

# **FINGER PRINT BASED LOCK SYSTEM USING ARDUINO**

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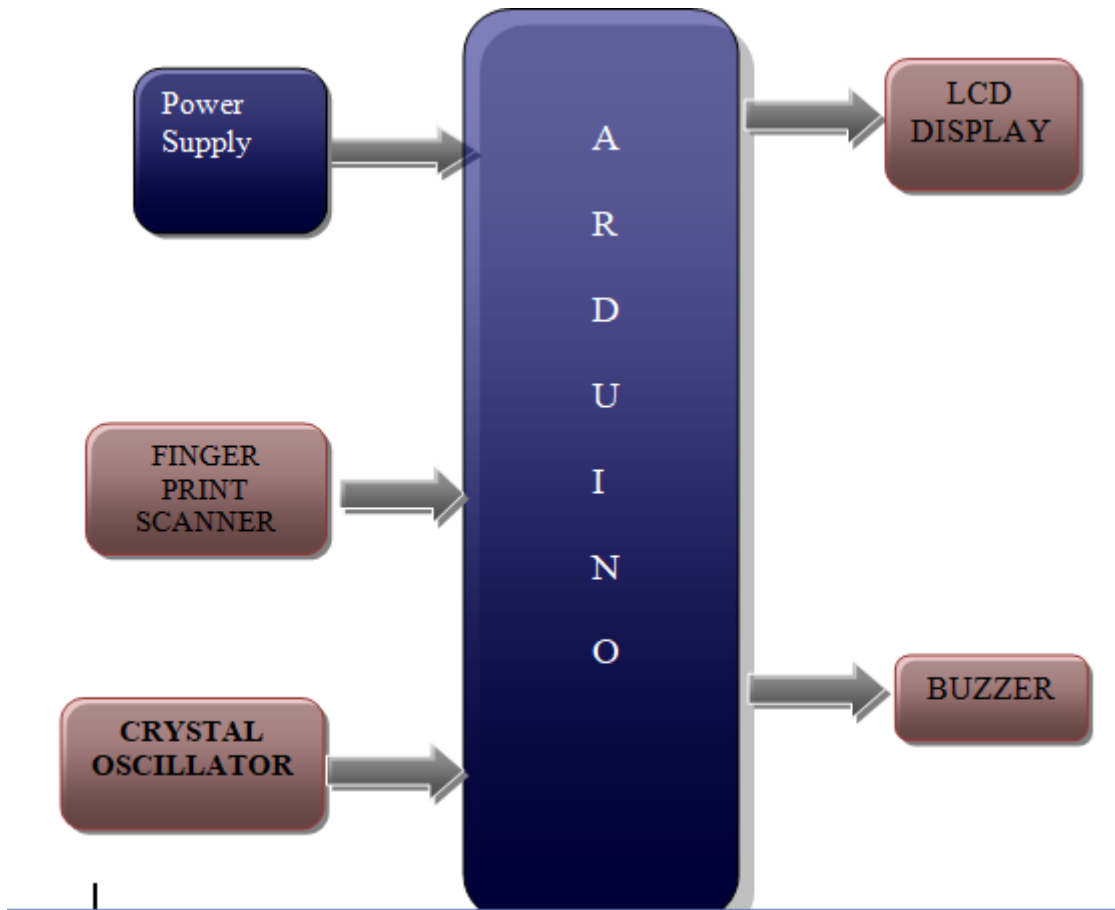
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**ABSTRACT:** In this paper we utilize a finger impression module to peruse once character to begin the hardware. A noteworthy and justly solid human unique evidence method is distinctive finger impression ID. As finger impression of each individual is one of a kind along these lines it very well may be utilized in different security alternatives. Therewith we are Zeroing in on the operation of sole finger impression acceptance to start cruiser against the utilization of traditional strategies for key locks. A specific assessment is displayed in the paper recognized with this work. Soul ID is field exceptionally vast and which has gone through quick changes with time. A major and justly solid soul ID strategy is distinctive finger impression ID. Finger impression of each individual is special. So these aides in distinguishing an individual or in further developing security of a framework. Distinctive mark of an individual is read by an astonishing sort of sensor. Unique mark sensor can be interfaced with a microcontroller. We can add new client and erase the current client through keypad, in addition differentiate the client by choosing comparing option through keypad.

**KEYWORDS:** LCD, Relay, Wifi module, Arduino UNO, Finger Print Scanner, Sensors.

## **LINTRODUCTION**

Larceny is one of the foremost troubles in today's world places like in offices and other public places. Therefore it is not secure for our documents and precious things so we have decided to make this type of security system that will be more usable to all the people with reference to fig 1.1 block diagram [1]. This method assures the just right use on the fingerprints for door opening and closing. Through the paper we can provide high security to users. The fingerprint in most of the banks has lockers such that one key is with the user and the bank has a master key. They also have password which the user has to tell the bank before going in the locker room, now if the user loses the key, then, it is a big security risk [2]. There are many thieves around us that they can easily or forcefully break our lockers so we can lose our property so to overcome this problem we are creating this type of security system. Most of the bank lockers do not assurance full security of the user. In the fingerprint bank locker system, we can easily add more than 1 fingerprint in the system so we can add our family member fingerprint as a nominee [3]. In addition to we can place in our multi hand fingerprint if we are facing accident and if we wound or a cut in our finger so we can use our contender fingerprint or other multi hand fingerprint. In case if we are far from our house and we required urgent deed or possessions so our family members can also use our lockers [4]. This is a very a unique idea instead to keep keys or to protect that key. Biometric devices are extremely protected safety recognition and endorsement device. Such devices use automated methods of verifying and recognizing the identity of a living person based on a physiological behavioral characteristic. These distinctiveness contain fingerprints, facial images, iris and voice recognition.



