

RFID BASED ATTENDANCE SYSTEM

OBJECTIVE

The objective of this thesis paper is to design programmable microcontroller base circuit with RFID technology which helps to mark attendance automatically. The students can mark attendance using RFID technology.

FEATURES OF THE PROJECT

PIC 16F887-This 40 pin microcontroller is used in the project.

RFID TECHNOLOGY-It stands for radio frequency identification.

LCD-16x2 –This is used for displaying the information.

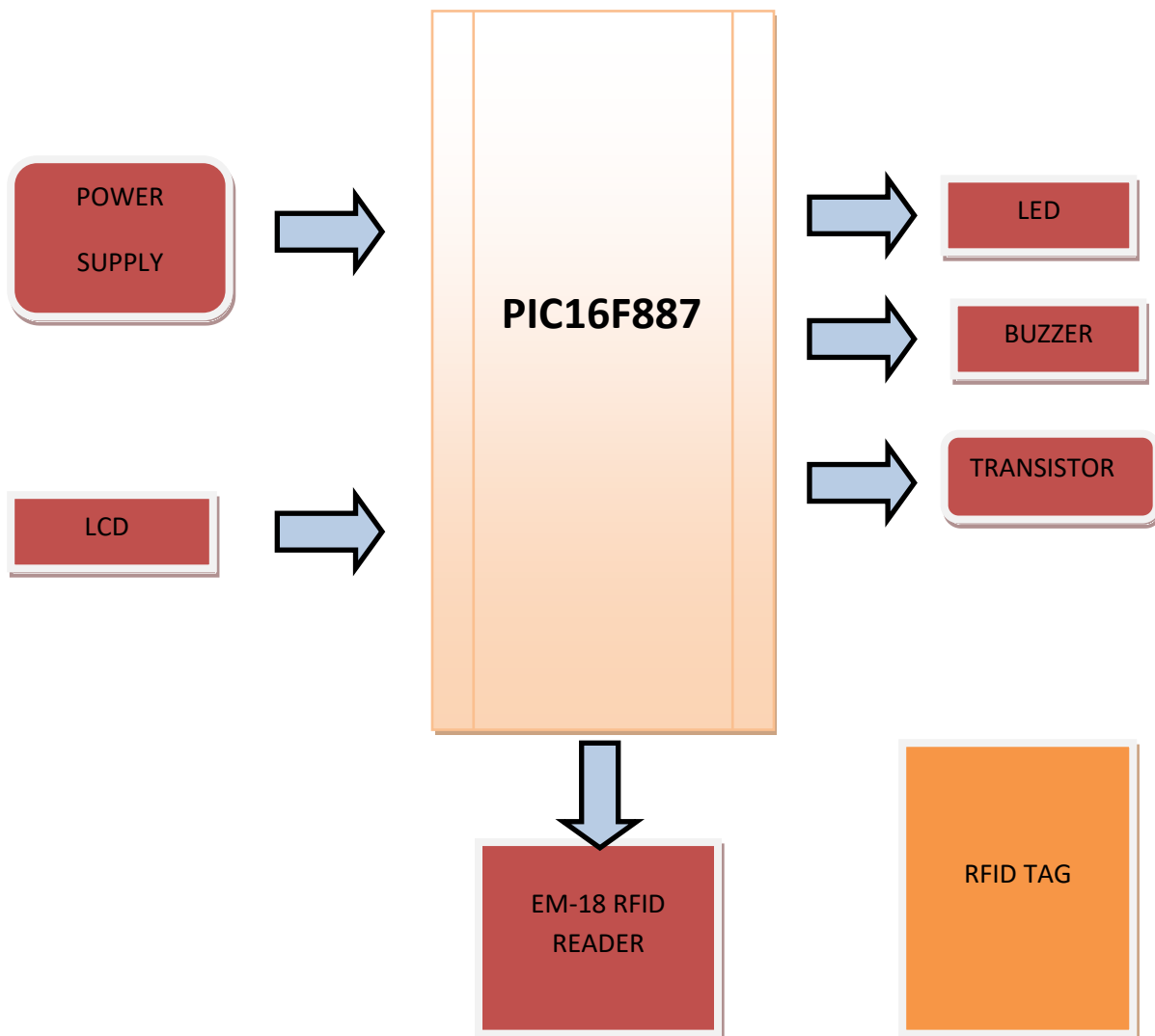
POWER SUPPLY-It has been used for driving and to power up the entire system.

