IMPLEMENTATION OF RFID BASED ATTENDANCE SYSTEM

A Project and Thesis submitted in partial fulfillment of the requirements for the
Award of Degree of Bachelor of Science in Electrical and Electronic Engineering

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CERTIFICATION

This is to certify that this project and thesis entitled "Implementation of RFID Based Attendance System" is done by the following students under my direct supervision and this work has been carried out by them in the laboratories of the Department of Electrical and Electronic Engineering under the Faculty of Engineering of Daffodil International University in partial fulfillment of the requirements for the degree of Bachelor of Science in Electrical and Electronic Engineering. The presentation of the work was held on December 2018.

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Dedicated

to

Our Parents
And
Honorable Teachers

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List of Abbreviations

LCD   Liquid Crystal Display

LED   Light Emitting Diode

GPS   Global Positioning System

VCC   Voltage Common Collector

GND   Ground

IDE   Integrated Development Environment

TTL   Transistor–transistor logic

VLSI   Very Large Scale Integration

PCB   Printed Circuit Board

RF   Radio Frequency

RCA   Root Cause Analysis

USB   Universal Serial Bus

PC   Personal Computer

PWM   Pulse Width Modulation

SPI   Serial peripheral interface

TWI   Two wire interface

DC   Direct Current

DB   Decibel

IC   Integrated Circuit

AT   Assistive Technology

ACKNOWLEDGEMENT

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First of all, we give thanks to Allah. Then we would like to take this opportunity to express our appreciation and gratitude to our project supervisor **Dr. Md. Rezwanul Ahsan, Assistant Professor** of **Faculty of Engineering** for being dedicated in supporting, motivating and guiding us through this project. This project can't be done without his useful advice and helps. Also thank you very much for giving us opportunity to choose this project.

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To our beloved family, we want to give them our deepest love and gratitude for being very supportive and also for their inspiration and encouragement during our studies in this University.

ABSTRACT

These days, because of the simple accessibility of all data on the web these days, students are less spurred to go to the address. This task is to disentangle participation recorder framework by utilizing Radio Recurrence Recognizable proof (RFID) innovation. RFID based Parent SMS Alert and Participation Framework is an online application that will be created to conquer this issue. With the RFID unit, the framework will be produced by utilizing .NET innovation and database bolster. The frameworks additionally have incorporated with the RFID Database Taking care of Framework for a completely practical framework. The data from RFID Database taking care of Framework will be used for participation and for SMS Caution moreover. The RFID based Parent SMS Alarm and Attendance System likewise connects with guardians utilizing SMS framework. In this way, the framework usefulness is not only records the understudy participation, yet in addition sends ready SMS to their parents. Basically attendance is physically done and record is kept up in documents. Our principle thought of methodology is to reduce manual work and to computerize the participation framework The participation framework is basically an inserted one. Installed represents equipment controlled by programming. Here, the software using a Microcontroller controls all the equipment segments. The microcontroller assumes an important job in the system. The main goal of the framework is to interestingly recognize and to make participation for an individual. This requires an exceptional item, which has the ability of recognizing diverse individual. This is conceivable by the new developing innovation RFID (Radio Frequency Identification).The fundamental parts of a RFID framework are RFID tag (with one of a kind ID number) and RFID per user (for perusing the RFID tag). In this framework, RFID tag and RFID per user utilized are working at 125 KHz. The EEPROM utilized for putting away the subtleties has the capacity of putting away 256 man subtleties at a time. The PC can be used for reestablishing every one of the subtleties of participation made. This report gives a clear picture of equipment and programming utilized in the framework. It likewise gives a general view with detailed dialog of the task of the framework.

CHAPTER 1

INTRODUCTION

1.1 Introduction

The attendance system is basically an embedded one. Embedded stands for 'hardware controlled by software'. Here, the software using a Microcontroller controls all the hardware components. The microcontroller plays an important role in the system. The main objective of the system is to uniquely identify and to make attendance for a person. This requires a unique product, which has the capability of distinguishing different person. This is possible by the new emerging technology RFID (Radio Frequency Identification). The main parts of an RFID system are RFID Tag (with unique ID number) and RFID reader (for reading the RFID tag). In this system, RFID tag and RFID reader used are operating at 125KHz. The EEPROM used for storing the details has the capability of storing 256 person details at a time. The PC can be used for restoring all the details of attendance made

In this specific undertaking we demonstrate that how we furnish a development participation framework with time management framework. In this venture we utilize one equipment circuit with RF per user interface and RF aloof card for participation framework. RF per user framework is associated with the PC by means of COM port. We install visual fundamental base GUI programming in the PC with information base in access. At whatever point we show any card to the equipment framework then per user gets the information of RF card with the assistance of 125 KHz frequencies. Per user gets the information and exchanges this information to MCU (89s52). Microcontroller prompt procedures this information and exchanges this information to the PC through com port. PC gets this data and contrasts the information and information base in access. In information base we as of now enlist the Aloof card code number with ID number. For each card we issue an uncommon ID number. In this product we use RTC time interface. In the information base framework we enter the in/out for passage. On the off chance that the employee show his card before time, PC demonstrate a present, yet same card leave the premises beforetime then same

information base is store as missing. Each time when we demonstrate the card to the RF per user then LCD associated with the microcontroller demonstrate its name. On the off chance that the card isn't enlisted with the information base, LCD show demonstrate a heartbroken message. We enlist the new card section with software whenever. In/out timing for section is likewise to be change in data We can also resonators rather than costly capacitor can be stayed away from. Be that as it may, the recurrence of the resonators changes a ton. Furthermore, it is entirely not prompted when used for interchanges ventures base.

RFID, which is an abbreviation for Radio Recurrence Recognizable proof, is certainly not another innovation. It was first utilized in the late 1960's, however it has just turned out to be progressively across the board with advances in technology. RFID Systems comprise of a transponder, otherwise called a tag, which is essentially a microchip associated with a reception apparatus. The tag is mounted to a thing, for example, a bed of merchandise in a warehouse, and a gadget called a per user speaks with the tag by means of radio waves. Depending on the kind of label that is utilized, the per user can get point by point data or it can get data as basic as a distinguishing proof number. RFID is like standardized tag frameworks in which information, such as a cost, is gotten to when the scanner tag is perused.

1.2 Goal and objectives

The point of the task is to utilize RFID system in an alternate and formative side. We all know that RFID is utilized in every single mechanical and assembling field. Our significant center is to use this apparatus towards the inhabitants and business clients particularly the old and disabled ones. This shape of system is called RFID based participation system which centers around making it feasible for the elderly and crippled to remain at school, safe and comfortable. Attendance system is turning into a practical choice for the elderly and incapacitated who might want to remain in the comfort of their homes as opposed to move to a medicinal services office.

1.3 Technical system overview

We are communicating this advancement device for instance to represent how this RFID system thing can be contributed for future. We will demonstrate this huge scale

computerization on little scale via PCB (Printed Circuit Board) fabricating individually. On PCB we will append components that are required to give a case of computerization. These parts welded onto PCB will work in such an approach to illustrate RFID system. Well beyond this is the basic or fundamental advance to illustrate RFID system to our watchers.

1.4.1 Proposed Solution

RFID card is used, which is inductively coupled to the per user. Exactly when the card is swiped against the per user, the controlled data from the card is send to the per user. This data is urged to the microcontroller. The card used is the character card for the explicit individual and passes on his/her nuances. Exactly when this data matches with the data set away in the database of the microcontroller, the individual is given the master to enter the tied down zone. Here this is shown by the LED being traded on. The microcontroller is altered to such a degree, to the point that when the data matches with the ebb and flow data, the servomotor driver gets a high method of reasoning commitment at one of its data stick. The relating yield stick goes low to give fitting relationship with the servomotor. The status of intensity of the individual is moreover appeared on the LCD demonstrate interfaced to the microcontroller .The structure similarly needs Arduino Uno ,PIC microcontroller servomotor, flag, 9v batteries, LED red, LED blue, LED green and push get. The proposed system contain following territories:

• Input: RFID module RS552
• Control Unit: Arduino and PIC 16F877 Microcontroller.
• Output: Flag, servomotor and LED Blue, LED Green and LED Red.

RFID RS-552 at unequivocal to the contradicted RFID tag in system that gave information about the affirmed customer to access into the room and starting the servomotor or when it recognize un restricted RFID mark then structure dynamic flag and servomotor is off condition. Microcontroller (Arduino Uno R3) to get the on RFID RS-552 banners and process them to the Arduino pins where flag and servomotor are related moreover PIC 16F877 Microcontroller for use to indicate who

can access or who can't get to. This contraption can perceive signal RFID tag inside the partition of about 10cm from the customer.

1.4.2 Issue Verbalization

I.   Scanning Issues. Regardless of their unflinching quality, RFID structures can at present have issues.

II.   Readers can investigate most non-metallic materials, they have issues with metal and water.

III.   The fact that you can't channel different things in out of range.

IV.   RFID per user affect.

V.   RFID name affect.

VI.   Problems of security and insurance of RFID.

VII.   Data contamination.

1.4.3 Targets

The key target is to make based portal dash with modified door open and close with RFID structure. We need to produce interface that will organize with RFID structure and will show the RFID mark card.

- **Cost:**
  Since the target customer or customer is who need to secured his home or office and who consistently has a medium compensation rate, the contraption should be trashy and sensible.

- **Ease of Usage:**
  The contraption should be anything other than hard to use and regulate for the customer. Since the purpose of the entire endeavor is to streamline for use, it is unreasonable to present to them an imaginatively impelled instrument. Furthermore, there should be a customer manual that decipher the functionalities of the contraption and gives planning practices on the most capable strategy to use it.

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- **Power Usage:**

  While the contraption depends upon the usage of the customer to supply ability to the system, the general power use of the device in the midst of its action should be low.

1.4.4 Degrees

A collection of future degree are available that can be used of with the RFID passage rush with customized gateway open and close endeavor, for instance, utilization of Overall arranging System can empower the canny security to get the chance to control. GSM and IOT structure can advantage for log content. Some more applications like exceedingly moored catapulting system.

1.4.5 Working Technique

On a crucial dimension a RFID name works as seeks after: the scrutinizing unit makes an electro-appealing field which prompts a current into the name's radio wire. The current is used to control the chip. In withdrew marks the current moreover charges a condenser which ensures constant power for the chip. In unique marks a battery replaces the condenser. The difference among dynamic and disconnected names is cleared up right away. At the point when authorized the tag gets bearings from the examining unit and replies by sending its consecutive number or the requested information. All things considered the tag does not have enough imperativeness to make its own electro-appealing field, rather it uses back scattering to change (reflect/acclimatize) the field sent by the scrutinizing unit. Since most fluids hold electromagnetic fields and most metal mirror those fields the examining of marks in closeness of those materials is tangled. In the midst of an examining cycle, the per user needs to always control the tag. The made field is called perpetual wave, and in light of the way that the nature of the field reduces with the square of the division the per users need to use a genuinely broad power. That field overpowers any response a tag could give, so thus names reply on side-channels which are found explicitly underneath or more the repeat of the interminable wave.

1.4.6 Errand Outline

This errand report involves six areas which are Introduction, Establishment, Depiction of Portions, Examination and Reenactment, Result and Discoursed and Closures.

Section 1 is the introduction of the standard idea and basic of this assignment. In this part, we at first illuminate the issue of ostensibly blocked people by then delineate the present plan of its. Besides, After that we delineate out proposed respond in due order regarding apparently blocked people. In like manner we analyze about the object of our errand. Also, a while later delineate the future degree and working methodology.

Area 2 is the establishment of the endeavor. In this area reviews of some related tackles ostensibly incapacitated walking makes a difference.

Area 3 is the Delineation of parts where depict the all portions that are used in the endeavor.

Section 4 is the Examination and proliferation of the endeavor that is speaks to the proposed answer for apparently incapacitated people with the square framework and flowchart. Furthermore in this part based on hardware and programming structure of the endeavor.

Segment 5 is the Result and Trade where all the attempted result is procured. In like manner talk about that result. In this segment similarly look at the cost examination of the endeavor.

Segment 6 is the Closures. In this segment we talk about the end, limitation of the assignment and future work of the endeavore.

1.5 Statement of problem

   I.   Scanning Issues. In spite of their unwavering quality, RFID frameworks can in any case have issues.

   II.   Readers can look over most non-metallic materials, they have issues with metal and water.

   III.   The reality that you can't examine different articles in out of range.

   IV.   RFID per user impact.

   V.   RFID label impact.

   VI.   Problems of security and protection of RFID.

   VII.   Data defilement.

1.6 Destinations

The principle objective is to create based entryway bolt with programmed entryway open and close with RFID framework. We have to construct interface that will incorporate with RFID framework and will demonstrate the RFID label card.

Cost

Since the objective client or client is who need to anchored his home or office and who regularly has a medium salary rate, the gadget ought to be shoddy and moderate.

Ease of Utilization

The gadget ought to be anything but difficult to utilize and oversee for the client. Since the point of the whole undertaking is to improve for use, it is nonsensical to present to them a mechanically propelled apparatus. Additionally, there ought to be a client manual that decipher the functionalities of the gadget and gives preparing exercises on the most proficient method to utilize it.

Power Utilization

While the gadget relies upon the utilization of the client to supply capacity to the framework, the general power utilization of the gadget amid its task ought to be low.

1.7 Extensions

An assortment of future extension are accessible that can be utilized of with the RFID entryway bolt with programmed entryway open and close task, for example, use of Worldwide situating Framework can enable the keen security to get to control. GSM and IOT framework can advantage for log content. Some more applications like exceptionally anchored bolting framework.

1.8 Working Approach

On a fundamental level a RFID label fills in as pursues: the perusing unit produces an electro-attractive field which initiates a current into the label's reception apparatus. The current is utilized to control the chip. In uninvolved labels the current additionally charges a

condenser which guarantees continuous power for the chip. In dynamic labels a battery replaces the condenser. The distinction among dynamic and aloof labels is clarified without further ado. When actuated the tag gets directions from the perusing unit and answers by sending its sequential number or the asked for data. As a rule the tag does not have enough vitality to make its own electro-attractive field, rather it utilizes back dissipating to tweak (reflect/assimilate) the field sent by the perusing unit. Since most liquids retain electromagnetic fields and most metal mirror those fields the perusing of labels in nearness of those materials is entangled. Amid a perusing cycle, the peruser needsto persistently control the tag. The made field is called persistent wave, and in light of the fact that the quality of the field diminishes with the square of the separation the per users need to utilize a somewhat huge power. That field overwhelms any reaction a tag could give, so along these lines labels answer on side-channels which are found specifically beneath or more the recurrence of the persistent wave.

1.9 Venture Layout

This venture report comprises of six parts which are Presentation, Foundation, Portrayal of Segments, Examination and Recreation, Result and Dialogs and Ends.

Part 1 is the presentation of the primary thought and vital of this venture. In this part, we initially clarify the issue of outwardly weakened individuals at that point portray the current arrangement of its. What's more, After that we depict out proposed answer for outwardly impeded individuals. Likewise we talk about the object of our venture. And afterward portray the future extension and working technique.

Section 2 is the foundation of the task. In this part audits of some related takes a shot at outwardly hindered strolling helps.

Section 3 is the Depiction of segments where portray the all segments that are utilized in the venture.

Section 4 is the Investigation and recreation of the venture that is represents the proposed answer for outwardly impeded individuals with the square chart and flowchart. Likewise in this section concentrated on equipment and programming plan of the venture.

Section 5 is the Outcome and Talk where all the tried outcome is gotten. Additionally talk about that outcome. In this section additionally talk about the cost examination of the venture.

Section 6 is the Ends. In this section we talk about the end, restriction of the task and future work of the undertaking.

CHAPTER 2

LITERATURE REVIEWS

2.1 Introduction

It is anticipated that RFID use will keep on expanding. It is probably not going to ever be as expense effective as barcoding, however it will wind up prevailing in zones where barcoding and other optically read technologies are not successful. RFID Tag Categories The essential sorts of RFID labels can be classified as read/compose and read as it were. The information put away on read/compose labels can be altered, included to, or totally reworked, however just if the tag is inside the scope of the per user. The information put away on a read just tag can be read, yet can't be altered in any capacity. Peruse/compose labels are much more expensive than perused just labels, so they are not utilized for following most product things. RFID tags are additionally ordered as: Active labels, which contain a battery that controls the microchip and enables it to transmit a flag to the per user. Semi-dynamic (or semi-detached) labels, which contain a battery to run the hardware of the chip, however should draw control from the attractive field made by the per user so as to speak with the reader. Passive labels, which depend exclusively on the magnetic field made by the radio waves conveyed by the per user to make a present that can be received by the reception apparatus inside the uninvolved tag. RFID Construction RFID Technology Overview A RFID per user conveys ardiuno recurrence wave to the 'Tag' and the 'Tag' communicates back its stored information to the per user. The framework works fundamentally as two separate receiving wires, one on the 'Tag' and the other on the per user.

It is anticipated that RFID use will keep on expanding. It is probably not going to ever be as expense effective as be acording, however it will wind up prevailing in zones where barcoding and other optically read technologies are not successful RFID Tag Categories. The essential sorts of RFID labels can be classified as read/compose and read as it were. The information put away on read/compose labels can be altered, included to, or totally reworked, however just if the tag is inside the scope of the per user. The information put away on are adjust tag can be read, yet can't be altered in

any capacity. Peruse/compose labels are much more expensive than perused just labels, so they are not utilized for following most product things. RFID tags are additionally ordered as: Active labels, which contain a battery that controls the microchip and enables it to.

The information gathered from the 'Tag' can either be sent specifically to a host PC through standard interfaces, or it tends to be put away in a compact per user and later transferred to the PC for information preparing. The programmed perusing and direct utilization of the 'Tag' information is regularly called 'programmed data capture' and with a RF-ID label framework, which works similarly as adequately in situations with excessive soil, residue, dampness and poor perceivability, you can be guaranteed that it conquers the limitations of other programmed distinguishing proof methodologies.

How the Low Frequency Tag framework functions

At the point when the transponder, which is without battery, is to be perused, the per user conveys a 134.2 KHz control heartbeat to the radio wire enduring around 50ms. The attractive field generated is 'collected' by the receiving wire in the transponder that is tuned to a similar recurrence. This received AC vitality is redressed and put away on a little capacitor inside the transponder. At the point when the power beat has completed the transponder quickly transmits back its information, utilizing the vitality stored within its capacitor as its capacity source. In add up to 128 bits are transmitted (counting blunder discovery data) over a time of 20ms.This information is gotten by the accepting receiving wire and decoded by the reader unit. When all the data has been transmitted the capacity capacitor is released resetting the transponder to make it ready for the following read cycle. The period between transmission beats is known as the 'adjust time and keeps going somewhere in the range of 50ms relying upon the framework setup.

The transmission strategy utilized between the transponder and the per user is Frequency Shift Keying (FSK) with transmissions somewhere in the range of 134.2 kHz and 124.2kHz. This methodology has comparatively great protection from clamor while likewise being extremely financially savvy to actualize.

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2.2 RFID History

The RFID thought isn't new yet rather has been around for an impressive time span; really, it was first observed in WWII by the Air-Force to recognize companion flying planes to that of rival plane using radars (table 1 underneath shows brief of the recorded setting of RFID development). Starting now and into the foreseeable future, this creation has been used for various corner applications, for instance retail industry, monitoring merchandise against robbery structures, equip following in air terminals, electronic tolls, and numerous others. This was the beginning time of RFID innovation time.

Table 1: HISTORY OF RFID SYSTEMS Date Event

1930 to 1940

IFF framework was made by an exploration research center.

1940 to 1950

It was then used to distinguish companion or foe in WWII

1950 to 1960

Present day air traffic additionally utilized the distinguish companion or foe ideas.

Bit by bit RFID ideas were connected to military divisions.

It was utilized in research labs.

1960 to 1970

SENSOR frameworks that utilized RFID innovation started in this timeframe.

1970 to 1980

Uninvolved labels were presented for the first run through in this period. RFID was currently utilized in zoos and national parks to monitor creatures 1980 to 1990

RFID frameworks were currently made in an expansive scale. Programmed installment at toll doors application started in this period.

1990 to 2000

Between operable hardware with RFID innovation was created.

2003

EPC worldwide was presently MIT's auto-ID focus.

2005

EPC was propelled by Walmart.

