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Finger Print Based Bank Locker Security System

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Abstract: ***The principle target of this undertaking is to structure and actualize a bank locker security system dependent on a Fingerprint and OTP innovation. This can be utilized in bank, workplaces, and homes. In this system just the validated individual recuperate the records or cash from the locker spaces. In this security system unique mark and OTP is utilized. In this system first individual select client name and secret key and portable number. In the event that a client name and secret word matches, at that point Finger of individual will identify and store with ID. On the off chance that the ID gets coordinated, at that point the four-digit code will be sent on approved individual portable to open. So biometric and Bluetooth security is a bigger number of focal points than different system. This system can likewise make a log containing a registration and checkout of every client alongside fundamental data.***

Keywords: Fingerprint, Microcontroller, Bluetooth

I. INTRODUCTION

In reality, people groups are increasingly worried about their security for their significant things like gems, cash, critical archives and so on. So the bank locker spaces are the verified spot to store them. The landing of quickly developing advancements makes clients to have high-security system with electronic recognizable proof choices. These ID advancements contains Bank Lockers and ATM just as other wise cards, client IDs and secret phrase based system, etc. In any case, shockingly, these are not secured because of programmer assaults, burglaries, and overlooked passwords. Regardless of every one of these deficiencies or disappointment and breakdowns or crash these system are as yet existing; in any case, the biometric or unique finger impression verification based distinguishing proof is the most productive and dependable answer for stringent security.

Biometrics measure a person's novel physical or the attributes to perceive or validate their personality The physical qualities are unique mark hand, face, iris and so on and the qualities are mark, voice keystroke designs and so forth. Biometric system works in confirmed mode or validated mode. In the confirmation, the mode system approves an individual's character by contrasting the caught biometric layout which is pre-stored in the system database. In the distinguishing proof mode, the system perceives a person via looking the whole layout database for match. What's more, the system performs one an excessive number of correlations with build up the individual personality or comes up short if the subject isn't selected the system database. So in our undertaking, we are utilizing a unique mark security system.

Global system for mobile communication (GSM) is mainly used for sending and receiving data such as voice and message. In our security system, GSM plays an important role. Through the use of GSM, the user will get the message if an unknown person will try to open the lock. We are implementing this bank locker security system using fingerprint, password, and GSM Technology based security system which provide the most efficient and reliable security system than the traditionalsystem.

II. LITRETURE SURVEY

These are some of the already existing Smart Security designs that have been implemented-

GSM Based Security System PIR sensor detects motion by sensing the difference in infrared and radiant heat levels emitted by surrounding objects. The output response of the PIR sensor goes high when it detects any motion. The range of a typical PIR sensor is about 6 meters or about 30 feet. When the PIR sensor detects any motion, the output of the sensor gets high. This is detected by the Arduino. Then it communicates with the GSM module via serial communication to make a call to the pre-programmed mobile number. An important point to be noted about PIR sensors is that the output gets high when it detects motion.

A. IR Based Security Alarm System

IR based security alarm circuit can detect any movements and trigger the alarm. This circuit is very useful in homes, banks, shops,

restricted areas where an alert alarm is needed on any movements.

This circuit is based on IR sensor where an IR beam is continuously falling on a photodiode, and whenever this Infrared beam breaks, by movement, the alarm is triggered. In this IR based security alarm circuit, we have placed IR LED in front of a photodiode, so that IR light can directly fall on a photodiode. Whenever someone moves cross this beam, IR rays stops falling on photodiode and Buzzer start beeping.

IOT has been administering the hardware with cloud administrations affecting the regularly expanding gadgets item portion. Security and wellbeing had dependably been a fundamental need for the urban populace. The paper proposes a security framework dependent on Open source cloud server "things talk .com" and an ease esp8266 Wi-Fi module. The project has a PIR module which constantly monitoring the Home and Workspace to be monitored. When the PIR module detects an intruder it sends a signal to the At mega 328p microcontroller and the controller is connected to an Esp8266 wifi module and also to an alarm system. The System transmits an alert signal to the Open source cloud which provides an alert signal on the users mobile phone. The system includes a second esp8266 module which is programmed to act as a web server, which allows the user to activate or deactivate the security system by means of any device with internet. The system also employs a thumbprint reader rs305 which controls the opening and the closing of a safety locker door. Thus the system uses esp8266 Wi-Fi module and atmega328p to control the security system from the user's mobile phone by means of any device with a potential internet connection.

