

A Project/Dissertation Review-1 Report

on

AUTOMATIC ATTENDENCE SYSTEM USING IOT

B-Tech SCSE Sem 5



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Abstract

If we talk about the current scenario of our education system than we found that we have lot of technologies to use but still we are following the tradiĆonal system. if we talk about the aĐendance system in our Uniyersity, faculty did that work manually. faculty took the aĐendance and update it manually in the icloudems. If we talk about the technology than we found that there are lot of tools to use and reduce the burden of faculty. Using RFID is the one example of that. We if combine the Long range RFID and IOT (Internet of Things) than we can do it automaĆcally and there is no need to do it by faculty. Here we are planning to use the iCloudems with Long range RFID reader its working on **FASTag technology** used in our Cars and bus

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Acronyms

B.Tech.	Bachelor of Technology
M.Tech.	Master of Technology
BCA	Bachelor of Computer Applications
MCA	Master of Computer Applications
B.Sc. (CS)	Bachelor of Science in Computer Science
M.Sc. (CS)	Master of Science in Computer Science
SCSE	School of Computing Science and Engineering

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CHAPTER-1

Introduction

Radio-frequency identification (RFID) is a technology that uses radio waves to transmit data from an electronic tag, called an RFID tag or label, attached to an object, using the reader for the purpose of identifying and monitoring an object. Radio frequency identification (RFID) is an advanced technology that allows the use of electromagnetic coupling or electrostatic coupling in the frequency range of electromagnetic spectrum to identify an object, animal or human. RFID chips include a radio transmitter that displays a coded ID number when questioned by a reading machine. Some RFID markers can be tested from a variety of meters away from the student's line of sight. The mass reading function allows for parallel analysis of tags. This minority category is included in customer products, even domesticated pets, for identification. Tag facts are stored electronically. The RFID tag includes a small RF transmitter that sends a coded radio signal to investigate the marker, and the recipient who receives the message and responds with its identification information. Some RFID tags do not use the battery. Instead, the tag uses radio power broadcast in the student's way as its source of power. The RFID machine program contains a way to discriminate against multiple tags that may be within the range of an RFID student. RFID can be used in many applications. The tag can be attached to any item and used to track and manage items, goods, people, etc. For example, it can be attached to cars, portable tools, books, cell phones, etc. The RFID presence device is automatically embedded. a system used to visit people who are registered with a particular organization. The RFID presence gadget introduces the organization, efficiency and comfort associated with RFID technical knowledge at low cost. This method is as fast and easy as it is simple. Each employee uses an RFID card and the student records information when the employee is out. RFID devices and software must be supported by a state-of-the-art software that allows for the collection and distribution of region-based data in near real-time. The full image of the RFID presence device includes RFID tags with readers and access to a designated international website, ensuring real-time access to the latest data on the card. The card contains a wide variety of different identifiers known as the electronic product code

CHAPTER-1

Introduction

Today, there are dozens of teams worldwide, some of which may number up to 10,000 or more. Managing a large number of employees can also be a problem especially in determining the availability of staff. The skill of the guiding process is that whenever an employee arrives at work, he or she goes to sign at the time officer's table. This directed procedure has some drawbacks because in the event that an employee bribes a time officer or an acquaintance, the time officer may tamper with attendance records. This can be a big problem for a company and it can affect production and business management. In this study, the RFID gadget is used to automatically report employee presence numbers. Employee ID cards embedded with the RFID tag read by the student. This RFID gadget is connected to a website. This method is best for preventing problems you encounter when you arrive in person.

CHAPTER-2 Literature Survey

Use a system called RFID Based Automatic Attendance systems. This is a tour plan The software is developing using IOT and the website (gu.icloudems.com). Each student has an RFID tag attached to their Student ID card. There is a serial connection between the computer and the RFID reader has also been maintained a connection between RFID and a computer program. The RFID reader is placed in the speech door of the hall. Whenever students enter the lecture hall the RFID student reads the RFID tag and keeps everything information (Login time, Name, etc.) of students on the site for serial connection and system maintenance.

Here the administrator of the program can view all documents using the software interface interface by retrieving information from database without difficulty not like traditional system.

