to should be crucial enough to keep our society safe. To improve Transportation Safety.

[3] RFID & It's used in Libraries is presented by Neeraj Kumar Singh. The aim of these are tagging books with RFID tags to quickly. Locate misplaced book on the shelves & checkout.

[4] RFID based vehicle authentication using Smart card is presented by Litty Rajan, Alpana Gopi. The aim of this survey is to find RFID application in authentication of all vehicle during inspection.

[5] Kawaguchi introduced a lecture attendance system with a new method called continuous monitoring, and the student's attendance marked automatically by the camera which captures the photo of a student in the class. The architecture of the system is simple since two cameras equipped with the wall of the class. The first one is a capturing camera used to capture the image student in the class and the second camera is sensor camera is used to getting the seat of a student inside the class and the camera capturing will snap the image of the student. The system compares the picture taking from a camera capturing images and faces in the database done much time to perfect the attendance.

[6] Other paper proposed by [2] introduced a real-time computer vision algorithm in automatic attendance management system. The system installed the camera with non-intrusive this system also used machine learning

algorithm which are usually used in computer vision. Also, HAAR CLASSIFIERS used to train the images from the camera capturing. The face snap by the camera capturing will convert to grayscale and dosubtraction on the images; then the image is transferred to store on the server and processing later.

III. BLOCK DIAGRAM

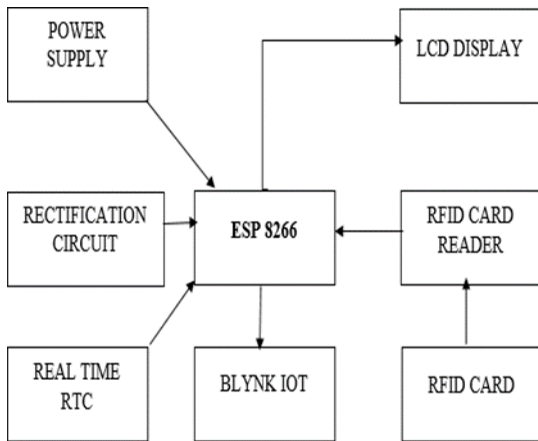


Fig. (a) Block Diagram of Hardware

VI. WORKING

A Passive tag is an RFID tag that does not contain an internal power source, such as battery & instead of relies on the electromagnetic energy transmitted from an RFID reader to power the tags circuits. When a passive RFID tag enters the electromagnetic field of an RFID reader, it receives energy from the readers signal and uses the energy to power its internal circuits. The tag then modulates the signal to reflect its unique identification number back to the reader. MFRC522 is a highly integrated chip for contactless communication at 13.56 MHz. The MFRC522 is commonly used in RFID reader applications for access control, identification. It's operate on 3.3V and communicates with Nodemcu through a standard SPI interface and receives the modulated signal and decodes the identification number to identify the tag. The MFRC522 chip is used to read and write data to RFID tags.

It supports multiple communication modes, including the passive and active modes. It can detect and communicates with multiple tags simultaneously. MFRC522 is a versatile and popular chip for RFID reader applications. Easy to use and compatibility with RFID protocols. The ESP8266 is a small and affordable

device that can connect to internet wirelessly. The ESP8266 module built in wifi capabilities, making it easy to connect to the internet and communicate with other devices. ESP8266 module can be programmed using the Arduino Integrated Development Environment (IDE). They receive data from RFID reader and process on it.

Furthermore match the data is stored on datasheet and received data from user. A Solenoid lock is an electromechanical device that uses a Solenoid, which is a coil of wire to control the locking mechanism. When an electric current flows through the solenoid coil, it generates a magnetic field that pulls a bolt, which is attached to the lock mechanism. This movement causes the lock to engage or disengage depending on its configuration. In case data is matched at that time the lock will be open for authorized person otherwise it remains close. Blynk App is a free Application program which allows users to create and edit the sheets online while collaborating in real time with others.. The program assistance various data types including text, number and dates

VII. RESULTS



Fig. (b)(1)



Fig. (b)(2)

CONCLUSION

In conclusion, Implementing an RFID-based attendance monitoring system offers numerous benefits, including accuracy, efficiency, and convenience. By utilizing RFID cards, the system ensures reliable tracking of attendance data, reduces the risk of errors, and streamlines administrative tasks. Moreover, it enhances security by providing a robust method for verifying individual identities. Overall, adopting an RFID-based attendance monitoring system proves to be a valuable investment for organizations seeking to optimize their attendance management processes.

ACKNOWLEDGEMENT

It gives us a great sense of pleasure to present the paper of the B.Tech Project undertaken during B.Tech Final Year. We owe special debt of gratitude to Mr. Rajesh R. Dodake, Department of Electronics and Telecommunication Engineering, Dr. Ashok Gujar Technical Institute's, Dr. Daulatrao Aher College of Engineering, Karad for her constant support and guidance throughout the course of our work. Her sincerity, thoroughness and perseverance have been a constant source of inspiration for us. It is only her cognizant efforts that our endeavors have seen light of the day.

FUTURE SCOPE

Voice announcement system. No matter when a user logs in, we can announce messages such as, "Your attendance has been logged in" or "Your card is invalid". The structure can be upgraded by surrounding it in a cling wrap. Previously mentioned might make it more compact and easier lecture-wise attendance taking. It could be modernize by impulsive manipulates attendance percentage of students along with staff.

APPENDIX

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