

Smart Door Enter System By Using Arduino

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Abstract

Nowadays our lifestyle is being entirely occupied by the technology. We are employing various sensors for different applications sometimes we may even use a same sensor differently for more than one application. In this project, I design an intelligent system for Door is characterized by the following specifications:

- 1- The RFID and fingerprint are used to identify people who allowed to enter.
- 2- It calculate the number of hours that worked per person when they go out.
- 3- It can open the door via reliable Bluetooth devices.
- 4- It can change the device mode automatically by opening the door for people approaching it.
- 5- It can be connected with the safety system in an emergency situation by opening the door directly.

System algorithm

1 system description:

This system has many situations adjusted by two switches. First status the system will alarm by RFID and fingerprint sensor, and Bluetooth. The second one is by PIR sensor. The last one is an emergency case the door will be open all time while the buzzer is on, table (1) below shows this status, and the condition.

SW 1	SW 2	System algorithm
Off	off	RFID, Bluetooth, figure print
Off	on	PIR motion sensor
On	x	Emergency case

Table (1) system moods and SWs statuses

2 block diagram:

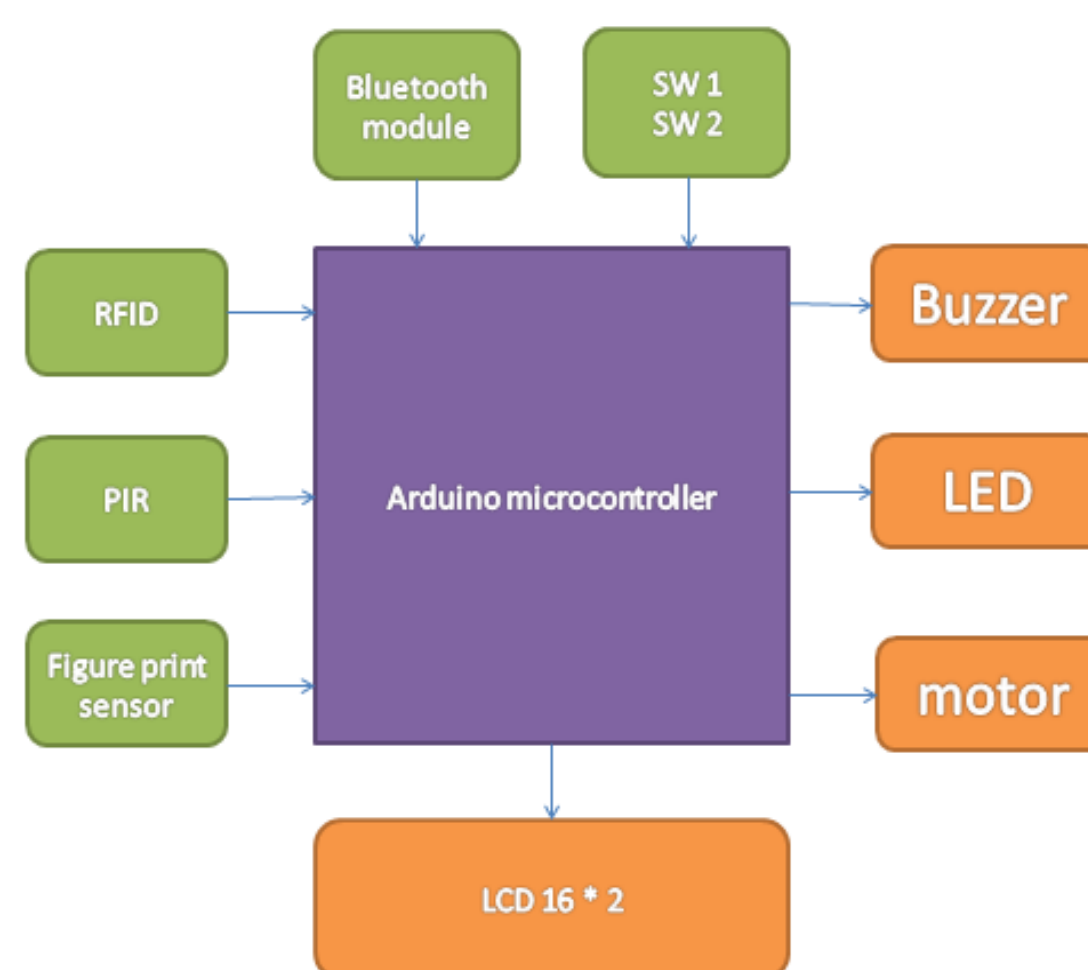


Fig 1(block diagram)