Implemented the RFID integration program with a web-based system. This program uses the RFID tag and the student to find out the attendance and read of a particular student. Then this student connects to Arduino microcontroller that transmits RFID reader feedback to a web server via Arduino shield, finally the presence of students can be stored on a web server using PHP and MySQL. Administrator for The system can view all student documents by logging in to this information A web-based app that can view student information using Icloudems.com

Detected system, RFID and Pose Invariant Face Verification system for automatic presence. This program operates under two-factor authentication. In the first step, students need to use the RFID tag read by RFID student. If the first step is successful and then move on to the second step of verification, otherwise, the student becomes less unknown category. The second step is facial verification, if the face looks like a certain RFID tag and so on marks are present in the database. Missing in both of the above readings, the program identifies fraudulent students. This the automatic dual-system system minimizes the misuse of identity theft for the purpose of discovery Shanghai University of Science and Technology ISSN Journal: 1007-6735 Volume 22, Issue 12, December - 2020 Page 254

"Arduino Based Smart RFID Security and Attendance System with Acknowledgment Audio" developed by Yashi Mishra et al.

CHAPTER-2 Literature Survey

An Arduino module with RFID tag containing various push codes used in this program. Mark ID and voice greeting code stored in the Temporary memory module. As the student enters the classroom at the door, his RFID tag is read. If the tag ID is matched with data stored on the Temp memory it will push data on icloudems.com it is matched then the door will open again attendees will be kept on an excel sheet.

The reader can view the presence details using the LCD installed in Arduino. Here Arduino works as a microcontroller to connect CD, RFID reader, SD card module and more. This the system also serves as a two-factor authentication process. Moreover, the program is very simple schematics there is another system due to the very simple parts and design. And here we get a quick response with accuracy. A prototype system called the Microcontroller Based Attendance System is developed using RFID and GSM. The program contains three ATmega16 microcontroller installed between RFID reader, GSM modem and computer. Each microcontroller has its own purpose. The program begins whenever a teacher uses his or her RFID mark to enter the classroom and students will enter the classroom by rotating their mark within five minutes. The RFID reader reads the RFID tag and sends the signal to the first subfolder that analyzes the RFID signal the student also opens the classroom door using the IR signal influenced by the engine. The signal is temporarily stored in the microcontroller, when the teacher finishes his class he must change the RFID mark and the student and the program automatically determines when the class is over. Thus, the microcontroller passes temporarily the database is stored on a computer website as existing. In the absence of a reader, the signal is transmitted to GSM modem will also send a message to parents of students who were not in class. If there are students coming out before the teacher uses the RFID completion mark that does not take into account the (current) status of the learners. This program itself has added advanced and reliable security features.

CHAPTER-2 Literature Survey

So students cannot cheat on administrators and parents Proposed operating system with RFID and GSM proposed. Here they use a microcontroller (LPC) as between GSM and RFID module. Whenever students come into the classroom, they need to use their tag read by RFID reader and transmits current signal to GSM module. If the tag ID does not exist compare websites that are considered unauthorized access. If OK then the GSM module sends a message parental management. [9].

[10] Proposed a web-based approach using a four-phase architecture using RFID and Biometrics.

In this program a unique RFID code for student and teacher will be kept on the website. RFID reader once fingerprints are placed at the door of the classroom. When students enter a classroom, they need to use the RFID tag read by the reader and confirms identification against the site or the tag is the same as no. Second level verification will be allowed if and only if the first level is successful. Verification with Fingerprints are the second step in the process and if a student's fingerprints are compatible with the site it will mean that attendees will be marked and stored in a database, otherwise no students are present. Fingerprints confirmation is only valid for 10 minutes which includes five minutes before the schedule and after class time plan. If someone is drunk and refuses to give it to a particular student however students can stay in lessons and learn. Finally, an SMS will send to the student's parents about the information some students

CHAPTER-3 SYSTEM DESIGN

The RFID program based on Automated Student Attendance is a very special program for all an existing student enrollment system using RFID. Major factors in designing the presence of RFID The program includes: hardware selection and software components and integration of both to work together, to describe the operating mode of the system (verification or identification) and to define management and efficiency policy [14,16]. The framework for the student visit system is divided into three sections: Hardware design, Software Design, Attendance Management and Reporting.

CHAPTER-4
HARDWARE DESIGN

MICROCONTROLLER PIC18F452

The controller used in this project is a 40-pin DIP package chip (Dual In Line) called PIC18F452; This the chip is selected because it is rigid, and the DIP package meets prototyping. Material such as solder small bread boards and a type of solder-board each. This small controller is available in the upper deck package, approximately dime size. The mounting devices are very useful for built-in circuit boards production. Figure 1 below shows the "pin-out" drawing of PIC18F452. This drawing is very useful, because it tells you where the energy and the earth should be connected, what anchors are binding where it works hardware, etc.