2.3 RFID SYSTEM

RFID is an innovation which remotely recognizes the chip or tag of intrigue and catches the information. It is also called AIDC. AIDC comprises of card innovation, scanner tags utilized on items innovation, biometric frameworks optical photograph acknowledgment frameworks and so forth (see figure 1). RFID superbly distinguishes the labels or the items joined with it gave they are available inside the range. Thus it discovers part of uses in assembling or retail enterprises Any RFID framework includes three segments: (I) RFID labels, (ii) RFID per user (iii) RFID middleware application that is coordinated into a host framework. RFID Tags contain the data one of a kind to every item/individual (contingent upon application). This data is exchanged to per user remotely and further handling is finished.
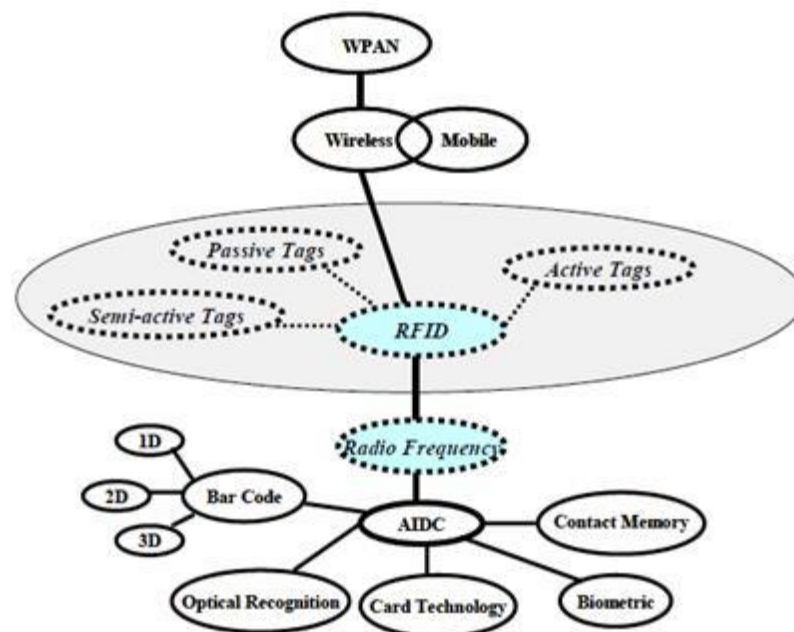

Fig: RFID System

2.4 RFID Reader

RFID per users are gadgets which emanates radio flags through reception apparatuses. They likewise give the fundamental measure of capacity to the labels, if detached labels are utilized. RFID per users get the gather the information stream given by the labels. Radio wires present in the per user gathers the data. Middleware handles the information stream between the labels and the per user. Extensive number of labels

can be distinguished all the while with no issue. As appeared in figure 2, RFID per users are of numerous sorts. For the most part they are described dependent on the shape and size. They can be extensively placed in three classes, one is settled per users, second is hand-held per users and the third is versatile per users. Settled per users are settled to the dividers or entryways or tangle lifts, versatile per users are utilized in convenient things, for example, forklift little retail things or little things which are to be followed.

2.5 Hardware Requirements

Bread board

Jumper wire

9v battery

9v battery connector

Buzzer

Push button

LED

AT mega 328P atmal Microcontroller

LCD Display 16*2

RFID Module RC522

10k Potential variable resistance

RFID card

RTC module DS1307

2.6What is RFID Attendance Systems

We needn't bother with any presentation in regards to the RFID based participation framework, it is being utilized in universities, office, libraries to know how frequently an individual or what number of number of individuals has come in and out at what time.

In this venture we will build a most straightforward RFID based participation framework which does not overcomplicate the undertaking.

In this task we will utilize RTC module, which is used for empowering and incapacitating the participation framework inside a given day and age, with the goal that we can keep the late comers under control.

The RFID module "RFID-RC522" which can do peruse and compose tasks on NXP based RFID labels. NXP is lead maker of RFID labels on the planet and we can get them on the web and disconnected stores effortlessly.

A 16 x 2 LCD show is utilized, which is to grandstand data, for example, time, date, number of participation, and so on.

Lastly an Arduino board is used which is the mind of the task. You may pick any adaptation of board.

Presently how about we proceed onward to schematic outlines:

CHAPTER 3
DESCRIPTION OF COMPONENTS

3.1.1 Arduino Sheets

Arduino board is an open-source arrange, used to make gadgets ventures. It comprises of both a microcontroller and a piece of the product or Coordinated Advancement Condition (IDE) that keeps running on your (PC), used to compose and transfer PC code to the physical board the entresol of an Arduino has turned out to be extremely famous, with originators or understudies simply beginning with hardware, and for a splendid reason. Not at all like most prior programmable circuit sheets, the Arduino does not require a different piece of equipment so as to program another code onto the board you can simply utilize a USB link. Also, the Arduino IDE utilizes a principal adaptation of C++, making it less difficult to take in the program. Finally, Arduino board offers an ordinary frame issue that breaks out the elements of the microcontroller into a much accessible bundle.

3.1.2 Motivation behind Arduino Sheets

These sheets have been utilized for making different activities. The product on this board is simple, to use for students, yet adaptable satisfactory for imaginative clients. It keeps running on windows, Macintosh and Linux. Educators and understudies in the schools use it to construct, minimal effort logical devices to affirm the standards of material science and science. There are different other microcontroller stages realistic for physical registering. The Net media's BX-24, MIT's Convenient board, Parallax Essential Brand, Phi get and different others present related usefulness. Arduino board additionally makes less difficult the working technique of microcontroller, yet it gives about advantage on over different frameworks for tenderfoots, educators, and understudies.

Sensible

Cross-stage

Unassuming, immaculate programming environment,

Open source, extensible equipment, and programming

3.1.3 Features of Arduino Boards

Table 3.1.3 Features of Arduino Boards

Arduino Board	Processor	Memory	Digital I/O	Analogue I/O
Arduino Uno	6Mhz ATmega328	2KB SRAM, 32KB flash	14	6 input,0 output
Arduino Due	84MHz AT91SAM3X8E	96KB SRAM, 512KB flash	54	12 input, 2 output
Arduino Mega	16MHz ATmega2560	8KB SRAM, 256KB flash	54	16 input, 0 output
Arduino Leonardo	16MHz ATmega32u4	2.5KB SRAM, 32KB flash	20	12 input, 0 output

3.1.4 The Arduino Uno

The Uno is the greatest regular board and the one named as the exemplary Arduino. This board accompanies everything new clients need to learn about the gadgets and programming required to begin this side interest. It is good with most accessible Arduino shields. Arduino is an open-source physical figuring stage dependent on a straightforward I/O board and an enhancement, situation that actualizes the Handling/Wiring dialect Arduino can be utilized to create remain solitary intuitive issues or can be associated with programming on your **PC.**
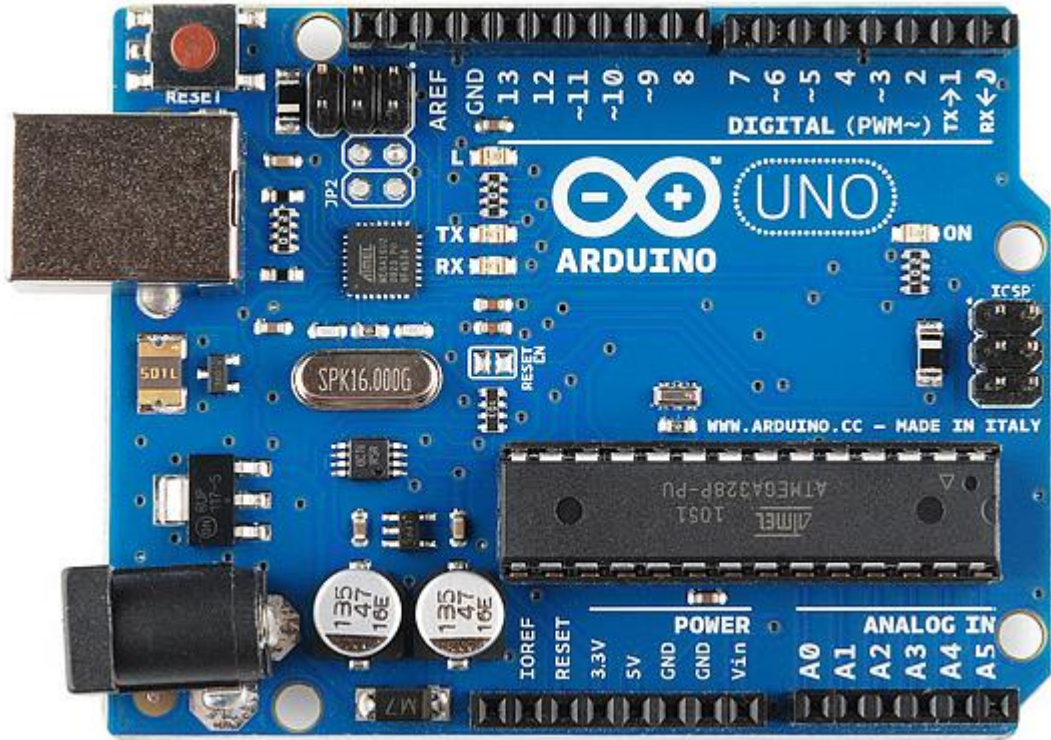
Fig. 3.1.4Arduino Uno R-3

The Uno is a microcontroller board base on the ATmega328P. It has a 16 MHz quartz precious stone, a USB connector, a power jack, an ICSP header and a reset switch. It holds everything expected to help the microcontroller; essentially associate it to a PC with a USB link or power it with an air conditioner to-DC connector or battery to begin. The Uno board and form 1.0 of Arduino Programming (IDE) were the reference renditions of Arduino, presently advanced discharges. The Uno board is the first in a progression of USB Arduino sheets, and the reference display for the Arduino arrange; for a thorough, rundown of current, past or obsolete sheets see the Arduino inbox of sheets.

3.1.5 Arduino Uno Specialized Determinations

Table 3.1.5 Arduino Uno Technical Specifications

Microcontroller	ATmega328P – 8bit AVR family microcontroller
Operating Voltage	5V
Recommended Input Voltage	7-12V
Input Voltage Limits	6-20V
Analog Input Pins	6 (A0 – A5)
Digital I/O Pins	14 (Out of which 6 provide PWM output)
DC Current on I/O Pins	40 m A
DC Current on 3.3V Pin	50 m A
Flash Memory	32 KB (0.5 KB is used for Boot loader)
SRAM	2 KB
EEPROM	1 KB
Frequency (Clock Speed)	16 MHz