COSTING-It involves medium costing.

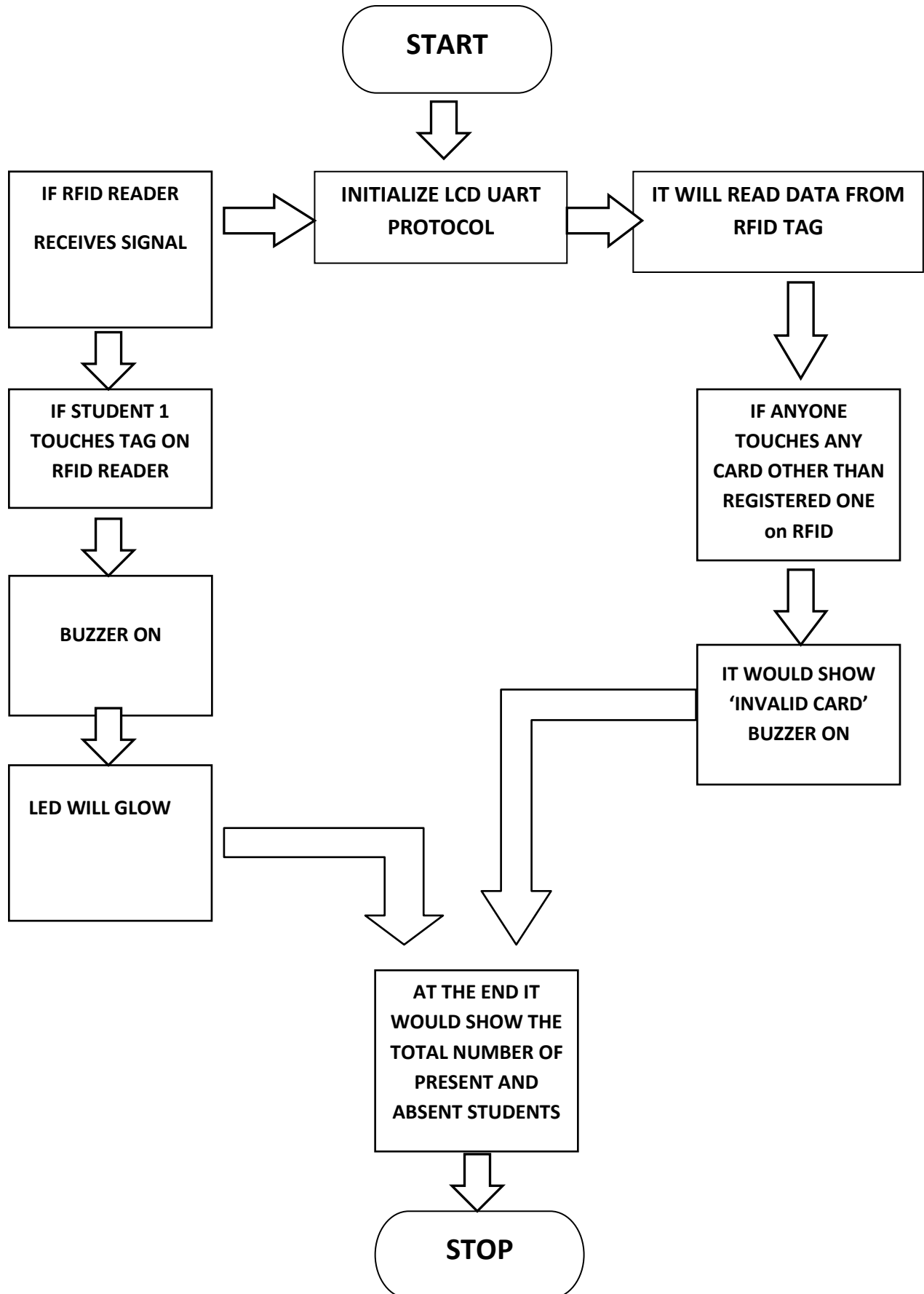
TIME SAVING-It reduces human efforts.

WIRELESS MEDIA- Since it involves use of RFID tags it provides wireless media.