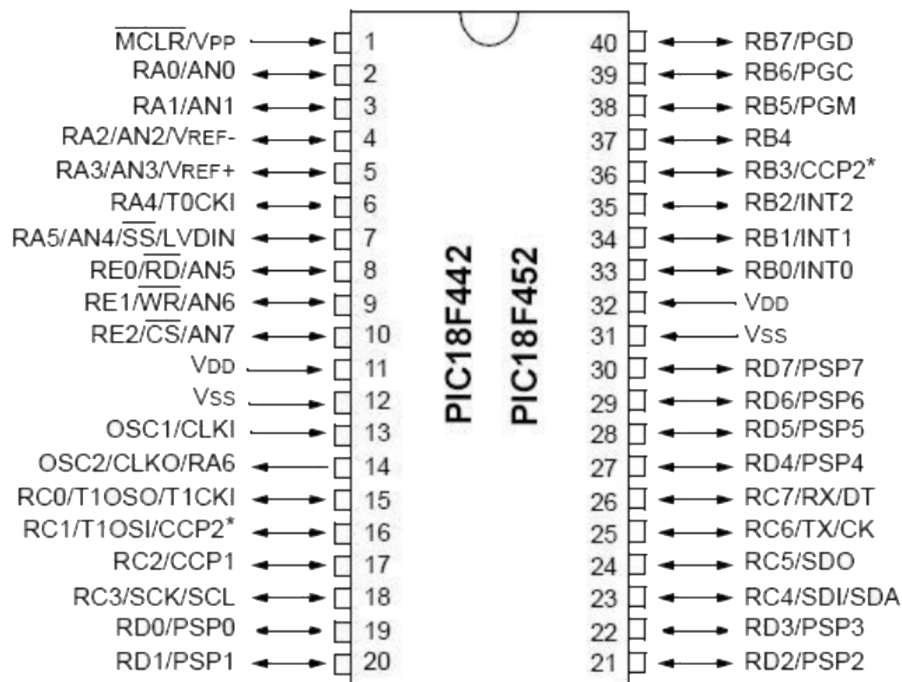


Figure 1: Pin Diagram of PIC18F452

CHAPTER-4 HARDWARE DESIGN

RFID READER

The student (now commonly known as the RFID tester) is basically a radio frequency (RF) transmitter and receiver, controlled by a microprocessor or digital signal processor. Student, using i an attached antenna, captures data into tags, and then transmits the data to a controller for processing. Student determines the data included in the integrated circuit tag (silicon chip) and the data is transferred to microcontroller for process.