III. PROPOSED SYSTEM

The proposed system comprises of a LDR (Light Dependent Resistor) based sensor which goes about as an electronic eye for recognizing the burglary or endeavor, and a flagging method is checked in cell phone by means of remote Bluetooth gadget. Unique finger impression module is utilized for an approved individual to open the bank locker. When a Fingerprint is examined it sends an OTP to the enlisted versatile number. On the off chance that it coordinates the locker may open. If there should arise an occurrence of any unapproved individual attempt to open than the alarm message is sent to versatile by means of Bluetooth to screen the bank storage security system.

A. Finger Print Sensor

Figure 1. Finger Print sensor

The sensor is a solid-state fingerprint sensor which reliably captures fingerprint information. It is designed to integrate into devices for improved security and convenience. The sensor gives a reliable, quick and user-friendly alternative to passwords, PIN and other forms of user authentication.

B. Key Pad

A client need not convey any physical cards (credit, charge and so on.) or cell phones for cash exchange. A client simply needs to keep unique mark enter exchange sum utilizing the keypad. This exchange data is sent to the server over secure IOT (Bluetooth) and further preparing is done there. On the off chance that the exchange is effective, at that point the client gets

SMS affirmation message to his enrolled telephone number. This installed PC comprises of various information and yield ports. The installed PC is commonly named as a microcontroller. The input and output port of the microcontroller is interfaced with various information and yield modules relying upon the requirements. In other words, microcontroller goes about as a correspondence mode for every one of the modules incorporated into the undertaking. The gadget additionally comprises of Bluetooth gadget, Serial Communication, Keypad, 16x2 LCD which shows the data about exchanges, dc control supply, ready unit.

C. Android Smart Phone

Figure 2. android smart phone

Android is most famous with innovation organizations which require an instant, minimal effort and altered working framework for cutting edge gadgets. Android's open nature had energized a substantial network of engineers and aficionados to utilize the open-source codes as an establishment for network driven ventures, which include additional highlights for cutting edge clients or convey Android to gadgets which were legitimate, discharged running different operating systems

Bluetooth

Figure 3. Bluetooth

THE remote innovation standard Bluetooth utilized for sending and accepting information over extremely short length separations (utilizing short-wavelength UHF radio waves in the ISM band up to 2.4 to

2.485 GHz) from fixed and associated gadgets, and building individual region organize (PAN). Discharged by telecom seller Ericsson in 1994, it was initially considered as a remote option in contrast to RS-232 information links. It can associate numerous gadgets, beating issues of synchronization.

D. AVR Microcontroller

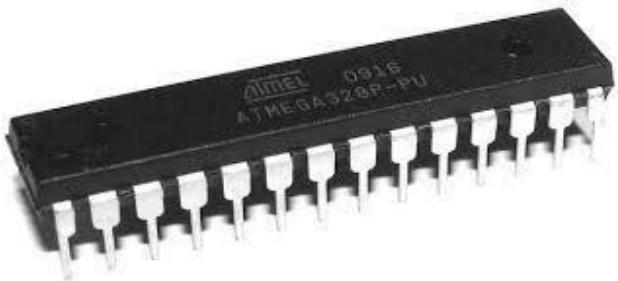


Figure 4. AVR Microcontroller

AVR Microcontroller is heart of the undertaking. Implanted C language is utilized to do the programming. The AVR is a changed Harvard design 8-bit RISC one chip microcontroller which was work by Atmel in 1996. AVR is the first microcontroller which is utilized on-chip streak memory for program storaging, as inverse to one-time programmable ROM, EPROM, or EEPROM utilized by different microcontrollers at the time.

E. Serial Communication Device

In versatile correspondence or software engineering, sequential correspondence is one of the way toward trading information single piece at once, consecutively, over a correspondence channel and PC transport. This is as opposed to parallel correspondence, where a few bits are send all in all, on one connection with a few parallel channels. Sequential correspondence is utilized

A fluid gem show (ordinarily condensed LCD) is a slight, level showcase gadget made up of any number of shading or monochrome pixels displayed before a light source or reflector. This is regularly utilized in battery-controlled electronic gadgets since it utilizes extremely little measures of electric power. In our venture, LCD Display is used for checking reason.

long- hauled communicating and mostly computerized networks, where the price of cable and synchronizing difficulties make parallel communication impractical.