3.2.1ATmega328P Microcontroller

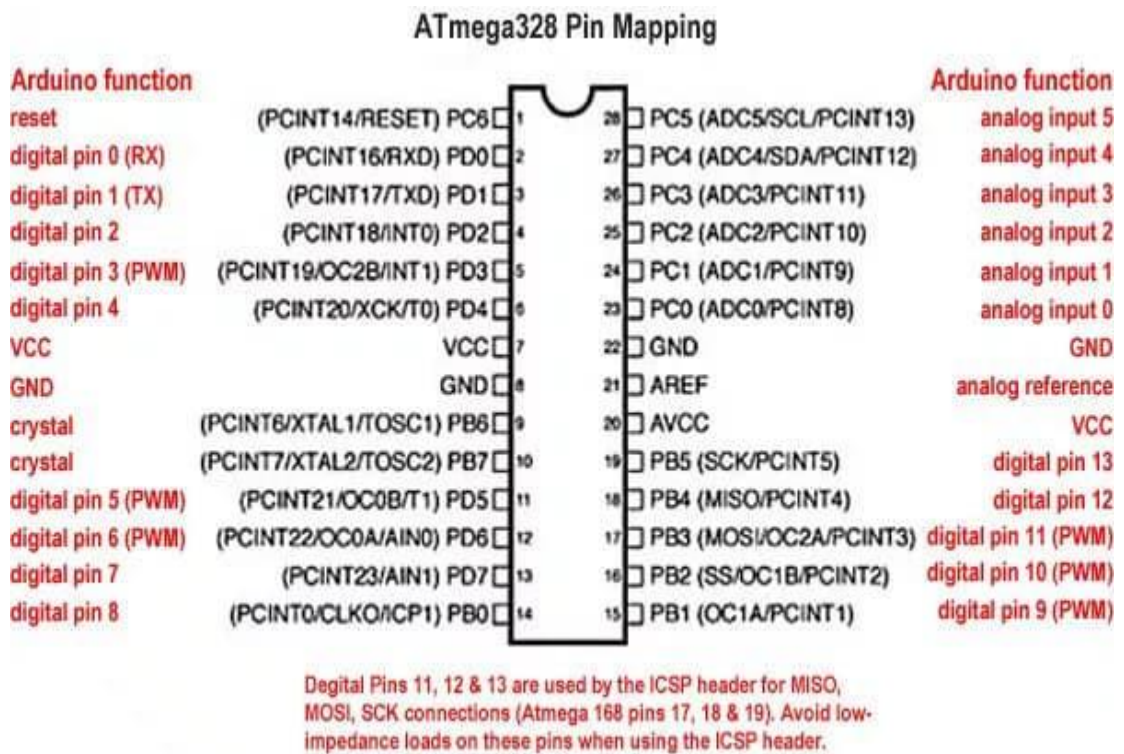
Fig 3.2.1:ATmega328P Microcontroller

3.2.2 Short depiction of the pins:

Table: 3.2.2 Short description of the pins

ATmega328 Pins			
Pin Number	Pin Name	Pin Number	Pin Name
1	PC6	15	PB1
2	PD0	16	PB2
3	PD1	17	PB3
4	PD2	18	PB4
5	PD3	19	PB5
6	PD4	20	AVCC
7	Vcc	21	AREF
8	GND	22	GND
9	PB6	23	PC0
10	PB7	24	PC1
11	PD5	25	PC2
12	PD6	26	PC3
13	PD7	27	PC4
14	PB0	28	PC5

3.3 RFID RC 522 Module

RC522 - RFID Per user/Author 13.56MHz with Cards Unit incorporates a 13.56MHz RF per user cum essayist module that utilizes a RC522 IC and two S50 RFID cards. The MF RC522 is a very incorporated transmission module for contact-less correspondence at 13.56 M Hz. RC522 underpins ISO 14443A/MIFARE mode. The module utilizes SPI to speak with microcontrollers. The open-equipment network as of now has a great deal of undertakings misusing the RC522 – RFID Correspondence, utilizing Arduino.
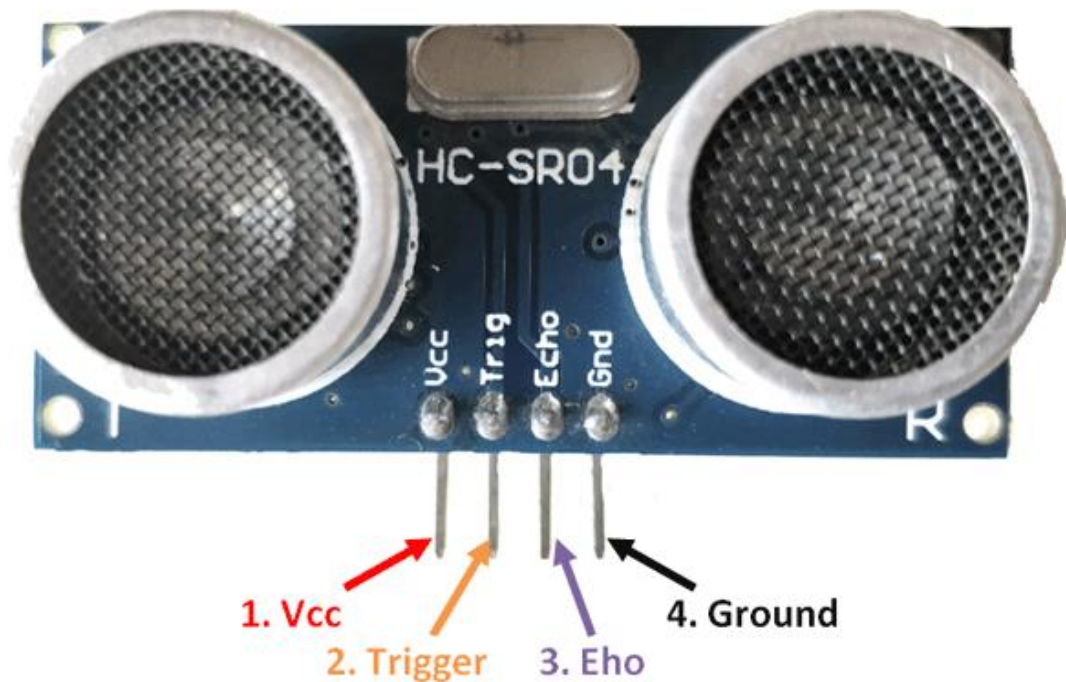
Fig 3.3: RFID RC 522 Module

3.4 LCD

LCD (Liquid Crystal Display) screen is an electronic presentation module and locate a wide scope of uses. A 16x2 LCD show is exceptionally essential module and is ordinarily utilized in different gadgets and circuits. These modules are favored more than seven portions and other multi section LEDs. The reasons being: LCDs are temperate; effectively programmable; have no confinement of showing exceptional and even custom characters (dissimilar to in seven fragments), liveliness, etc.

A 16x2 LCD implies it can show 16 characters for every line and there are 2 such lines. In this LCD each character is shown in 5x7 pixel lattice. This LCD has two registers, to be specific, Command and Data.

The order enroll stores the direction guidelines given to the LCD. An order is a guidance given to LCD to complete a predefined undertaking like introducing it, clearing its screen, setting the cursor position, controlling presentation and so on. The information enroll stores the information to be shown on the LCD. The information is the ASCII estimation of the character to be shown on the LCD. Snap to take in more about inside structure of a LCD.
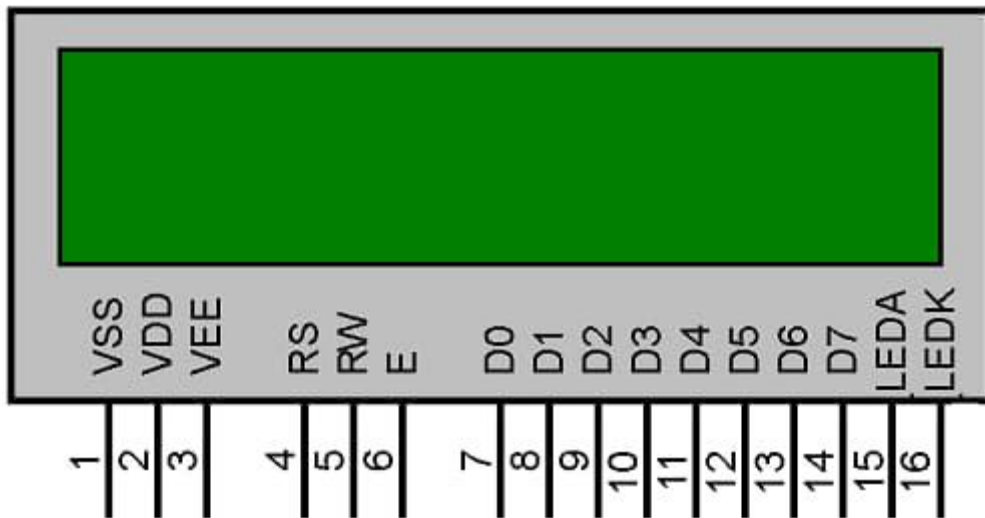
Fig 3.4: LCD

3.5 LED

A LED is a semiconductor gadget that radiates light [13]. Driven lights are considerably more effective, working with just a small amount of the vitality required even by bright lights despite the fact that offering a lot higher radiance. A 3 digits LED show demonstrates the yield voltage of every individual channel. A LED is a semiconductor instrument that discharges light.
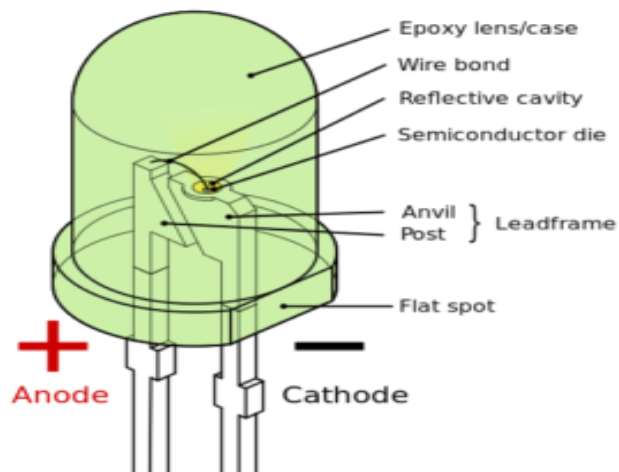

Figure 3.5: LED

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3.5.1 Sorts of LED

- Through-gap LEDs
- SMD LEDs (Surface Mount Light Emanating Diodes)
- RGB LED (Red – Blue – Green LED)
- High – Power LEDs
- Bi-shading LEDs

3.5.2 Working Rule of LED

A light-transmitting diode is a two-lead semiconductor light source. It is a p– n intersection diode that emanates light when actuated. At the point when an appropriate voltage is connected to the leads, electrons can recombine with electron dumps inside the gadget, discharge vitality as photons. This impact is alleged electroluminescence, and the shade of the light is dictated by the vitality band hole of the semiconductor.