This system consists of Arduino Mega, figure print sensor, RFID, PIR motion sensor, Bluetooth module, tow switches, buzzer and motor drive circuit, and LCD,.

System components

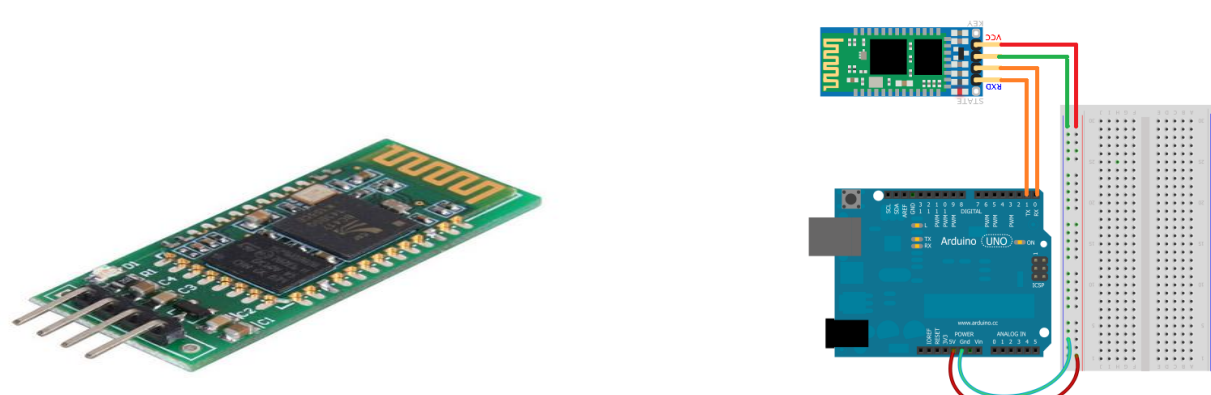
1 Arduino mega:

A microcontroller is a small computer on a single integrated circuit containing a processor core, memory, and programmable input/output peripherals.



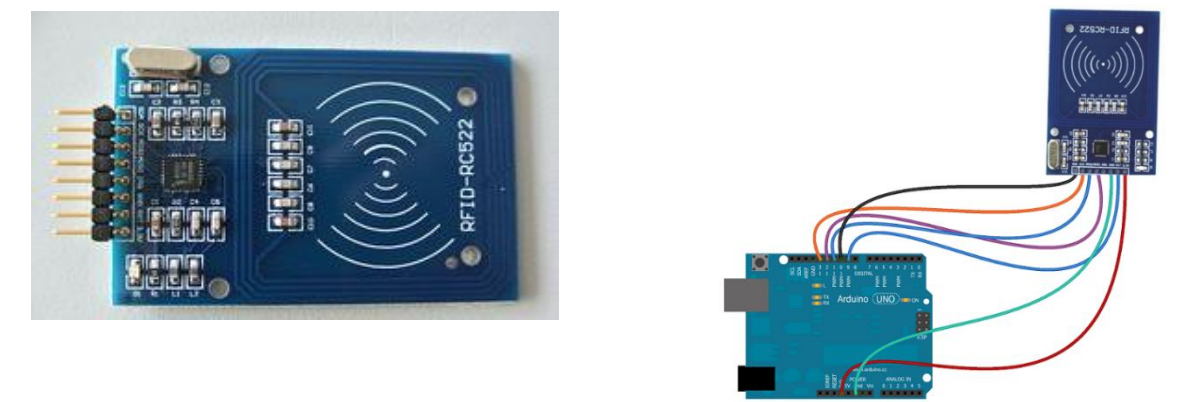
2 Bluetooth module:

Bluetooth is a wireless technology standard for exchanging data over short distances.