BLOCK DIAGRAM



WORKING FLOW CHART



COMPONENTS

PIC 16F887

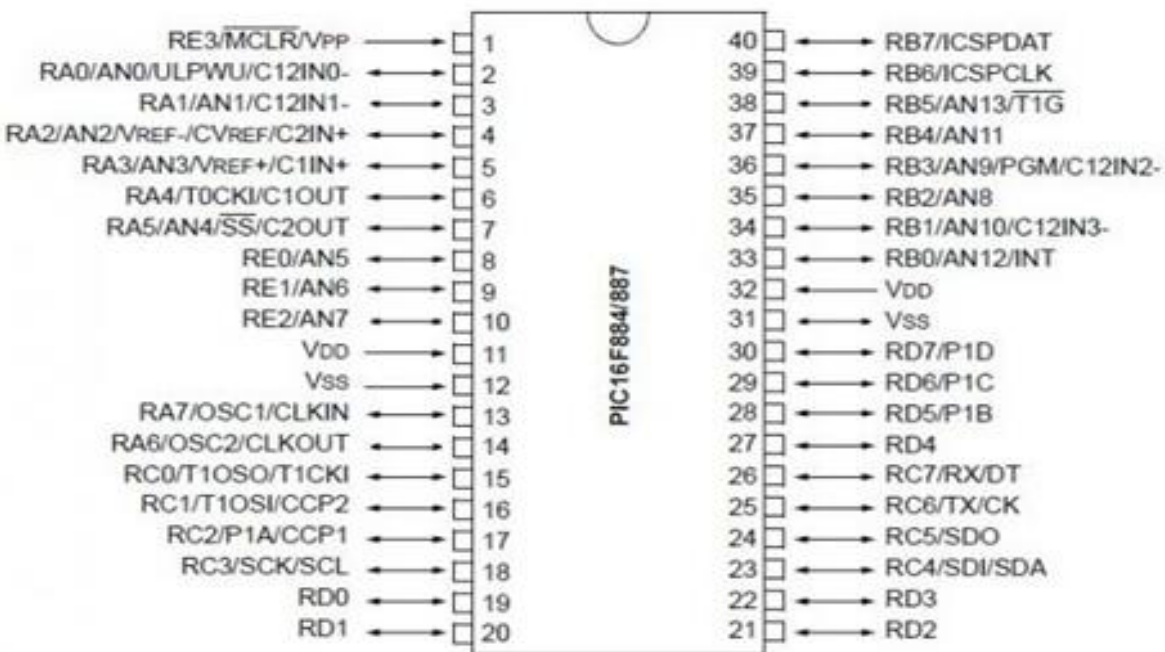
It is a 40 pin IC.

It is base on RISC Architecture and Hardware Architecture.

It has ROM size of 8 kb, 368 bytes of RAM, 3 independent timers, A/D converter, watchdog timer etc.

36 input output pins are present.

5 PORTS(C and D are digital and A, B and E are analog) are present.



PIC16F887 pin diagram

LCD

It has operating voltage of 4.7V to 5.3V.

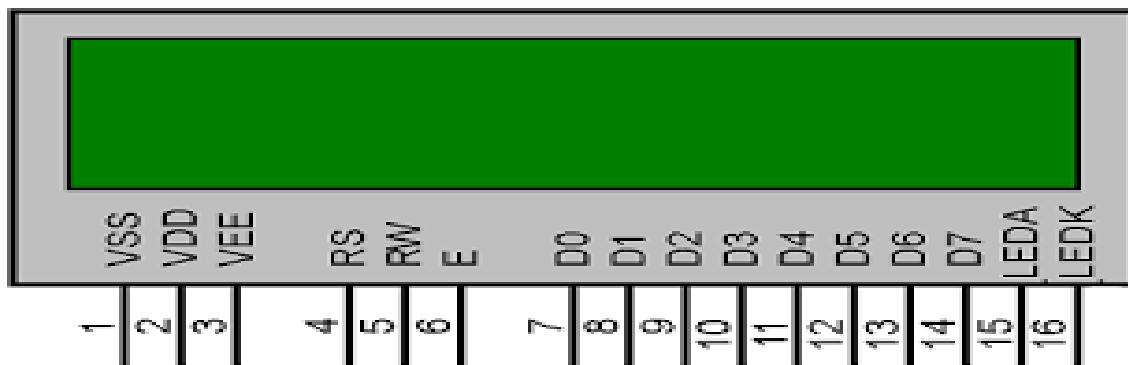
It can display both alphabets and numeric values.