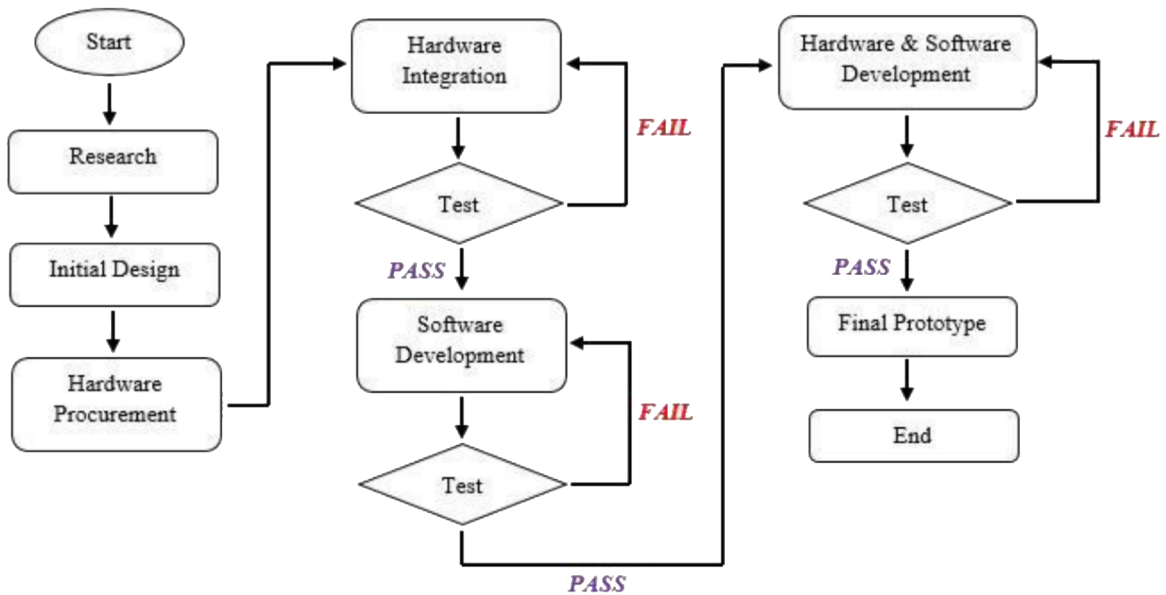
FEATURES OF RFID READER

- a. An inexpensive solution for reading RFID transponder tags.
- b. Industrial grade casing for better vision and protection.
- c. Integrated RFID reader, antenna, LED, power cable and data cable.
- d. Every student has been tested before being sent.
- e. 9600 baud RS232 serial interface (output only) on PC.
- f. It fully operates with 5VDC power supply.
- g. Buzzer as a sound indicator of activity.
- h. A two-color LED to display visual activity.
- i. The standard RS232 (female) serial cable is ready to be connected to a desktop PC or Laptop.
- j. 2m reading distance.
- k. 0.1s response time.
- l. Operating frequency: 125KHz

CHAPTER-4 HARDWARE DESIGN

Project Flow

A certain approach is required for this function as an alternative the machines are assembled for work. This approach emphasizes the well-planned development by complete one phase before passing to the next until it reaches the final stages of prototyping. Shows a diagram of a job broadcast.



Hardware Architecture

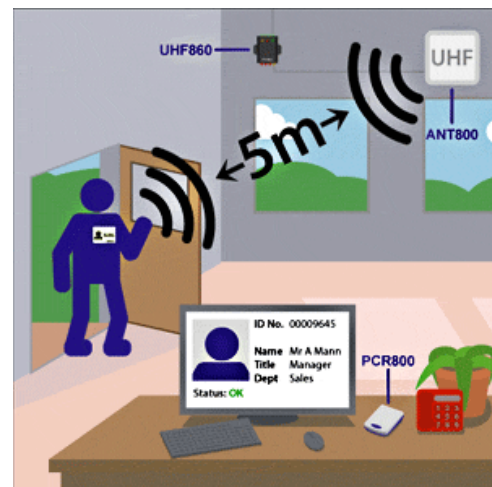
The system hardware is based on the Atmega2560 subtitle. This little controller has 256 KB 8 KB used for Flash system memory and 8KB Static Random Access Memory (SRAM). All hardware can be divided into four components such as Liquid Cristal Display (LCD) display interface, RFID module section, real-time interface part of the clock and SD Card transaction category. All these categories are controlled by the ATmega2560 microcontroller and the required software for phase control is the Arduino Integrated Development Environment (IDE).

CHAPTER-5 Implementation:

the results will be presented in detail from the reading of the RFID tag to are stored and displayed on a computer. The name of the person identified within the Arduino as well associated with each card (pre-programmed and named for each tag) will be displayed on the LCD screen when you read the RFID Tag and at the same time it will be saved in the TXT file to SD Then the data will be dragged to an Excel file to be displayed on it. computer screen. These steps will be explained in more detail in the following sections.

RFID Tag Reading

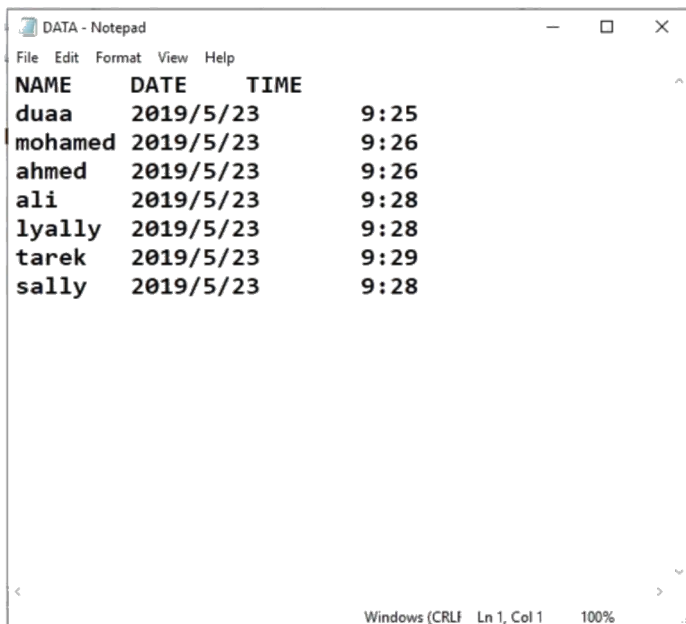
Before we begin to specify the details of reading the RFID Tag, we would like to say that it is a hand and a button has been added. When you place any Tag on an RFID reader, the flash is released by LED, and voice from the buzzer at the same time as the signal RFID Tag read. In the following figures we will review the information read by RFID where five tags are organized and read by the department and take a picture of the information from when you read the Tag.



CHAPTER-5 Implementation:

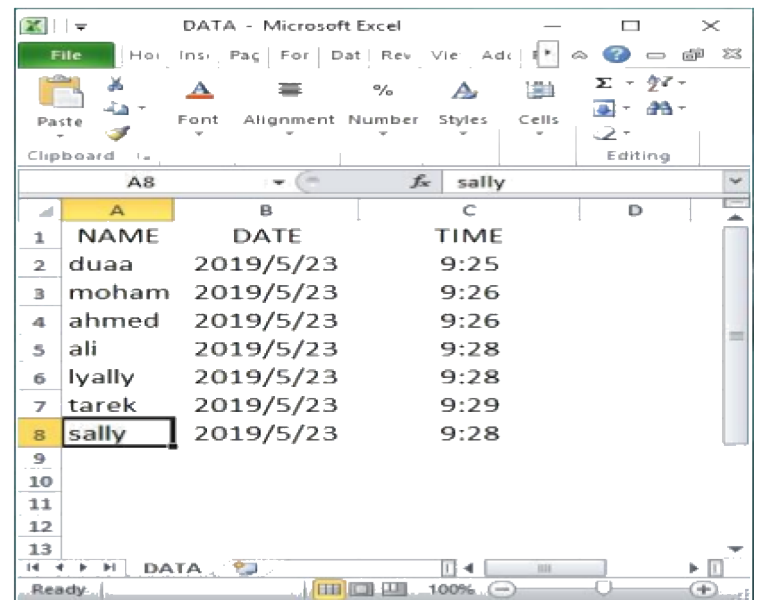
Recorded Attendee Data Sheet in TXT Format

After the event was recorded, archived by Arduino as a TXT file in SD RAM, RAM is installed via the adapter on the computer. Information stored in the table is displayed on Figure below. The table consists of three fields: the first represents the name, the second represents The the date of existence and the third represents the time of existence



A screenshot of a Notepad window titled "DATA - Notepad". The window displays a text file with the following content:

NAME	DATE	TIME
duaa	2019/5/23	9:25
mohamed	2019/5/23	9:26
ahmed	2019/5/23	9:26
ali	2019/5/23	9:28
lyally	2019/5/23	9:28
tarek	2019/5/23	9:29
sally	2019/5/23	9:28



A screenshot of a Microsoft Excel spreadsheet titled "DATA - Microsoft Excel". The spreadsheet contains the same data as the Notepad window, organized into columns:

	A	B	C	D
1	NAME	DATE	TIME	
2	duaa	2019/5/23	9:25	
3	moham	2019/5/23	9:26	
4	ahmed	2019/5/23	9:26	
5	ali	2019/5/23	9:28	
6	lyally	2019/5/23	9:28	
7	tarek	2019/5/23	9:29	
8	sally	2019/5/23	9:28	
9				
10				
11				
12				
13				

Here is the last step, which involves transferring the information stored on the TXT file to an Excel spreadsheet on the computer and We can Push Data on [gu.icloudems.com](https://www.icloud.com) for the purpose of conducting statistics on attendance of students. shows the Excel file obtained Attendance as an Excel file

CHAPTER-6 Conclusion

Conclusion The system is a low cost system which is designed to withstand any terrain and surrounding, providing tactical and surveillance and better comfort. Moreover, the Arduino board allows the system install in more simple way. RFID technology positively promises an increased effectiveness and improved efficiency for business and administrative processes. All the future work is expected without spend extra cost, even one cent from the current system.

CHAPTER-7 Future Works

This study is considered the basic phase for several future types of research and the following operations can be carried out to improve the performance of this algorithm:

- Make a wireless connection between Arduino and pc
- Design an online database attendance system

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