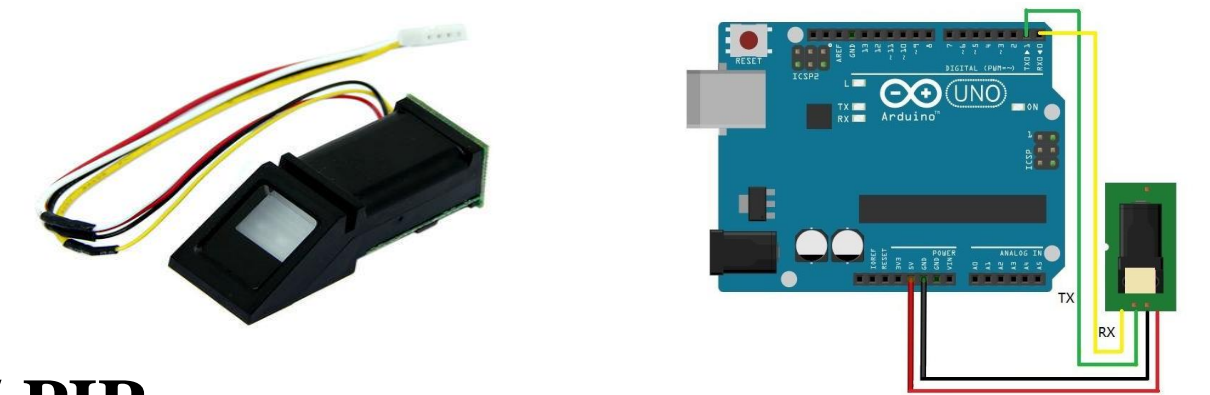
3 RFID receivers :

Radio frequency identification which communicate with near tags wirelessly to read the data which is store in tags.



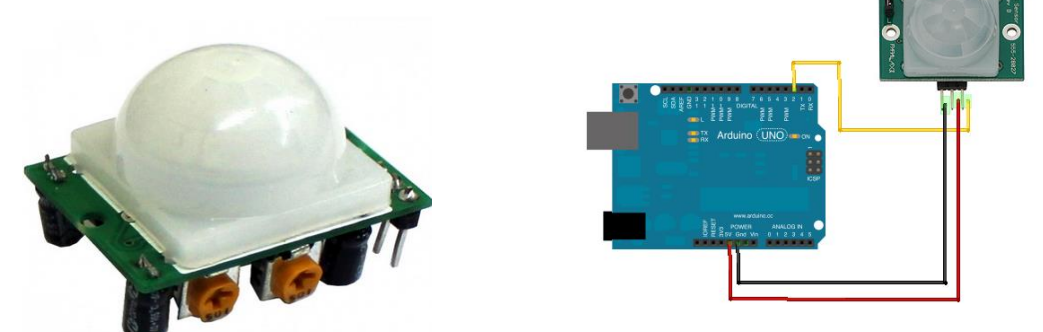
4 finger print sensor:

Fingerprint recognition or fingerprint authentication refers to the automated method of verifying a match between two human fingerprints.



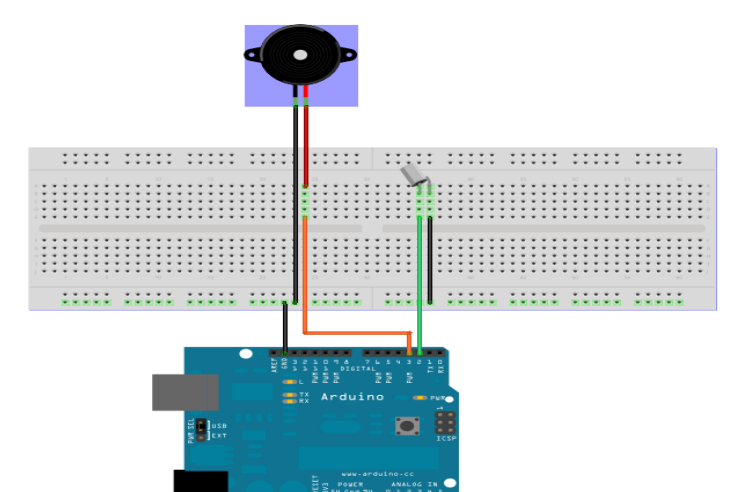
5 PIR sensors

A passive infrared sensor (PIR sensor) is an electronic sensor that measures infrared (IR) light radiating from objects in its field of view.



