

# Fingerprint Locker Using Arduino

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Received on: 03 April, 2023

Revised on: 25 April, 2023

Published on: 27 April, 2023

**Abstract** – This concept which is of fingerprint door locker is related to the security issues in the day today life, the physical key can be made as duplicated to the security issues in the day today life, the physical key can be made as duplicate is very cheap cost and the key can lost somewhere or the key can steal, to overcome these issues we can use biometric security gadgets and try improvise the security much more because it can never be stolen be stolen it cannot be lost and the staling chance of duplication are very low to break the security. From the old time the security the big issue for the company's houses and other places is worried about the security now a day. The traditional door locks can be bypasses by the duplicate keys, but the best solution for this situation is biometric locks which includes Fingerprint, Iris and Handprint scanners. So this project we are going to try to get upper level of security.

**Keywords-** fingerprint, key, security, lock, scanner, buzzer, keyboard.

## I -INTRODUCTION

These days office/corporate environment security is a major threat faced by every individual when away from home or at the home. When it comes to security system, it is one of the primary concerns in this buys competitive world, where human cannot find ways to provide security to his confidential belongings manually. Instead, He finds an alternative solution\ which provides better, reliable and atomized security. This is an era where everything is connected through network, where anyone can get hold of information

from anywhere around the world. Thus chances of one's info being hacked are a serious. Due to these risks it's very important to have some kind of personal identification to access one's own info. Now a day's personal identification is becoming an important issue all around. Among mainstream personal identification methods we mostly see password and identification cards techniques. But it is easy to hack password now and identification cards may get lost, thus making these methods quite unreliable.

## METHODOLOGY

We save the first fingerprint in position 1 and then we give it enter and follow the instructions:



If the fingerprint was registered correctly, it will show the message "Fingerprint DOES match!", followed by the position where it was saved and the message "Registered!"

To save more than one fingerprint, the sensor allows up to 162 fingerprints, we now retype the number of the next position where we want to save it, which in this example would be position 2, we type 2 and press enter and continue again the same instructions until all the necessary footprints are recorded, always indicating a different position so that one already saved is not overwritten.

Finally we load the final program that will read the fingerprints. If the fingerprint read matches one of those stored, the relay that is connected to Pin 13 of the Arduino will be activated for 3 seconds.

### HARDWARE DESCRIPTION OF FINGERPRINT BASED DOOR LOCKSYSTEM

#### ➤ ARDUINO

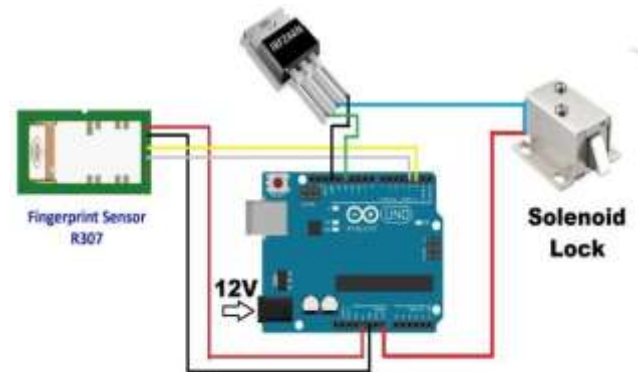
Arduino is an open-source electronic platform based on easy-to-use hardware and software. Arduino boards are able to read inputs – light on sensor, a finger on a button, or a Twitter message – and turn it into an output – activating a motor, turning on an LED, publishing some thing online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so you use the Arduino programming language (based on writing), and the arduino software (IDE), based on processing. Over the years Arduino has been the brain of thousands of projects, from everyday objects to complex scientific instruments. A worldwide community of makers students, hobbyists, artists, programmers, and professionals – has gathered around this open source platform, their contributions have added up to an incredible amount of accessible knowledge that can be of great help to novices and experts alike.

Arduino was born at the ivrea interaction design institute as an easy tool for fast prototyping, aimed at students without a background in electronics and programming. As soon as it reached a wider community, the Arduino board started changing to adapt to new needs and challenges, differentiating its offer from simple 8-bit boards to products for IOT applications, wearable, 3D printing, and embedded.

#### ➤ APPLICATION

- Used in Banks and Offices to secure the vaults door or simply for residential houses door lock system.

- Fingerprint security system can be used in ATM, fingerprint operated Vehicles.
- Can be used for voter ID registration.



#### ➤ DESIGN

First we proceed to download the library for Arduino from the following link:

<https://github.com/Adafruit/Adafruit-fingerprint-S> ...Once downloaded, the library is unzipped and saved in: C: Program Files (x86) Arduino libraries It is necessary to rename the library folder in case the “.cpp” file is found with a different name is in it. The sensor works at 57600 baud, it can be configured but this is the default speed, when using serial, the Arduino uses the software serial library.

```
#include <SoftwareSerial.h>
```

If it is required to change pins, the serial by software can be done in the following instruction:

```
MySerial SoftwareSerial (2, 3);
```

For the example of the fingerprint, if the Arduino is required to execute an action after having found a fingerprint, it is necessary to indicate it in this section of code:

```
Serial.Print (“found ID #”); Serial.Print (Finger.fingerID);
```

```
Serial.Print (“with confidence”);
```

```
Serial.println (Finger.Confidence); Write the code here return finger.fingerID;
```

### CONCLUSION

Fingerprint door locks are great investment for home or business. It provides great security by providing restrictions to unwanted access. This device increases level of security by adding unique biological features of authorized person. For anyone who wants more security to their homes, fingerprint based door lock system are best choice.

#### ACKNOWLEDGMENT

Meenakshi et al. has proposed “Arduino Based Smart Fingerprint Authentication System”. fingerprint locking system is a locking system that uses a fingerprint sensor module to secure the user's fingerprint. The fingerprint sensor module uses an Arduino or a Raspberry Pi to operate. In the proposed system, there is three-level security. Any two levels of security users have to face to unlock the system. This is the ideal option for avoiding the hassles of a stolen or lost key or illegal access. The authorized user must register his or her fingerprint in the system. The registered person's mobile number is then added to GSM, and a permanent image password is assigned to this user. As a first step, the unauthorized individual must choose unauthorized as the user type. The admin receives a random picture. The person must properly choose the random image. Otherwise, the system will go back to the first page. [2] Patil et al. has proposed “Smart Door Locking System Using IoT” The internet of things, or IoT, is a wireless link that works in a door lock. With the help of IoT-enabled applications, the user may unlock the door with his smartphone. The servo library is introduced after the application is developed by creating a string variable that contains the unique device ID for the lock. The essential concept underlying the door lock's operation is the ID supplied by the Android phone via the created app. [3] Reddy et al. has proposed “Security System Based on Knock Pattern Using Arduino and GSM Communication”. This system, which consists of Arduino, GSM Module, Servo Motor, and other components, employs a ‘Secret Knocking Pattern’ that is only known by the owner of the safe, luggage, or other property or item on which the device is mounted. For the lock to open, the knocking pattern must be used only at a certain location, which is only known by the owner. The secret pattern can only be changed after the secret knock has been unlocked. Because there is no key to be copied, this approach fully eliminates the worry of duplication. [4] 10 Areed and Marwa F. has proposed “A Keyless Entry System Based on Arduino Board with WiFi Technology.” A keyless entry system that focuses on the use of an Arduino circuit board, a WiFi module, and the PHP programming language to provide access to a closed door. The suggested solution, which uses an Arduino Uno board and a Wi-Fi shield to unlock the door without a key, is described. The internet connection allows the system to unlock the door from any place, unlike traditional systems, which have a limited range. [5]

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