3.6 RTC MODULE DS1307

The module dependent on DS1307, The DS1307 sequential constant clock (RTC) is a low control, full twofold coded decimal (BCD) clock/timetable in addition to 56 bytes of NV SRAM. Address and information are exchanged sequentially through an I²C, bidirectional transport. The clock/schedule gives seconds, minutes, hours, day, date, month, and year data. The month's end date is consequently balanced for quite a long time with less than 31 days, including revisions for jump year. The check works in either the 24-hour or 12-hour arrange with AM/PM pointer. The DS1307 has a worked in power-sense circuit that distinguishes control disappointments and consequently changes to the reinforcement supply. Timekeeping activity proceeds while the part works from the reinforcement supply.
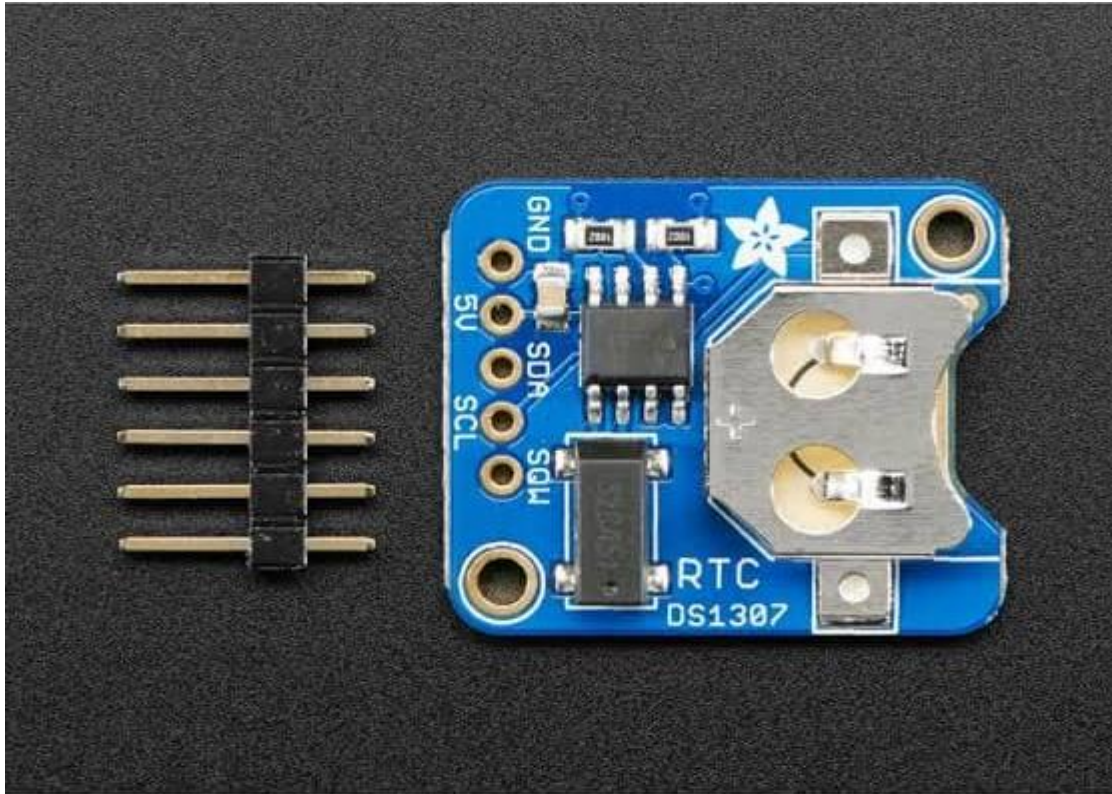
Fig 3.6: RTC MODULE DS1307

3.6.1Details

Supply 5V DC

Totally Manages All Timekeeping Functions

Continuous Clock Counts Seconds, Minutes, Hours, Date of the Month, Month, Day

of the Week, and Year with Leap-Year Compensation Valid Up to 2100

56-Byte, Battery-Backed, General-Purpose RAM with Unlimited Writes

Programmable Square-Wave Output Signal

Basic Serial Port Interfaces to Most Microcontrollers

I2C Serial Interface

Low Power Operation Extends Battery Backup Run Time

Expends Less than 500nA in Battery-Backup Mode with Oscillator Running

Programmed Power-Fail Detect and Switch Circuitry

3.7 Switch

A switch is a bit of a physical hardware part that oversees the flag stream. Having a switch or flip switch enables an association with be opened or shut. Whenever opened, the switch concurs a flag or capacity to course through the association. Whenever shut, the switch stops the stream and breaks the circuit association.

Figure 3.7: Switch

3.8 Jumper Wires

A hop wire (otherwise called jumper, jumper wire, jumper link, DuPont wire, or DuPont link – named for one maker of them) is an electrical wire, or gathering of them in a link, with a connector or stick at each end or once in a while without them – essentially .tinned which is typically used to interconnect the parts of a breadboard or other model or test circuit, inside or with different arrangements, or segments, without patching. Singular bounce wires are fitted by embeddings their "varnish connectors" into the spaces gave in a breadboard, the header connector of circuit board, or a piece of test materials.

Figure 3.8: Jumper Wires

3.8.1 Sorts

There are diverse kinds of jumper wires [14]. Some have a similar sort of electrical connector at the two finishes, while others have distinctive connectors. Some regular connectors are:

1. Solid tips – are utilized to interface on/with a breadboard or female header connector. The game plan of the components and simplicity of connecting with, on a breadboard permits expanding the mounting thickness of the two components, and hop wires without dread of short circuits. The bounce wires shift in size and shading to separate the diverse working signs.

2. Crocodile clasps – are utilized, among different applications, to incidentally connect sensors, catches and different components of models with segments or gear that have uncovered connectors, wires, screw terminals, and so on.

3. Banana connectors – remain normally utilized on test hardware for DC and low-recurrence Air conditioning signals.

4. Registered jack (RJnn) – are generally utilized in phone (RJ11) and PC organizing (RJ45).RCA connectors – are frequently utilized for sound, low-goals composite video flags, or low-recurrence applications requiring a protected link.

5. RF connectors – are utilized to exchange radio recurrence motions between circuits, test materials and reception apparatuses.

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CHAPTER 4

ANALYSIS AND SIMULATION

4.1 Block diagram of the project

Radio-recurrence recognizable proof (RFID) is an innovation that utilizes radio waves to exchange information from an electronic tag, called RFID tag or mark, joined to an article, through a per user to identify and following the item. RFID innovation which is a developed innovation that has been generally sent by different associations as a major aspect of their computerization frameworks. In this investigation, a RFID based framework has been worked so as to deliver a period participation the executives framework. This framework comprises of two principle parts which include: the equipment and the product. The equipment comprises of the engine unit and the RFID per user. The RFID per user, which is a low-recurrence per user (125 kHz), is associated with the host PC by means of a sequential to USB converter link. The Time-Attendance System GUI was produced utilizing visual basic.Net. The Time-Attendance Management System gives the functionalities of the general framework, for example, showing live ID labels exchanges, enlisting ID, erasing ID, recording participation and other minor capacities. This interface was introduced in the host PC.
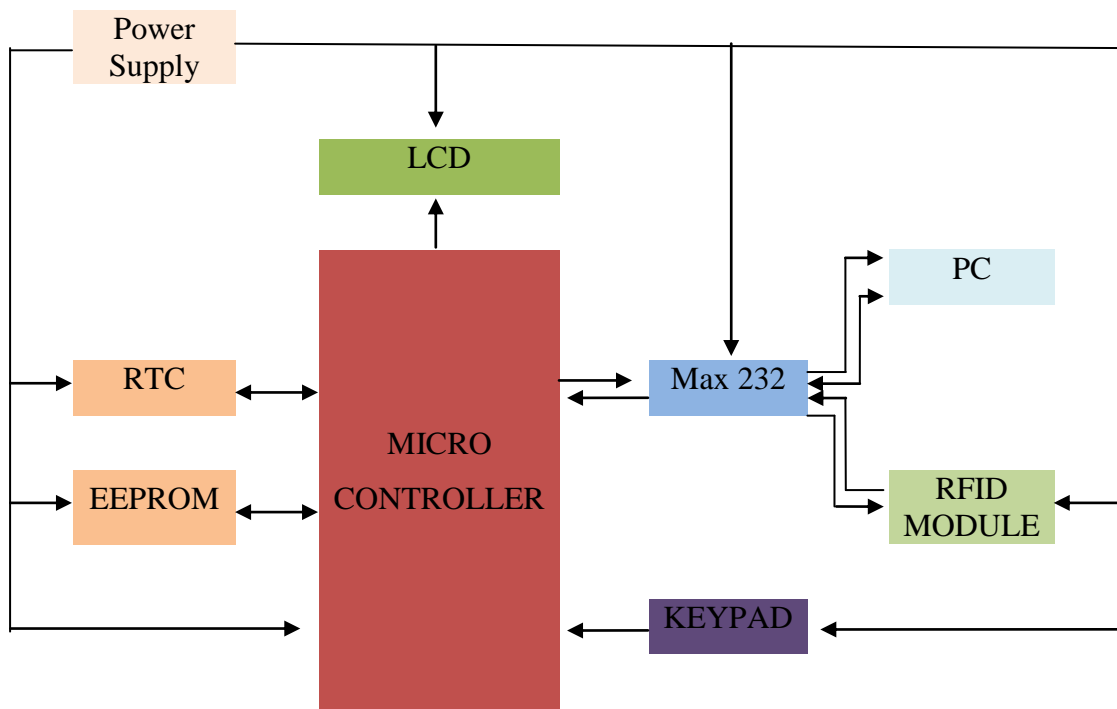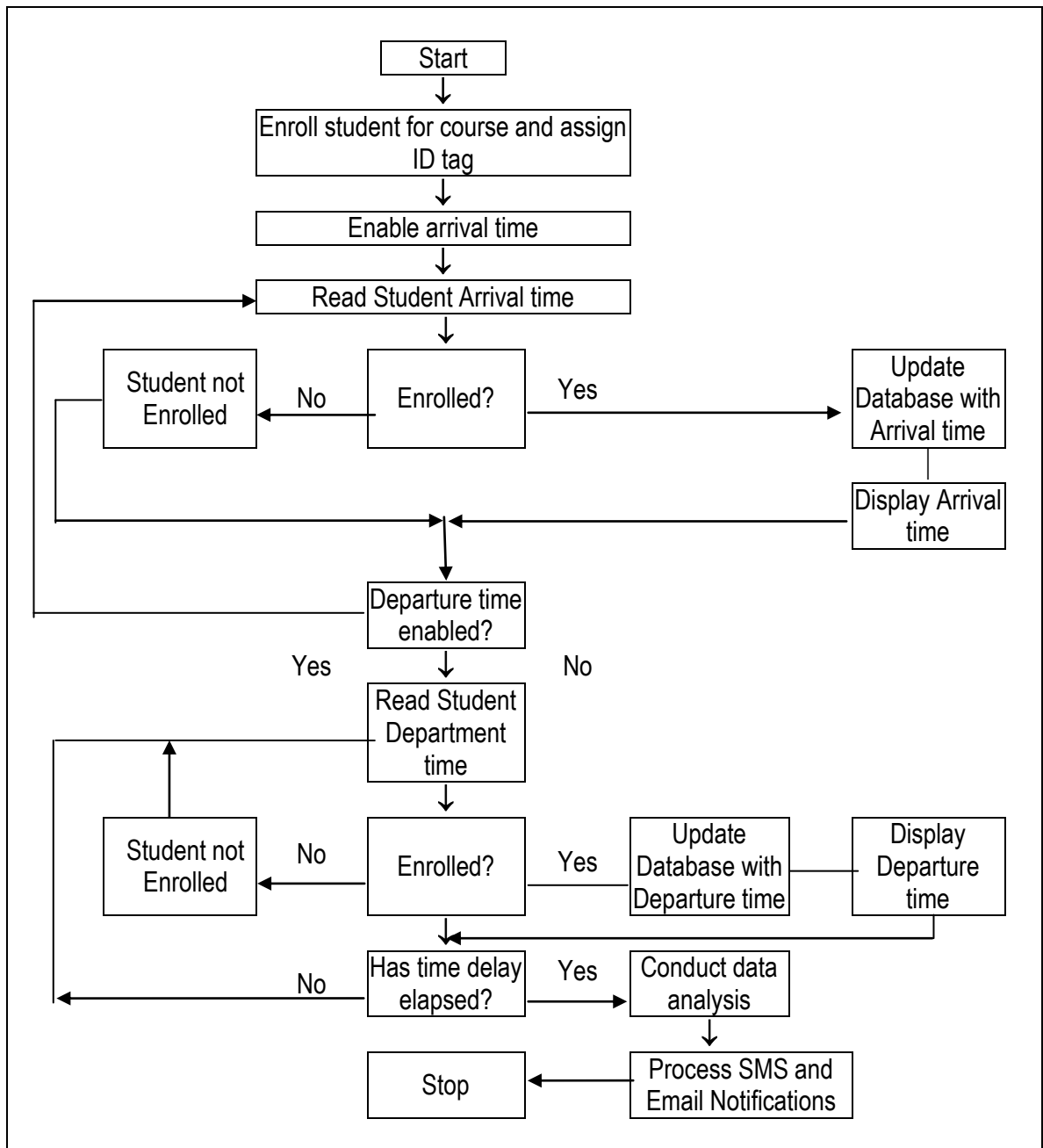
Fig 4.1: Block diagram of RFID based attendance system.