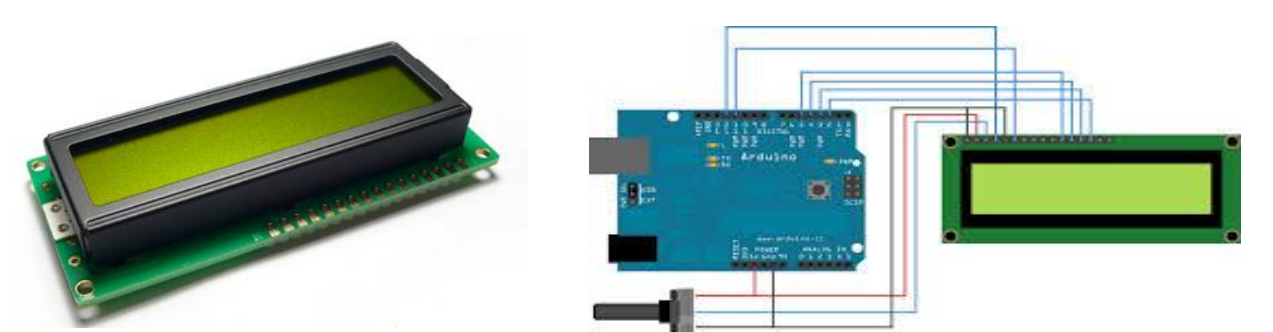
6 buzzer and LED

We use buzzer and LED here to alarm an emergency state.



