

Wireless Biometric Lock Using Arduino

<https://www.youtube.com/watch?v=2aX6ABhehzk>

Security is a major concern in our day-to-day life, and digital locks have become an important part of these security systems. There are many types of security systems available to secure our place. Some examples are PIR based Security System; RFID based Security System, Digital Lock System, bio-matrix systems, Electronics Code lock. In this post, we will **Interface a Bluetooth module, solenoid lock with Arduino, android app** and will build a **Fingerprint based Biometric Security System** with door locking. Finger Print is considered one of the safest key to lock or unlock any system as it can recognize any person uniquely and can't be copied easily.

The main aim of the project is to design a biometric clock using Bluetooth technology with Android app. Instead of carrying a bunch of keys wherever you go, as you just have to use your fingerprint to unlock/lock the door through the Android App by using mobile phone. To Lock/unlock the door he/she need to enroll finger in that android app. Using GSM to send the alert message and to detect the unlock notification using read switch.

The controlling device of the project is Arduino microcontroller. Bluetooth module, Relay, Read switch, GSM is interfaced to Arduino microcontroller. When the user wants to lock/unlock the door, he/she need to place the finger in android app over Bluetooth. And these data is received by Bluetooth module which is attached to the Arduino. Then the Arduino lock/unlock the door through relay if the finger print is matched. If any unauthorized person wants to open the door, the read switch detects that and these data is sends to the arduino and the arduino send the SMS to the predefine mobile number through GSM. Finger Print is considered one of the safest key to lock or unlock any system as it can recognize any person uniquely and can't be copied easily.

Main objective of this project:

- Finger print based real time security system.
- Using GSM TECHNOLOGY to send the alert message.
- To lock/unlock the door using android app over Bluetooth by using mobile phone.
- Gives an indication for unauthorized entry using READ SWITCH.
- Using Arduino to achieve this task.

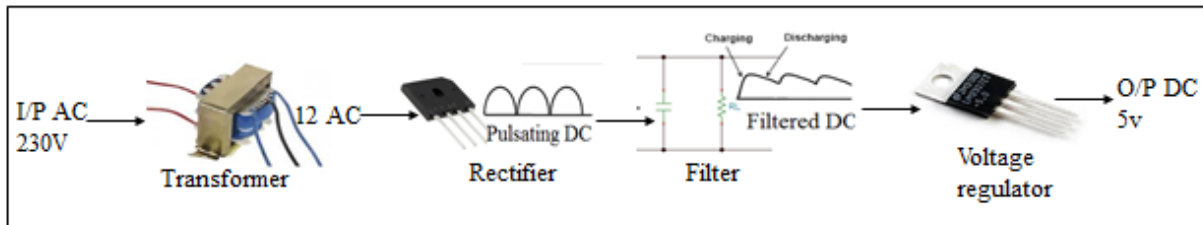
The main building blocks of the project are:

- Arduino microcontroller.
- Regulated power supply.
- Bluetooth module.
- Relay.
- Solenoid lock.
- Android app.
- Read switch.
- GSM.

Software's used:

1. Arduino IDE for compiling and dumping code into controller
2. Express SCH for Circuit design.
3. Proteus for hardware simulation.

Regulated power supply:



Block diagram:

