International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 07 Issue: 04 | Apr 2020 www.irjet.net p-ISSN: 2395-0072

Biometric Locker for Mobile Charging at Airport

Vaibhav Takale [1], Shrinivas Bartake[2], Rajat Tiwade[3]

[1]*Student, E&TC, KITCOEK, Maharashtra, India*
[2]*Student, E&TC, KITCOEK, Maharashtra, India*

Abstract - *Mobile phones has become very important gadget in our day to day life. While travelling it plays very important role for communication. If our phone is dead our lot of work may get stuck. So in places such as airport there is requirement of charging ports. But we cannot stay at a place (charging port) for hours during charging purpose. It will provide safety and allow user to do his work. It is a biometric locker in which there is a charging port. In present situation there are no such lockers at airport. There are simple charging ports. We have to stay there while charging for safety purpose.*

Key Words*: *Biometric locker1, Charging Locker2, Cell phone safety 3, and Airport security4 etc...

1. INTRODUCTION

In this biometric locker user can put his/her mobile phone and do his/her work. This locker provides full safety to their gadget. At a time only one user can use this particular locker. This locker has fingerprint scanner so it become very secure. It Is very useful at crowded places such as airport. It reduces risk of theft.

PROCEDURE

This article is on biometric locker for mobile charging. Here we are using Arduino, finger print scanner, LED display, push button, solenoid lock, load cell, relay module, charging port and locker.

When the locker is vacant and closed it is ready to be used. As locker is vacant load cell will provide data to Arduino that there is nothing inside the locker. At this time push button can work User can open the door by using push button and close it manually. When the locker is vacant LED display will show message that 'WEL-COME' and 'Place your finger/thumb'.

Now user will put his/her finger/thumb on fingerprint scanner. After this LED display will show message that 'Place your finger/thumb again' so user will put his/her finger on scanner again. After this the data that is thumb impression of user will get stored in EEPROM. This EEPROM is in fingerprint scanner itself. After saving the data LED display will show message 'successfully enrolled' .After this locker will get opened. Now LED display will show message 'Put your mobile phone'. Inside locker there will be a charging port. User will put his/her mobile phone on charging port .After this user will close the door manually. Now there will be same weight on load cell so it will provide data to Arduino that locker is occupied. Now LED display will show a message that 'Locker is occupied'

At this condition no other person can open this locker. Locker will get opened only by finger/thumb impression of current user. Push button will not work at this time as locker is not vacant. After sometime when user want to open the locker and collect his/her phone. He/She have to put his/her thumb on scanner. When the thumb impression will get matched, then locker will get opened. Now LED display will show message that 'please take your phone'. When user will take his/her phone earlier saved data will get automatically deleted. Now LED display will show message that 'Please close the door'. Now user will close the door manually. Now locker is ready to be use by new user. For emergency condition finger/thumb impression of security head of airport will be saved in every locker. During such emergency condition security head can open the locker.

BLOCK DIAGRAM

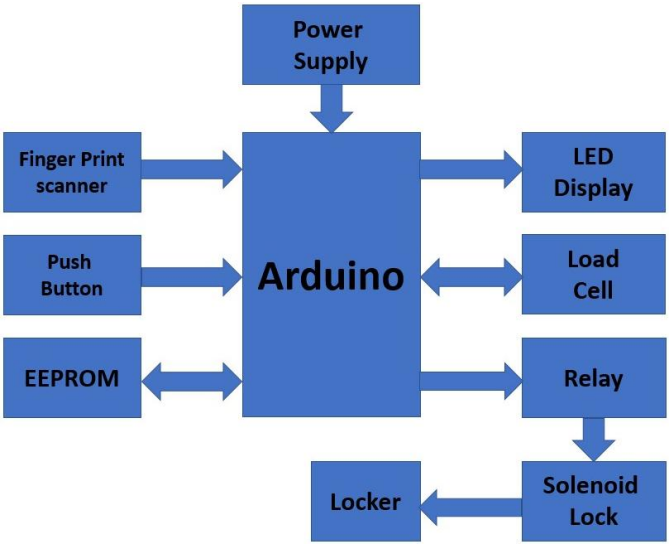

Fig. Block diagram of Biometric locker for mobile charging at airport

1. LOCKER:

A locker is a small storage compartment. They are found in large number at public places. They may vary in size, purpose, construction and security. Locker doors usually have some kind of ventilation to provide flow of air to aid in cleanliness. Lockers can be made for different purpose such as bank lockers, school lockers etc. Lockers can be made up of different materials such as wood, plastic, metal, etc. Lockers may have various locking options. Lockers are usually intended for use in public places and intended for the short or long term private use of individual for storing personal item. Here we are using locker made up of steel. It has 15cm X 18cm dimension.

2. FINGER PRINT SCANNER:

Human finger prints are practically unique that's why it is successfully used to identify individual. It gives high level of security which is nearly impossible to breach. There are four types of fingerprint scanner .Optical scanner, capacitive scanner, ultra sound finger print scanner, thermal scanner. R307 fingerprint module is a finger print sensor with TTL UART interface. The user can store the fingerprint data in the module and can configure it in 1:1 or 1:N mode for identifying the person. It consist of high speed DSP processor, high performance fingerprint alignment algorithm, high-capacity FLASH chips and other hardware and software composition, stable performance, simple structure, with fingerprint entry, image processing, fingerprint matching, search and template storage and other functions.