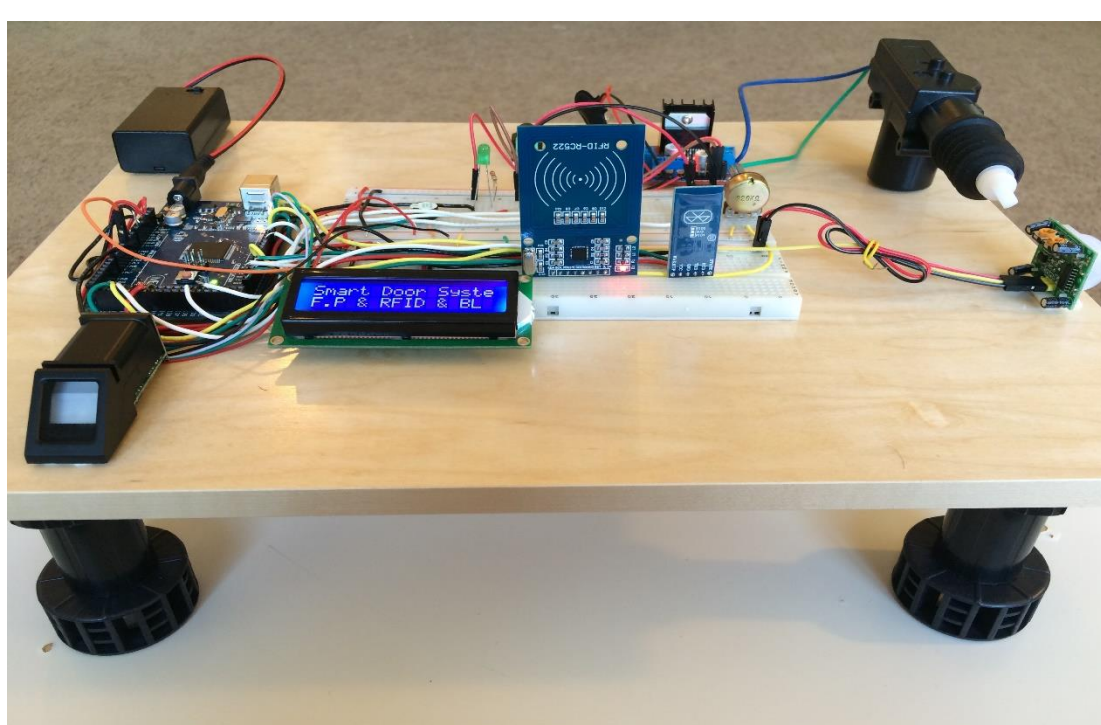
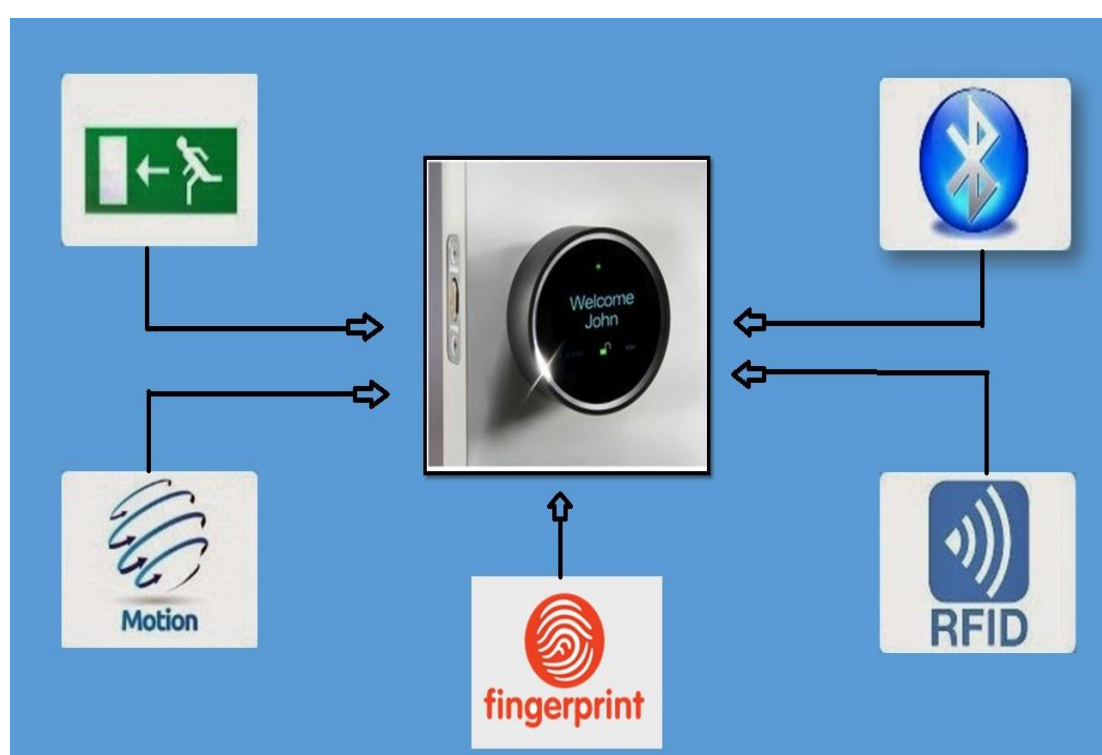
7 LCD display

To show some result and project statuses



Introduction

The project aims to design a smart door entry system using multi sensors, PIR motion sensor, Bluetooth module, figure print sensor, and RFID. The system can measure the time that user spent inside building. The system enhanced by LCD with show the system states, the number of users while they enter the building or leaving.



Conclusion

we decide to choose the ARDUINO microcontroller for many reasons.

- 1- Have an internally programming circuit, and the ARDUINO microcontroller is a reprogrammable controller.
- 2- Multi-input / multi- output.
- 3- Low cost and it's ready to use “ just need the code to starting work.”
- 4- The ARDUINO becomes so famous nowadays for electronic interested, educational kit, and fabricate to build the prototypes and projects..