It consists of 2 rows and each row can print 16 characters.

It can be interfaced with microcontroller.

In this each character is build by 5x8 pixel box.

It can work on both 8- bit and 4-bit mode.



STATUS BUTTON (SWITCH)



It is an ON and OFF button.

It is used check the status of RFID system.

It is also used to check the status of student or employ.

RFID READER (EM-18 RFID READER MODULE)

It is used to collect data from RFID card or tag.

It can read or scan tags up to 7 cm away. It does fast identification of specific

object.



It is one of the most commonly used module for radio frequency identification Projects.

It features Low Cost, Small Size, Low Power Consumption and Easy to use.

It can be directly interfaced with microcontrollers using UART communication.

RF technology is used in many different applications, such as television, radio, cellular phones, radar, and automatic identification systems.

The term RFID (radio frequency identification) describes the use of radio frequency signals to provide automatic identification of items.

Radio frequency (RF) refers to electromagnetic waves that have a wavelength suited for use in radio communication.

Radio waves are classified by their frequencies, which are expressed in kilohertz, megahertz, or gigahertz.

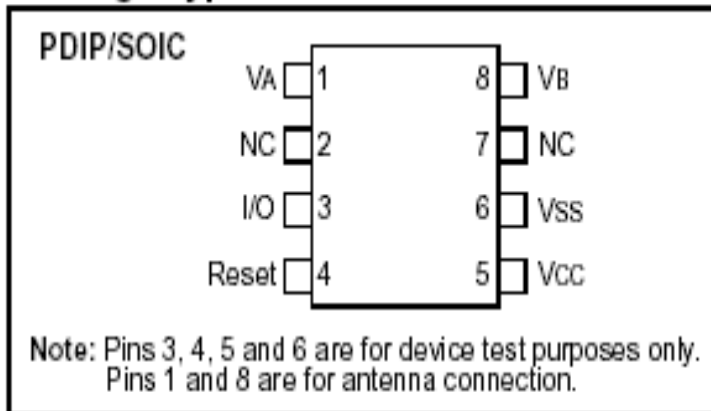
Radio frequencies range from very low frequency (VLF), which has a range of 10 to 30 kHz, to extremely high frequency (EHF), which has a range of 30 to 300 GHz.

RFID can be supplied as read-only or read / write, does not require contact or line-of-sight to operate, can function under a variety of environmental conditions, and provides a high level of data integrity. RFID provides a high level of security. RFID technology uses frequencies within the range of 50 kHz to 2.5 GHz.

RFID uses a reader and special RFID devices that are attached to an item.

RFID uses RF signals to transfer information from the RFID device to the reader.

Package Type



APPLICATIONS

FOR STUDENT-It is used for marking attendance of students just by giving them only RFID tag. When they will come in class by scanning the tag the attendance would be marked automatically. No need to keep any register to record this attendance for future use.

FOR FACTORY WORKERS-It can be installed in any factory or industry gate for marking the attendance of factory workers. Whenever the worker or any employ would enter through that gate they would be able to mark their entry and attendance just by scanning the RFID tag.

Key Card-To open doors: Secure home and office entry as well as access control by using RFID card for family members and office employees. The time of entry and exit can be maintained.

Metro Card: Metro card also works on RFID technology in which the station entered and exited balance and time of entry and exit are updated in the system whenever the card is touched to metro card read.

HARDWARE

PIC 16F887

CRYSTAL

CAPACITORS

LCD 16X2

LEDS

POTENTIOMETER

POWER SUPPLY

CONNECTING WIRES

BUZZER

RESISTORS

SWITCH

DIODES

CONNECTORS

EM-18 READER MODULE (RFID READER)

RFID TAGS

SOFTWARE

PROTEUS

MPLAB

FUTURE ENHANCEMENTS

Marking of attendance would get very easy in every institution and company through RFID technology. RFID tags can be used for:

Asset Tracking

Medical Application

Livestock Tracking

Inventory Management