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RFID Mobile Submission Box

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Abstract: RFID stands for radio frequency identification of a person or thing. RFID, or radio frequency identification technology, uses electrical means to transmit data over radio waves. This study aims to decrease manpower requirements while implementing security for deposited mobile devices. This study's primary objective is to create and implement security measures so that only authorized individuals can retrieve lost or stolen mobile devices. The technologies utilized in this project include RFID reader to read ID and automation using Arduino.

Keywords: RFID, mobile, frequency waves, security, Arduino, reader, reader ID.

1. INTRODUCTION

In the Internet of Things, a thing can be any natural or artificial object that can be given an IP address and the capability to transfer data over a network, such as a person with a heart monitor implant, a farm animal with a biochip transponder, a car with built-in sensors to warn the driver when tire pressure is low, or any other object. Microelectromechanical systems (MEMS), wireless technologies, microservices, and the internet have all come together to form the Internet of Things (IoT). The silo barriers between operational technology (OT) and information technology (IT) have been broken down by the convergence, allowing unstructured machine-generated data to be evaluated for insights that will drive improvements [1]. John Ashton,

The Internet of Things was initially discussed in a 1999 presentation that cofounder and executive director of the Auto-ID Center at MIT delivered to Procter & Gamble. Ashton explains the possibilities of the Internet of Things in the following manner. "Today's computers and internet rely nearly exclusively on people for their information. Nearly all of the about 50 petabytes (1 petabyte = 1,024 terabytes) of data that are accessible on the internet were initially created and recorded by humans through typing, recording, digital photography, bar code scanning, and other human actions. The issue is that individuals are not particularly adept at gathering information about objects in the real world since they have limited time, attention, andaccuracy. Ifonlywehadintelligentcomputers, expected to raise new concerns about data privacy data sovereignty and security [3]. Practical applications of IoT technology can be found in many industries today, including precision agriculture, building management healthcare, energy and transportation Connectivity optionsfor electronics engineers and application developers workingon products and systems for the Internet of Things include, Although the concept wasn't named until 1999, the Internet of Things has been in development for decades. The first internet appliance, for example, was a Cokemachine at Carnegie Melon University in the early 1980s. The programmers could connect to the machine over the internet, check the status of the machine and determine whether or not there would be a cold drink awaiting them, should they decide to make the trip down to the machine [4].

2. EXISTING SYSTEM

2.1 Automation

The term building automation system, loosely used, refers to any electrical control system that used to control a buildings heating, ventilation and air conditioning (HVAC) system. Modern BAS can also control indoor and outdoor lighting as well as security, fire alarms and basically everything else that is electrical in the building. Old HVAC control systems such as 24 V DC wired thermostats or pneumatic controls are a form of automation but lack the modern systems flexibility and integration.

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2.2 About RFID Submission box

In the recent years, in spite of increased security and protection aspect we deigned a counter called RFID mobile submission counter for depositing mobiles in schools, colleges and companies etc. As the technology keeps growing the need for safe and secure lockers keeps growing. The solution to this problem can be metwith this project. It greatly reduces the waiting time and increases the security.

In most of the schools and college they issue tokens while submitting the mobile which is time taking process and it need manual presence for issuing and collecting the tokens. Whenever the user wishes the use the locker to collect the mobile, he should be assisted by the employee which leads to waste of time for both the student and the employee. The major drawbacks of such manual lock systems are lack of security and the waiting time of the students. It should be noted that the person accompanyingthe student can be any employee who is free at that instant of time. Solely, time is wasted [5]. This can be overcome by our proposed RFID MOBILE SUBMISSION BOX.

3.PROPOSED SYSTEM

RFID technology is the fast-growing technology in the recent years. RFID is similar to bar code technology but uses the radio waves to capture the data from the tags rather than optical scanning. One of the key characteristics of RFID is that it does not require any tag or label to be seen toread it's stored data. The RFID system interfaced with Arduino requires to continuously scan the input from the RFID reader. RFID reader module is also called as interrogator. They convert the radio waves returned from theRFID tag into a form that can be passed on to controllers, which can make use of it. RFID system consists of two separate components: a tag and a reader. Tags are analogousto barcode labels and reader functions similarly to barcode scanners.

In this research, RFID tags which are identity cards for the coming batch students are used which holds the user's information like locker number, username, etc. This RFID tag when read by the RFID reader will automatically open and close the locker. Thereby, security is guaranteed and the students waiting time is drastically reduced**.**

- AUTOMATON USING AUDINO.
- RFID READER TO READ ID.