4.2 Flowchart

4.3 Proposed circuit design

We have assembled the circuit to reenact venture utilizing Proteus v7.8 which is appeared in Fig. 4.3. Proteus is a reproduction and plan programming device created by Lab center Electronics for Electrical and Electronics circuit structure.

About Proteus

It has ISIS which is utilized for circuit structuring with reproduction and ARES which is utilized for PCB planning [16].

- ISIS is the product used to draw schematics and reenact the circuits in genuine time. The reenactment grants human access amid run time, in this way giving constant reproduction.
- ARES is utilized for PCB planning. It has the element of watching yield in 3D perspective of the structured PCB alongside segments.

Features

- ISIS has wide scope of parts in its library. It has sources, flag generators, estimation and examination devices like oscilloscope, voltmeter, ammeter and so on. tests for constant checking of the parameters of the circuit, switches, shows, loads like motors and lights, discrete parts like resistors, capacitors, inductors, transformers, advanced and simple Integrated circuits, semi-conductor switches, transfers, microcontrollers, processors, sensors and so forth.

- ARES offers PCB planning up to 14 internal layers, with surface mount and through entire bundles. It is installed with the impressions of different class of parts like ICs, transistors, headers, connectors and other discrete segments. It gives Auto directing and manual steering alternatives to the PCB Designer. The schematic attracted the ISIS can be honestly exchanged ARES.

4.4 Arduino to LCD show association:

Simply interface the wiring according to the beneath graph and use 10 kilo ohm potentiometer to change the complexity.
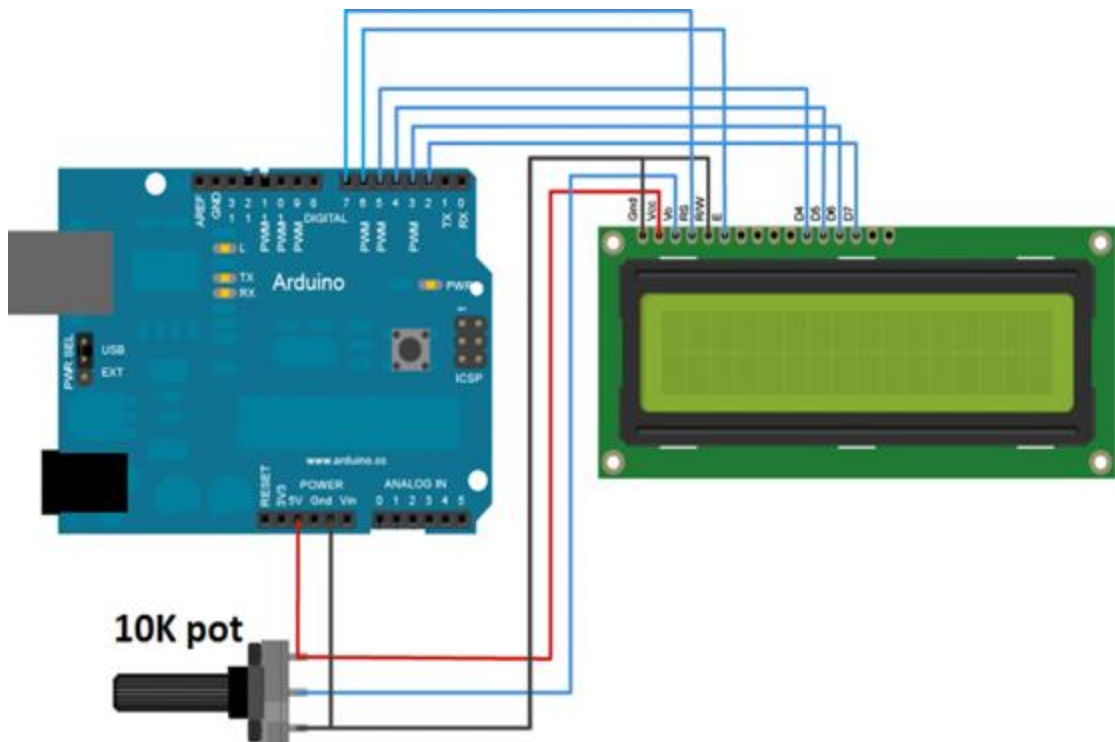
Fig 4.4: Arduino to LCD show association.

4.5Arduino to RFID module association:
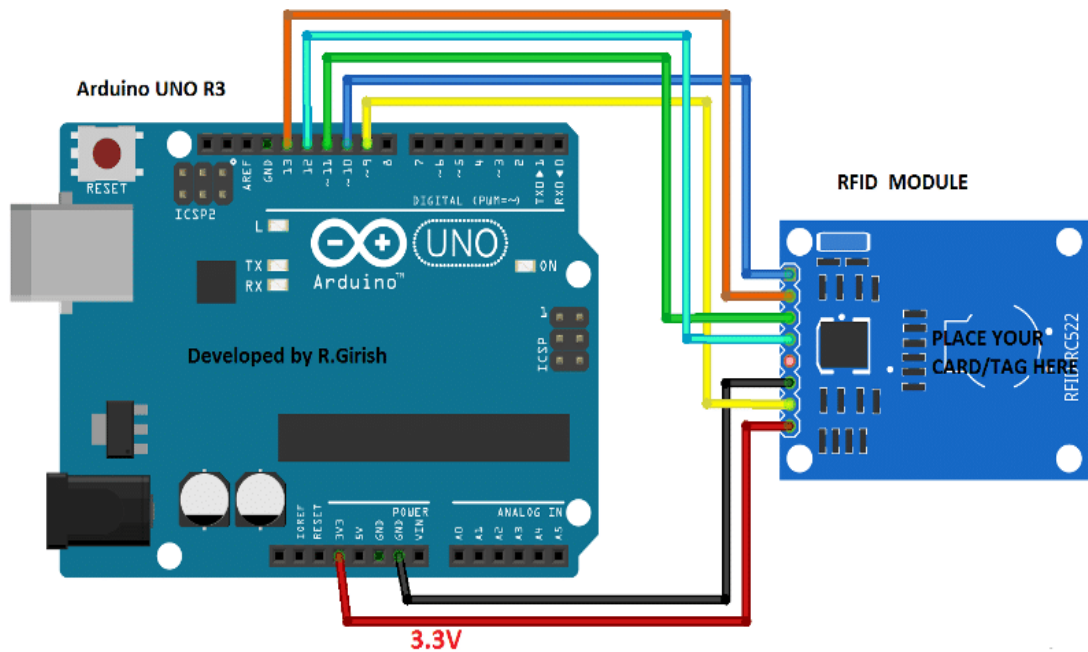
Fig 4.5:Arduino to RFID module association

4.6 MAIN CIRCUIT OF PROJECT

The Arduino can be fueled from 9V divider connector. There is a signal and LED to demonstrate that the card is recognized. There are 4 catches accommodated seeing the participation, clearing the memory and "yes" and "no" catches.

Fig 4.6:MAIN CIRCUIT OF PROJECT.

Presently we need to set the right time to RTC module to do this, pursue the underneath ventures with finished equipment setup.

Open the Arduino IDE.

Explore to File> Examples> DS1307RTC> Set Time.

Transfer the code.

When the code is transferred to Arduino, open the sequential screen. Presently the RTC is synchronized with the season of your PC.

Presently you need to discover UID or extraordinary ID number of each of the 12 RFID cards/labels. To discover UID, transfer the underneath code and open the sequential screen.

4.7 Result

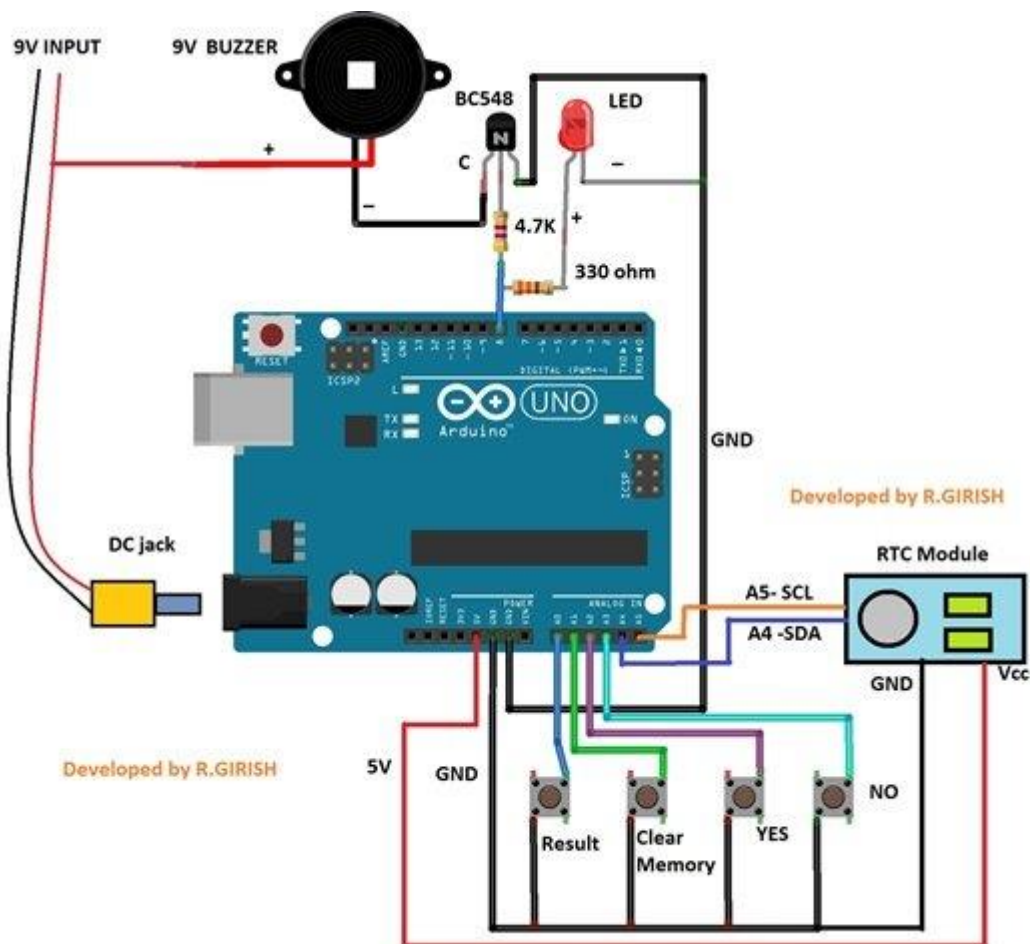The potential system is configured for potential purpose. When we need to attendance for official or practical there will apply this application in a school or university we need to count attendance of the students. In a secret area we need to how many people in and out of the area for this purpose apply this application. We apply this application in a school where we take attendance of 20 students we gave them each a RFID card. We set up this classroom door. They take a card and show thee card to the device, and device take attendance each of them correctly. We observed a day to a classroom how many people enter the classroom.