**Fig.1.1. block diagram**

The first step is collecting the finger print using a special sensing device. This process is referred to as enrolment. In this step, the finger print is acquired for authentication [5]. The captured image (called the finger print model) can be stored directly as biometric algorithm or as an image directly. In the case of a biometric algorithm, quite a lot of data points on the finger print template are scientifically measured and stored, in this manner leading to disposal of the actual finger print. Algorithm software measures 40 or more data points for each finger print and may store these measurements as data coordinates or encrypt them into a digital certificate for future authentication [6]. When the mathematical representation of the finger print, not the actual finger print, is used to prove identity, a higher level of reliability is realized (<http://biometr>) The design of security bike lock using the finger print technology was built around a Micro- Controller Unit (MCU), ARDUINO, which reads in finger prints from finger print scanner and grant access, to a protected compartment, only to pre-registered finger prints. In this embedded security the finger print scanner serves as the main input. Finger prints read are compared to those ones pre-programmed into the memory of the microcontroller [7]. When a match is made, the microcontroller outputs a HIGH which activates the transistor-relay switching stage that controls opening and closing of the modeled motorized door granting access into the protected building.

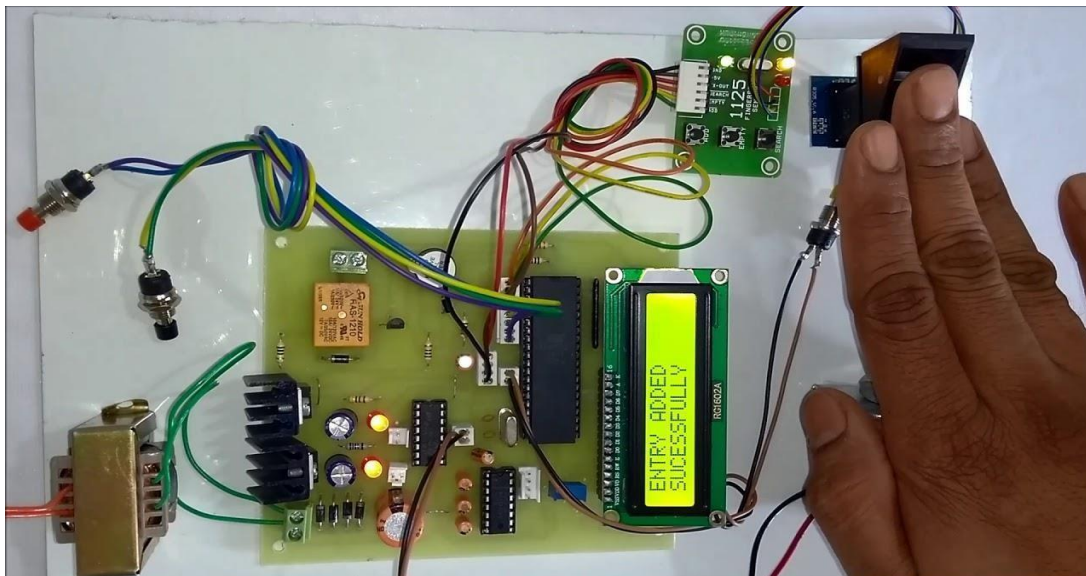


Fig:1.2 shows the complete circuit diagram of biometric authorized secure

**Fig 1.2** shows the complete circuit, an alphanumeric liquid crystal display (LCD) is used in his design to show the operating status of this embedded security system. By default it displays a welcome message requesting that the user should enter a finger print [8]. Furthermore when a match is made it displays “ACCESS GRANTED” otherwise it displays “ACCESS DENIED” The design of security bike lock using the finger print skill was built around a Micro- Controller Unit (MCU), ARDUINO, which reads in finger prints from finger print scanner and grant access, to a protected compartment, only to pre-registered finger prints. The finger print scanner serves as the main input into this embedded security system [9]. Finger prints read are compared to those ones pre-programmed into the memory of the microcontroller. When a match is made, the microcontroller outputs a HIGH which activates the transistor relay switching stage that controls opening and closing of the modeled motorized door granting access into the protected building. To show the operating status of this embedded security system an alphanumeric liquid crystal display (LCD) is used in this design [10].

## II CONCLUSION

To work on this paper, we reviewed some papers. We introduced biometric based locker which provide high degree of security in this paper. Any authorized user will unable to access the locker. We use fingerprint as the verification system as duplication of fingerprint is like unable. The system is economical and easy to use. This system can be mounted anywhere, where you need high degree of security the low cost of the paper is very important factor in this paper. These locker systems are very reliable and safe.

### III REFERENCE

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