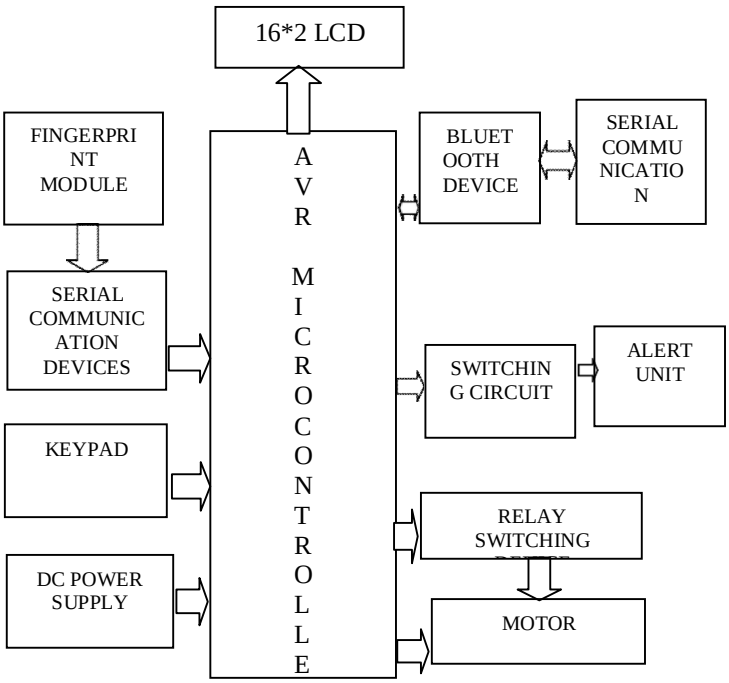
F. Power Supply

The contribution from the circuit is given from the directed power supply. The AC input 230 Volt from the mains supply is venture somewhere near the transformer to 12 Volt and is feed to a rectifier. The yield gotten by the rectifier is a throbbing DC voltage. So as to accomplish an unadulterated DC voltage, the yield voltage from the rectifier is feed to a channel to dispense with any AC segments present even after correction. Presently, this voltage is connected to a voltage controller to get an unadulterated steady DC voltage.

IV. BLOCK DIAGRAM

This venture goes for structuring and creating biometric unique finger impression innovation based cash exchange framework for shopping. As progressively worldwide budgetary movement turns out to be carefully based, banks are using new advancements to create cutting edge recognizable proof controls to battle extortion, make exchanges increasingly secure, and improve the client experience

Flow Chart



3Figure 6. Block Diagram

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A. Working Principle of fingerprint

Finger print processing contains two parts, fingerprint enrollment and fingerprint identification (the identification can be 1:1 or 1: N). While enrolling, user needed to put the finger two times. The system will process the two times finger images, captures a template of the finger based on processing results and stores the template. While matching, person enters the finger through optical sensor and system will generate a template of the finger and compare it with templates of the finger library.