CHAPTER 5
CONCLUSION

5.1 CONCLUSION

there have been ascend in the quantity of utilizations dependent on Radio Frequency Identification (RFID) frameworks furthermore, have been effectively connected to various regions as different as transportation, human services, agribusiness, and friendliness industry to name a couple. RFID innovation encourages programmed remote recognizable proof utilizing electronic aloof and dynamic labels with appropriate per users. In this paper, an endeavor is made to tackle intermittent address participation checking issue in creating nations utilizing RFID innovation. The use of RFID to understudy participation checking as created and sent in this examination is fit for dispensing with time squandered amid manual gathering of participation and an open door for the instructive directors to catch up close and personal classroom measurements for allotment of suitable participation scores and for further administrative choices. As the RFID innovation develops, progressively advanced applications will utilize the capacity of RFID to get, store and forward information to a remote sink source. RFID has numerous applications as anyone might imagine envisioned. In this paper, we have used the adaptability of RFID in actualizing utilitarian and programmed understudy course participation recording framework that enables understudies to just fill their participation just by swiping or moving their ID cards over the RFID per user which are situated at the passage of address corridors with an extensive degree of progress and agreeableness of utilization in our workforce. We trust that this framework can move the worldview of understudies' address participation checking in face-confront classroom and give another, exact, and less unwieldy method for taking understudy participation in Nigerian Higher Institutions.

5.2 Cost Analysis

Table 5.2: Cost analysis of the smart walking stick for visually impaired people project.

No.	Equipment Name	Quantity	Price(Taka)
1	Arduino Uno	1	490
2	Buzzer	1	20
3	9v Battery	1	30
4	Jumper Wires	30	60
5	Push Button	1	50
6	Led Red	1	2
7	Led Green	1	2
8	Led Blue	1	2
9	Plastic Box	1	85
10	9v Battery Connector	1	10
Total			**1401**

5.3 Cost Comparison

It is approximated that 45 million people are blind in the world and that 87% of visually impaired people live in developing countries [18]. So the plan of the "smart walking stick for visually impaired people" project aim is to provide the low cost smart walking stick to the blind. Before making the smart walking stick project, we justify the local market price of the project equipment. There are many types of Arduino in the market which price is very high but we choose the lowest one. Also, the ultrasonic sensor price is very high. But we found in the market which price is low. Basically, our design smart walking stick for visually impaired people is operated and total cost is 1401 Taka. Above table 5.2, the equipment cost per unit and total cost is shown. The other blind stick project cost is nearly 2500 taka in the market. So, we say that the cost to design the smart walking stick is cheaper than other blind stick project and also the equipment can be replacement which are available in the market.

5.4 Favorable circumstances

1. Decrease printed material and shop time and cash with cell and cloud-based participation the board gadget.
2. Remove reproduction certainties access and mistakes in time and participation passages.
3. Estimation of leave and acclaim factors collected
4. Track the participation of instructors and staff, appoint work and oversee portion
5. Hold the guardians learned about the understudy's execution through email and SMS signals.
6. Auto-produce various kinds of surveys of class or understudy participation.
7. Expanded security and privacy with job based consents to clients.

5.5 APPLICATION

1. RFID based participation framework can be utilized in instructive foundations, ventures, anyplace.
2. RFID is developing innovation and is utilized in applications where confirmation is required

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Appendix

Programming Code uses in the microcontroller:

```
#include <LiquidCrystal.h>
#include <EEPROM.h>
#include <SPI.h>
#include <MFRC522.h>
#include <Wire.h>
#include <TimeLib.h>
#include <DS1307RTC.h>
#define SS_PIN 10
#define RST_PIN 9
MFRC522 rfid(SS_PIN, RST_PIN);
MFRC522::MIFARE_Key key;
constintrs = 7;
constint en = 6;
constint d4 = 5;
constint d5 = 4;
constint d6 = 3;
constint d7 = 2;
constint LED = 8;
boolean ok = false;
LiquidCrystallcd(rs, en, d4, d5, d6, d7);
constint list = A0;
constint CLM = A1;
constint yes = A2;
constint no = A3;
int H = 0;
int M = 0;
int S = 0;
int i = 0;
int ID1 = 0;
int ID2 = 0;
int ID3 = 0;
```

```
int ID4 = 0;
int ID5 = 0;
int ID6 = 0;
int ID7 = 0;
int ID8 = 0;
int ID9 = 0;
int ID10 = 0;
int ID11 = 0;
int ID12 = 0;
char UID[] = "";
// *************************** SETTINGS
********************* //
// ------ From -------- //(Set the time range for
attendance in hours 0 to 23)
int h = 21; // Hrs
int m = 00; // Min
// ------- To ------- //
int h1 = 21; // Hrs
int m1 = 50; //Min
// --------------- SET UIDs ---------------- //
char UID1[] = "F6:97:ED:70";
char UID2[] = "45:B8:AF:C0";
char UID3[] = "15:9F:A5:C0";
char UID4[] = "C5:E4:AD:C0";
char UID5[] = "65:1D:AF:C0";
char UID6[] = "45:8A:AF:C0";
char UID7[] = "15:9F:A4:C0";
char UID8[] = "55:CB:AF:C0";
char UID9[] = "65:7D:AF:C0";
char UID10[] = "05:2C:AA:04";
char UID11[] = "55:7D:AA:04";
char UID12[] = "BD:8A:16:0B";
// -------------- NAMES ----------------------//
char Name1[] = "Student1";
```

```
char Name2[] = "Student2";
char Name3[] = "Student3";
char Name4[] = "Student4";
char Name5[] = "Student5";
char Name6[] = "Student6";
char Name7[] = "Student7";
char Name8[] = "Student8";
char Name9[] = "Student9";
char Name10[] = "Student10";
char Name11[] = "Student11";
char Name12[] = "Student12";
//
*******************************************************
* //
void setup()
{
Serial.begin(9600);
lcd.begin(16, 2);
SPI.begin();
rfid.PCD_Init();
pinMode(yes, INPUT);
pinMode(no, INPUT);
pinMode(list, INPUT);
pinMode(LED, OUTPUT);
pinMode(CLM, INPUT);
digitalWrite(CLM, HIGH);
digitalWrite(LED, LOW);
digitalWrite(yes, HIGH);
digitalWrite(no, HIGH);
digitalWrite(list, HIGH);
}
void loop()
{
if (digitalRead(list) == LOW)
```

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```
{
Read_data();
}
if (digitalRead(CLM) == LOW)
{
clear_Memory();
}
tmElements_t tm;
if (RTC.read(tm))
{
lcd.clear();
H = tm.Hour;
M = tm.Minute;
S = tm.Second;
lcd.setCursor(0, 0);
lcd.print("TIME:");
lcd.print(tm.Hour);
lcd.print(":");
lcd.print(tm.Minute);
lcd.print(":");
lcd.print(tm.Second);
lcd.setCursor(0, 1);
lcd.print("DATE:");
lcd.print(tm.Day);
lcd.print("/");
lcd.print(tm.Month);
lcd.print("/");
lcd.print(tmYearToCalendar(tm.Year));
delay(1000);
} else {
if (RTC.chipPresent())
{
lcd.setCursor(0, 0);
lcd.print("RTC stopped!!!");
```

```
lcd.setCursor(0, 1);

lcd.print("Run SetTime code");

} else {

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Read error!");

lcd.setCursor(0, 1);

lcd.print("Check circuitry!");

}

}

if (H == h)

{

if (M == m)

{

ok = true;

}

}

if (H == h1)

{

if (M == m1)

{

ok = false;

}

}

if ( ! rfid.PICC_IsNewCardPresent())

return;

if ( ! rfid.PICC_ReadCardSerial())

return;

MFRC522::PICC_TypepiccType =

rfid.PICC_GetType(rfid.uid.sak);

if (piccType != MFRC522::PICC_TYPE_MIFARE_MINI &&

piccType != MFRC522::PICC_TYPE_MIFARE_1K &&

piccType != MFRC522::PICC_TYPE_MIFARE_4K)

{
```

```
Serial.println(F("Your tag is not of type MIFARE Classic,
your card/tag can't be read :("));
}
String StrID = "" ;
for (byte i = 0; i < 4; i ++)
{
StrID +=
(rfid.uid.uidByte[i] <0x10 ? "0" : "") +
String(rfid.uid.uidByte[i], HEX) +
(i != 3 ? ":" : "" );
}
StrID.toUpperCase();
if (ok == false)
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Attendance is");
lcd.setCursor(0, 1);
lcd.print("Closed.");
delay(1000);
}
if (ok)
{
//----------------------------------//
if (StrID == UID1)
{
ID1 = EEPROM.read(1);
ID1 = ID1 + 1;
if (ID1 == 256)
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Memory is Full");
lcd.setCursor(0, 1);
```

```
lcd.print("Please Clear All.");

for (i = 0; i < 20; i++)

{

digitalWrite(LED, HIGH);

delay(100);

digitalWrite(LED, LOW);

delay(100);

}

i = 0;

return;

}

if (ID1 != 256)

{

EEPROM.write(1, ID1);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Your Attendance");

lcd.setCursor(0, 1);

lcd.print("Registered !!!");

digitalWrite(LED, HIGH);

delay(1000);

digitalWrite(LED, LOW);

return;

}

}

//---------------------------------//

if (StrID == UID2)

{

ID2 = EEPROM.read(2);

ID2 = ID2 + 1;

if (ID2 == 256)