3. LOAD CELL:

Load cell are commonly used to measure weight. Load cell a type of transducer, specifically a force transducer. It converts a force such as tension, compression, pressure or torque in to an electrical signal that can be measured and standardized. As the force applied to the load cell increases, the electrical signal changes proportionally. The most common type of load cell used are hydraulic, pneumatic and strain guage. Load cell YZC-131 can translate up to 1kg of pressure into on electrical signal. Each load cell is able to measure the electrical resistance that changes in response, and proportional of the strain applied to the bar. These load cells have four strain gauges that are hooked up in a Wheatstone bridge formation. The color code on the wiring is as follows: red = E+, green =0+, black=E and protection rating and feature mh sized thru holes for mounting purposes.

4. LED DISPLAY(SSD1306 OLED Display):

OLED is organic light emitting diode that emits light In response to an electric current. OLED display works with no backlight so it can display deep black levels. It is small in size and light in weight than liquid crystal display. 128x64 OLED display is simple dot matrix graphic display. It has 128 columns and 64 rows which make it display of total 128x64=8192 pixels. By just turning on/off these pixels led we can display graphical image of any shape on it. OLED displays driven by SSD1306 driver IC. SSD1306 is a CMOS OLED driver with controller for OLED dot matrix graphic display system. Due to use of SSD1306 driver, number of external components required and power consumption has reduced. It has 12c interface in these interface, data send/receive could be done serially through SDA line.

5. RELAY :

A relay is an electrically operated switch. It consist of a set of input terminals for a single or multiple control signals and a set of operating contact terminals. The switch may have any number of contacts in multiple contact forms, such as make contacts, break contacts or combination thereof. Relay are used where it is necessary to control a circuit by an independent low-power signal, or where several circuits must be controlled by one signal. Sugar cube SPDT relay 12V 7A-JQC-3FCT73 relay. It is high quality single pole double throw (SPDT) relay. It has max current rating of 7A. The voltage required to energized the coil is 12v DC.

6. ARDUINO :

Arduino board designs use a variety of microprocessors and controllers. The boards are equipped with sets of digital and analog i/o pins that's may be interfaced to various expansion boards. The boards feature serial communications interfaces, including universal serial bus on some models, which are also used for loading programs from personal computers. ARDUINO project provides an integrated development environment (IDE)based on the processing language project. Arduino is open source hardware. Most Arduino boards consist of an Atmel 8-bit AVR microcontroller with varying amounts of flash memory, pins and features. The boards use single or double-row pins or female headers that facilitate connections for programming and incorporation into other circuits. Arduino microcontrollers are preprogrammed with a boot louder. A program for Arduino hardware may be written in any programming language with compilers that produce binary machine code for the target processor. The Arduino IDE supports the languages c and c++. It supplies a software library. Arduino UNO is a microcontroller board based on the ATmega328p. It has 14 digital i/o pins (6 pins

can be use as PWM outputs) 6 analog inputs, a 16 MHz ceramic resonator (CSTCE16MOV53-R0), a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller, simply connect it to a computer with USB cable or power it with a AC to DC adapter or batter to get started.

7. **SOLENOID LOCK :**

12V solenoid lock has a slug with a slanted cut and a good mounting bracket. Its basically an electronic lock, designed for a basic cabinet, safe or door. When 9-12 VDC is applied, the slug pulls in so it doesn't stick out and the door can be opened. It does not use any power in this state. It is very easy to install for automatic door lock systems like electric door lock with the mounting board. This solenoid in particular is nice and strong. Specifications of 12v solenoid lock: operating voltage: 12 VDC Designed for 1-10 sec long activation time.

3. CONCLUSION

At present situation there is lack of security for mobile phones at airport while charging .Passenger have to stay at charging port for charging. Traveler have to do his/her check-in procedures and other procedures. So passenger can't stay at charging port. So, in order to provide solutions to all such problems, we developed biometric locker for mobile charging at airport. It will give relief to all the passengers. It will provide full security to their mobile phones. As human finger prints are unique it will provide high level security. It is very useful at crowded places such as airport. It reduces risk of theft.

REFERENCES

[1]. Subhash H. Jadhav, S.S. Agrawal, "smart bank locker security system using biometric fingerprint and GSM technology", international journal of science and research (IJSR) ISSN: 2319-7064
[2].Modhuli D Goswami, Twinkle Sachdev, "Biometric based bank locker system", International Research Journal of Engineering and technology(IRJET), e-ISSN: 2395-0056 P-ISSN:2395-0072
[3] Shital O. Chavan, Tejaswini G. Pangare, Sweety K. Sapkal, Gauri S. Shimpi, "Smart Locker System Using Biometric Authentication", IJIRT, volume issue 12, ISSN: 2394-6002.