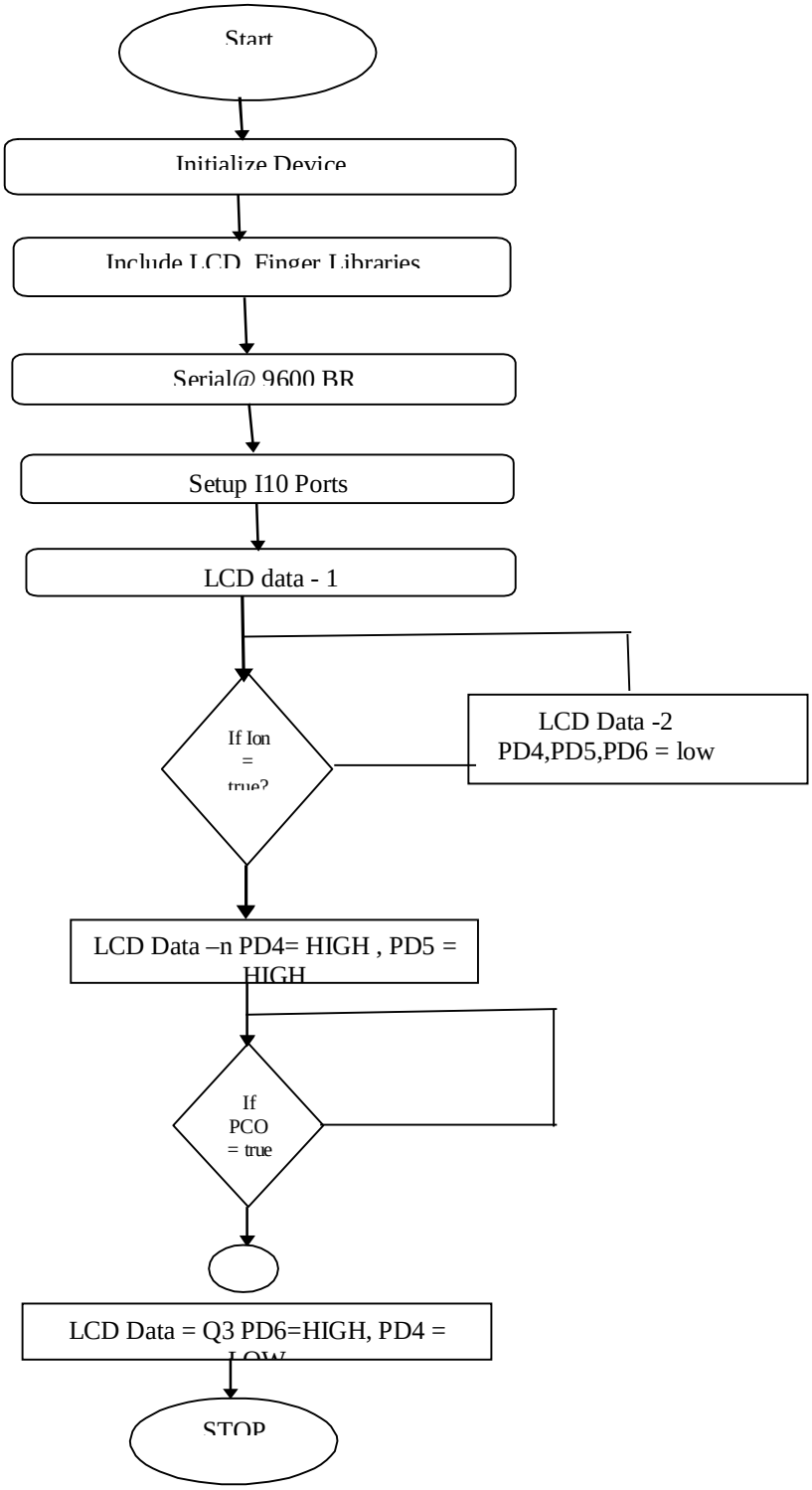

Fig 7: Flow Chart

B. Applications

This task can be utilized in following spots: In all bank for Lockers, In all bank ATMs, In all Educational Institution, utilized in gem retailers, In all shopping centers, In all IT Sectors, In-house, School's treasury, Colleges treasury and in businesses, VIP vehicles, in emergency clinic, workplaces. Vehicle Security Applications

V. FUTURE SCOPE

In addition to this, the future scope of this project is to develop a smart bank Locker security system based on "FACE", "IRIS and Retina" Scanning for visual identification of the person

VI. CONCLUSION

The main aim of this project is to design and implement a bank locker security system based on Fingerprint. This can be utilized in bank, offices, and homes. In this system only the authorized person can recover the documents or money from the lockers. In this security system fingerprint is used. In this system first person needs to enroll user name and password and mobile number. If a user name and password matches then Finger of person will detect and store with ID. If the ID gets matched. So biometric and Bluetooth app security is more advantageous than another system. This system can also create a log containing a check in and check out of each user along with basic information. This E- Smart card can check personal details within 3secs, so we can save time & increase the fast processing of bank locker security with real-time security password that is user-defined can increase security authentication stronger. The AVR Microcontroller is used as the heart of the project with ATMEGA-328 IC embedded C program is written using Arduino software. The AVR Microcontroller is reprogrammable, in the future we can enhance it for more security issues for related to Jewelry, Shops, RBI, Aerospace, Defense, Navy, Hospital etc. AVR Microcontroller is re-programmable, so can be enhance in more number of applications in the future.