We designed RFID mobile submission box which make mobile submission processes easy and effective by reducing the time and man force. It also provides security tothe mobiles.

3.2 Block Diagram

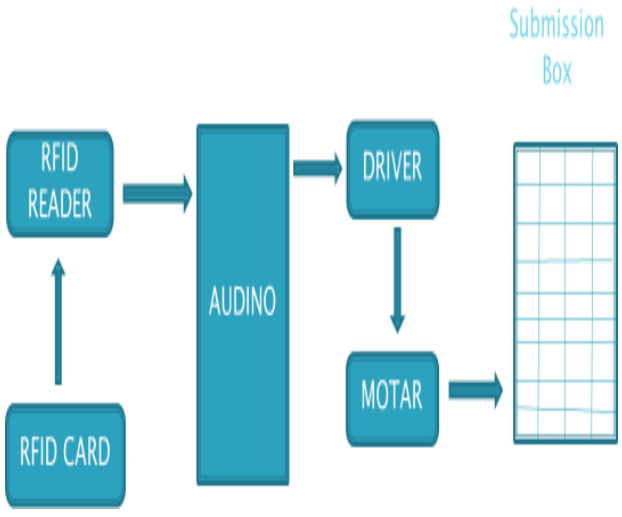

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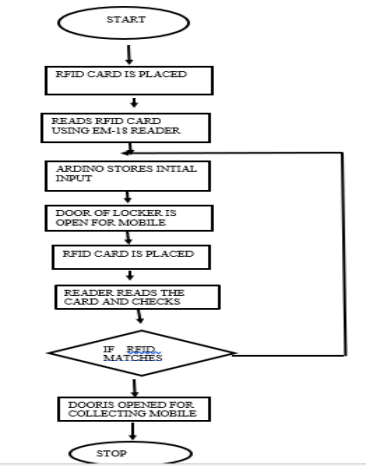
Fig. 1 Block Diagram for Proposed System



4. METHODOLOGY AND IMPLEMENT

Our main intension of the project is to reduce the man force and time of submission the mobiles and also to provide the safety and security to the mobiles. With this as our objective we have to use an Arduino board where we store the required code which we designed to read the RFID tags and run the stepper motor if the tag id matches with the input RFID.

Initially, the RFID card is placed near the reader the EM-18 reader module reads the ID and passes it toArduino and Arduino checks if the card ID is already stored or not. If it is stored then the door of the submission box open else Arduino again stores the ID of RFID tag and opens the door.Flow chart of working

Fig. 2. Flow Chart for Working ModelAlgorithm for proposed method

Step-1: Initially the RFID tag is placed near the readerStep-2: Reader reads the ID and stores in Arduino Step-3: Arduino

stores the initial input

Step-4: Door the submission box is opened the mobile issubmitted.

Step-5: RFID Tag is placed for collecting the mobile

Step-6: Arduino checks If the tag ID is already stored then the door of the counter is open to collect the mobile else step2 follows

Step-7: Mobile is collected.

We have implemented a RFID MOBILESUBMISSION BOX using passive RFID andArduino. It is a low cost, low in power conception, compact in size and standalone system. The Arduino compares the RFID ID read by EM-18 Reader and opens the counter box. If this RFID ID is correct the Arduino provides necessary control signal to open and collect the mobile.

5. CONCLUSION

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This research is mainly aimed at reducing workload. Time is considerably saved by this RFID based Mobile Submission Box as there is no need for any authentication by the employee. As this research is implemented using software tools Arduino, the outputs obtained can be easily checked before they are uploaded into the Arduino board. This research can be easily checked before they are embedded on the hardware. This research has the potential to greatly reduce the manpower required during the access of mobile submission of students as well college attenders and also greatly saves time for both the banker and the customer. This research can be extended for more number of customers and banks by using RFID cards with identification numbers of more length.

In this research, RFID tags which are identity cards for the coming batch students are used which holds theuser's information like locker number, username, etc. This RFID tag when read by the RFID reader will automatically open and close the locker. Thereby, security is guaranteed and the student's waiting time is drastically reduced.

In the recent years, in spite of increased security and protection aspect we deigned a counter called RFID mobile submission counter for depositing mobiles in schools, colleges and companies etc. As the technology keeps growing, the need for safe and secure lockers keeps growing. The solution to this problem can be met with this research. It greatly reduces the waiting time and increases the security.

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