{

lcd.clear();

lcd.setCursor(0, 0);
```

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```
lcd.print("Memory is Full");
lcd.setCursor(0, 1);
lcd.print("Please Clear All.");
for (i = 0; i < 20; i++)
{
digitalWrite(LED, HIGH);
delay(100);
digitalWrite(LED, LOW);
delay(100);
}
i = 0;
return;
}
if (ID2 != 256)
{
EEPROM.write(2, ID2);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Your Attendance");
lcd.setCursor(0, 1);
lcd.print("Registered !!!");
digitalWrite(LED, HIGH);
delay(1000);
digitalWrite(LED, LOW);
return;
}
}
//--------------------------------//
if (StrID == UID3)
{
ID3 = EEPROM.read(3);
ID3 = ID3 + 1;
if (ID3 == 256)
{
```

```
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Memory is Full");
lcd.setCursor(0, 1);
lcd.print("Please Clear All.");
for (i = 0; i < 20; i++)
{
digitalWrite(LED, HIGH);
delay(100);
digitalWrite(LED, LOW);
delay(100);
}
i = 0;
return;
}
if (ID3 != 256)
{
EEPROM.write(3, ID3);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Your Attendance");
lcd.setCursor(0, 1);
lcd.print("Registered !!!");
digitalWrite(LED, HIGH);
delay(1000);
digitalWrite(LED, LOW);
return;
}
}
//--------------------------------//
if (StrID == UID4)
{
ID4 = EEPROM.read(4);
ID4 = ID4 + 1;
```

```
if (ID4 == 256)
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Memory is Full");
lcd.setCursor(0, 1);
lcd.print("Please Clear All.");
for (i = 0; i < 20; i++)
{
digitalWrite(LED, HIGH);
delay(100);
digitalWrite(LED, LOW);
delay(100);
}
i = 0;
return;
}
if (ID4 != 256)
{
EEPROM.write(4, ID4);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Your Attendance");
lcd.setCursor(0, 1);
lcd.print("Registered !!!");
digitalWrite(LED, HIGH);
delay(1000);
digitalWrite(LED, LOW);
return;
}
}
//----------------------------------//
if (StrID == UID5)
{
```

```
ID5 = EEPROM.read(5);
ID5 = ID5 + 1;
if (ID5 == 256)
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Memory is Full");
lcd.setCursor(0, 1);
lcd.print("Please Clear All.");
for (i = 0; i < 20; i++)
{
digitalWrite(LED, HIGH);
delay(100);
digitalWrite(LED, LOW);
delay(100);
}
i = 0;
return;
}
if (ID5 != 256)
{
EEPROM.write(5, ID5);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Your Attendance");
lcd.setCursor(0, 1);
lcd.print("Registered !!!");
digitalWrite(LED, HIGH);
delay(1000);
digitalWrite(LED, LOW);
return;
}
}
//----------------------------------//
```

```
if (StrID == UID6)
{
ID6 = EEPROM.read(6);
ID6 = ID6 + 1;
if (ID6 == 256)
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Memory is Full");
lcd.setCursor(0, 1);
lcd.print("Please Clear All.");
for (i = 0; i < 20; i++)
{
digitalWrite(LED, HIGH);
delay(100);
digitalWrite(LED, LOW);
delay(100);
}
i = 0;
return;
}
if (ID6 != 256)
{
EEPROM.write(6, ID6);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Your Attendance");
lcd.setCursor(0, 1);
lcd.print("Registered !!!");
digitalWrite(LED, HIGH);
delay(1000);
digitalWrite(LED, LOW);
return;
}
```

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```
}
//--------------------------------//
if (StrID == UID7)
{
ID7 = EEPROM.read(7);
ID7 = ID7 + 1;
if (ID7 == 256)
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Memory is Full");
lcd.setCursor(0, 1);
lcd.print("Please Clear All.");
for (i = 0; i < 20; i++)
{
digitalWrite(LED, HIGH);
delay(100);
digitalWrite(LED, LOW);
delay(100);
}
i = 0;
return;
}
if (ID7 != 256)
{
EEPROM.write(7, ID7);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Your Attendance");
lcd.setCursor(0, 1);
lcd.print("Registered !!!");
digitalWrite(LED, HIGH);
delay(1000);
digitalWrite(LED, LOW);
```

```
return;
}
}
//---------------------------------//
if (StrID == UID8)
{
ID8 = EEPROM.read(8);
ID8 = ID1 + 1;
if (ID8 == 256)
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Memory is Full");
lcd.setCursor(0, 1);
lcd.print("Please Clear All.");
for (i = 0; i < 20; i++)
{
digitalWrite(LED, HIGH);
delay(100);
digitalWrite(LED, LOW);
delay(100);
}
i = 0;
return;
}
if (ID8 != 256)
{
EEPROM.write(8, ID8);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Your Attendance");
lcd.setCursor(0, 1);
lcd.print("Registered !!!");
digitalWrite(LED, HIGH);
```

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```
delay(1000);

digitalWrite(LED, LOW);

return;

}

}

//--------------------------------//

if (StrID == UID9)

{

ID9 = EEPROM.read(9);

ID9 = ID9 + 1;

if (ID9 == 256)

{

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Memory is Full");

lcd.setCursor(0, 1);

lcd.print("Please Clear All.");

for (i = 0; i < 20; i++)

{

digitalWrite(LED, HIGH);

delay(100);

digitalWrite(LED, LOW);

delay(100);

}

i = 0;

return;

}

if (ID9 != 256)

{

EEPROM.write(9, ID9);

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Your Attendance");

lcd.setCursor(0, 1);
```

```
lcd.print("Registered !!!");
digitalWrite(LED, HIGH);
delay(1000);
digitalWrite(LED, LOW);
return;
}
}
//--------------------------------//
if (StrID == UID10)
{
ID10 = EEPROM.read(10);
ID10 = ID10 + 1;
if (ID10 == 256)
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Memory is Full");
lcd.setCursor(0, 1);
lcd.print("Please Clear All.");
for (i = 0; i < 20; i++)
{
digitalWrite(LED, HIGH);
delay(100);
digitalWrite(LED, LOW);
delay(100);
}
i = 0;
return;
}
if (ID10 != 256)
{
EEPROM.write(10, ID10);
lcd.clear();
lcd.setCursor(0, 0);
```

```
lcd.print("Your Attendance");
lcd.setCursor(0, 1);
lcd.print("Registered !!!");
digitalWrite(LED, HIGH);
delay(1000);
digitalWrite(LED, LOW);
return;
}
}
//---------------------------------//
if (StrID == UID11)
{
ID11 = EEPROM.read(11);
ID11 = ID11 + 1;
if (ID11 == 256)
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Memory is Full");
lcd.setCursor(0, 1);
lcd.print("Please Clear All.");
for (i = 0; i < 20; i++)
{
digitalWrite(LED, HIGH);
delay(100);
digitalWrite(LED, LOW);
delay(100);
}
i = 0;
return;
}
if (ID11 != 256)
{
EEPROM.write(11, ID11);
```

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```
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Your Attendance");
lcd.setCursor(0, 1);
lcd.print("Registered !!!");
digitalWrite(LED, HIGH);
delay(1000);
digitalWrite(LED, LOW);
return;
}
}
//--------------------------------//
if (StrID == UID12)
{
ID12 = EEPROM.read(12);
ID12 = ID12 + 1;
if (ID12 == 256)
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Memory is Full");
lcd.setCursor(0, 1);
lcd.print("Please Clear All.");
for (i = 0; i < 20; i++)
{
digitalWrite(LED, HIGH);
delay(100);
digitalWrite(LED, LOW);
delay(100);
}
i = 0;
return;
}
if (ID12 != 256)
```

```
{
EEPROM.write(12, ID12);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Your Attendance");
lcd.setCursor(0, 1);
lcd.print("Registered !!!");
digitalWrite(LED, HIGH);
delay(1000);
digitalWrite(LED, LOW);
return;
}
}
if (StrID != UID1 || StrID != UID2 || StrID != UID3 ||
StrID != UID4
|| StrID != UID5 || StrID != UID6 || StrID != UID7 ||
StrID != UID8
|| StrID != UID9 || StrID != UID10 || StrID != UID11 ||
StrID != UID12)
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("Unknown RFID");
lcd.setCursor(0, 1);
lcd.print("Card !!!");
for (i = 0; i < 3; i++)
{
digitalWrite(LED, HIGH);
delay(200);
digitalWrite(LED, LOW);
delay(200);
}
}
rfid.PICC_HaltA ();
```

```
rfid.PCD_StopCrypto1();
}
}
voidRead_data()
{
lcd.clear();
lcd.setCursor(0, 0);
lcd.print(Name1);
lcd.print(":");
lcd.print(EEPROM.read(1));
lcd.setCursor(0, 1);
lcd.print(Name2);
lcd.print(":");
lcd.print(EEPROM.read(2));
delay(2000);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print(Name3);
lcd.print(":");
lcd.print(EEPROM.read(3));
lcd.setCursor(0, 1);
lcd.print(Name4);
lcd.print(":");
lcd.print(EEPROM.read(4));
delay(2000);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print(Name5);
lcd.print(":");
lcd.print(EEPROM.read(5));
lcd.setCursor(0, 1);
lcd.print(Name6);
lcd.print(":");
lcd.print(EEPROM.read(6));
```

```
delay(2000);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print(Name7);
lcd.print(":");
lcd.print(EEPROM.read(7));
lcd.setCursor(0, 1);
lcd.print(Name8);
lcd.print(":");
lcd.print(EEPROM.read(8));
delay(2000);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print(Name9);
lcd.print(":");
lcd.print(EEPROM.read(9));
lcd.setCursor(0, 1);
lcd.print(Name10);
lcd.print(":");
lcd.print(EEPROM.read(10));
delay(2000);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print(Name11);
lcd.print(":");
lcd.print(EEPROM.read(11));
lcd.setCursor(0, 1);
lcd.print(Name12);
lcd.print(":");
lcd.print(EEPROM.read(12));
delay(2000);
}
voidclear_Memory()
{
```

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```
lcd.clear();
lcd.print(0, 0);
lcd.print(F("Clear All Data?"));
lcd.setCursor(0, 1);
lcd.print(F("Long press: Y/N"));
delay(2500);
Serial.print("YES");
if (digitalRead(yes) == LOW)
{
EEPROM.write(1, 0);
EEPROM.write(2, 0);
EEPROM.write(3, 0);
EEPROM.write(4, 0);
EEPROM.write(5, 0);
EEPROM.write(6, 0);
EEPROM.write(7, 0);
EEPROM.write(8, 0);
EEPROM.write(9, 0);
EEPROM.write(10, 0);
EEPROM.write(11, 0);
EEPROM.write(12, 0);
lcd.clear();
lcd.setCursor(0, 0);
lcd.print(F("All Data Cleared"));
lcd.setCursor(0, 1);
lcd.print(F("****************"));
delay(1500);
}
if (digitalRead(no) == LOW);
{
return;
}
}
```