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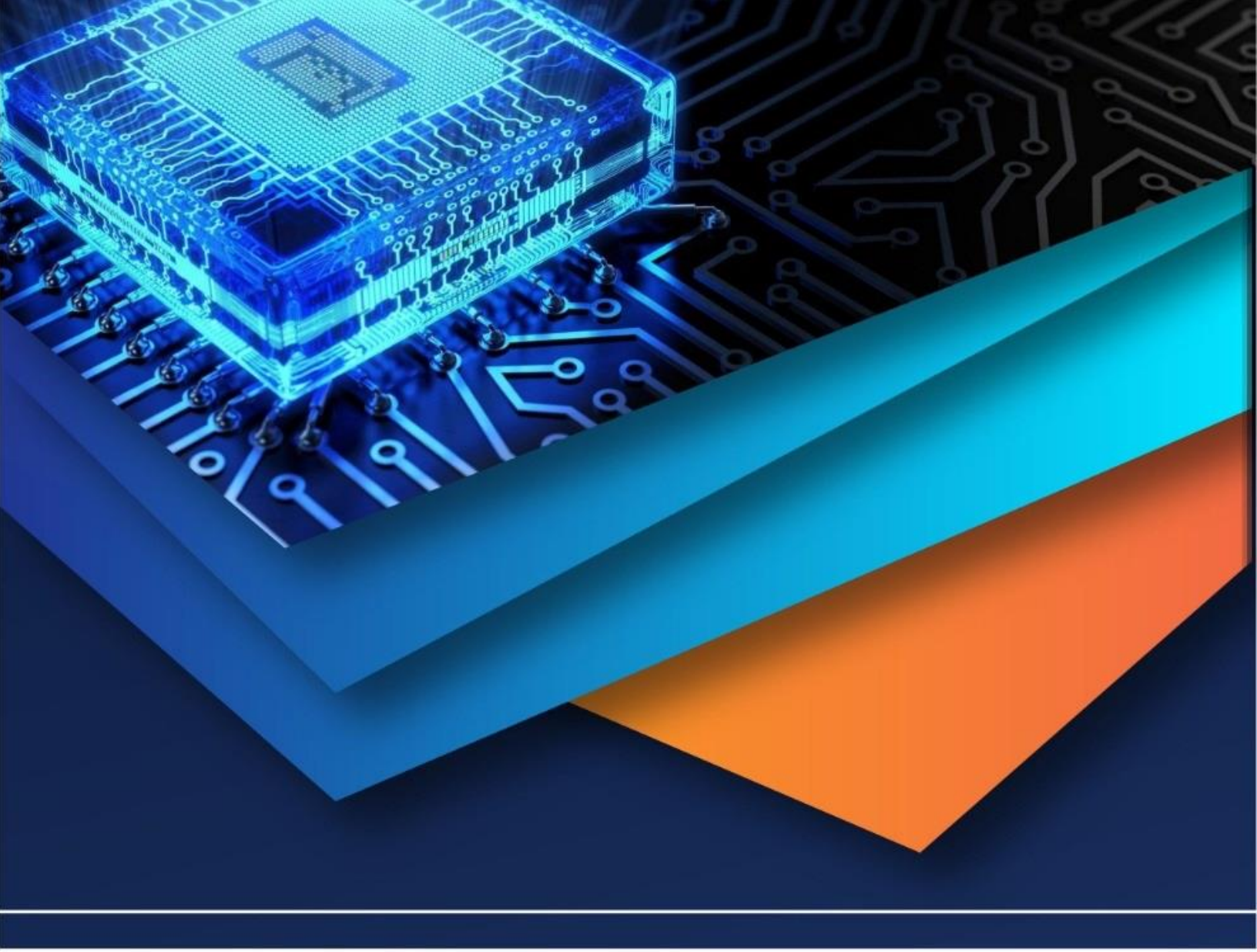

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