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# Bank Locker Security System Using IoT

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***Abstract:*** ***Every person has precious accessories such as gold, jeweleries or in terms of cash. To prevent it from any mishandling. We keep it in a locker system of bank concern with it likewise in old way system of a bank there was a private key system which is associated with the concern user and every time he or she has headache to carry key with him or has keep burden of key lost or key duplication problem.so to overcome above major drawbacks the recent system of biometrics is introduced. It is very advance as compared to any traditional system. This system comes with the feature of face detection which provides more security.***

***Keywords: Bank locker, security, fingerprint, safety, authentication***

## I. INTRODUCTION

Security and authentication of individuals is necessary for our daily lives especially in bank lockers. A bank locker security system using IoT automation is equipment that uses the digital information such as a user data and face recognition as the method for authentication in the system.

In this system bank will collect the biometric data of each person for accessing the lockers. Only authenticated person can recover the money, documents from the lockers as biometric is stored for individual identity of a person. A bank locker system proposed here consists of Arduino, motor module for opening and closing of the door, communication module for giving the notification. As the locker is the safest place, the bank automation function in digital locker system enables user to conveniently control and monitor digital locker environment.

In the review paper authors have developed a biometric (finger or face) and WIFI technology for bank lockers. Because in this system bank will collect the biometric data of each person for accessing the lockers to allow only authenticated person to recover the money, documents from the lockers[1].

As biometric and WIFI security has been used hence more advantages then other system. As fingerprint or face biometric system is used then large data base is required

The main goal of this system is to implement a bank locker security system based on RFID and WIFI technology which can be organized in bank , secured offices and homes. In this system only authentic person can be recovered money from bank locker. The RFID reader reads the id number from passive tag and send to the microcontroller, if the id number is valid then microcontroller send the SMS request to the authenticated person mobile number, for the original password to open the bank locker, if the person send the password to the microcontroller, which will verify the passwords entered by the key board and received from authenticated mobile phone. if these two passwords are matched the locker will be opened otherwise it will be remaining in locked position[2]. This system is more secure than other systems because two passwords required for verification. As network signals are not available, then locker may not be opened

Initially pattern flow is collected as datasets and maintained in bank agent server. The machine has a camera to capture the pattern flow of user and sent for processing features of the logic were compared and user where recognized. In addition to the authentication of user there is another system to identify the user before that RFID tad checking is needed. Image processing is used and keypad password is needed for another level of security. In future bank can implement this type of authentication option for banking and from this project shows that all the bank accounts can be accessed without using cards through this face recognition efficiently and safely[3]. Three level banking security is used. Time consuming method because huge datasets are required.

Access control system forms a vital link in a security chain. The Fingerprint and password based security system presented here is an access control system that allows only authorized persons to access a restricted area. We have implemented a locker security system based on fingerprint, password and WIFI technology containing door locking system which can activate, authenticate and validate the user and unlock the door in real time for locker secure[4].

It will provide strong authentication key. It is time consuming. They say perhaps the most important application of accurate personal identification is securing limited access systems from malicious attacks. Among all the presently employed biometric techniques, fingerprint identification systems have received the most attention due to the long history of fingerprints and their extensive use in forensics.

This paper deals with the issue of selection of an optimal algorithm for fingerprint matching in order to design a system that matches required specifications in performance and accuracy[5]. Fingerprint identification systems have received the most attention due to the long history of fingerprints and their extensive use in forensics Only one biometric fingerprint authentication is used.
The biometrics, fingerprint recognition is one of the most reliable and promising personal identification technologies. Fingerprints are the most widely used biometric feature for person identification and verification. But in this paper authors have proposed that fingerprint verification of BANK (Automatic Teller Machine) security system using the biometric with hybridization. The fingerprint trait is chosen, because of its availability, reliability and high accuracy[6]. Security system using the biometric with hybridization. The fingerprint trait is chosen, because of its availability, reliability and high accuracy. Suggestion only for BANK using only fingerprint with hybridization.

## II. PROPOSED SYSTEM

It is quite difficult to understand the problems as a whole so as to simplify it we have divided the entire problem in the sub problem which addressed are being in the project The problems of existing system can be described as follows:

*A.* It is cumbersome to maintain a huge set of records
*B.* It is time consuming. Error-prone
*C.* It leads to wastage of resources In order to solve the drawbacks of the previous system, the existing system will need to evolve.

The proposed system will reduce the paper work where bank will no longer involve any manual recording. The new system will also reduce the total time needed to do bank locker recording. The new system will acquire individual attendance be means of facial recognition to secure data accuracy of the lockers.

## III. REQUIREMENTS

*A.* ARDUINO is a controller and it helps to control other components.
*B.* DC-Motor will help to close or open the bank lock system, if any unusual event occurs automatically bank door will be closed with the help of the DC-Motor.
*C.* 16x2 Character LCD Display which is used for displaying the message.
*D.* Fire Sensor will detect the fire in the bank locker if any fire occurs.
*E.* DC powered pumps use direct current from motor, battery, or solar power to move fluid in a variety of ways. Motorized pumps typically operate on 6, 12, 24, or 32 volts of DC power. Solar-powered DC pumps use photovoltaic (PV) panels with solar cells that produce direct current when exposed to sunlight.
*F.* A smoke sensor is a device that senses smoke, typically as an indicator of fire. ... The Analog Smoke/LPG/CO Gas Sensor (MQ2) module utilizes an MQ-2 as the sensitive component and has a protection resistor and an adjustable resistor on board.

## IV. METHODOLOGY

*A.* The proposed face recognition system overcomes certain limitations of the existing face recognition system.
*B.* It is based on extracting the dominating features of a set of human faces stored in the database and performing mathematical operations on the values corresponding to them.
*C.* Hence when a new image is fed into the system for recognition the main features are extracted and computed to find the distance between the input image and the stored images.
*D.* Thus, some variations in the new face image to be recognized can be tolerated. When the new image of a person differs from the images of that person stored in the database, the system will be able to recognize the new face and identify who the person is.
*E.* After Successful Face Recognition System Unlocks the Locker
*F.* If Face didn't match a notification will be sent through Twillio Messenger as a text message and E-mail in which photo of unknown persons face
*G.* Proposed system also uses sensors like gas, fire sensors for locker safety
*H.* If smoke or fire is detected sprinkler automatically turns on for fire extinguish

## V. RESULT

Now a day's, people are concern about the safety of their valuable things like money, jewelry and documents etc. Therefore, the bank lockers are the safest place to protect them. Because in day by day life we need to seek new security system because there are some problems in the traditional bank lockers like loss of key, duplicate key could be generated. Therefore, we will develop biometric based security system to improve maximum level security.

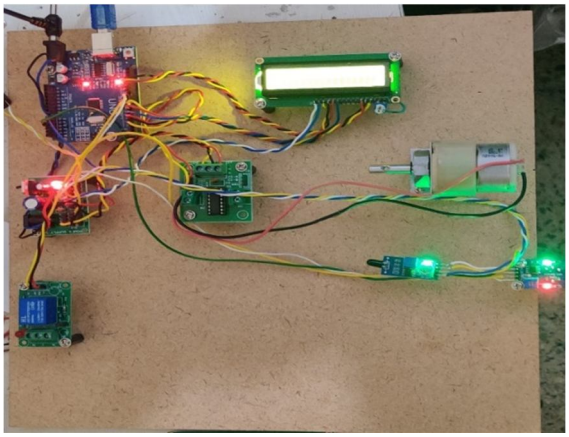

Fig. 1 Model of Bank locker security system using IoT


Fig. 2 Messages displayed on LCD

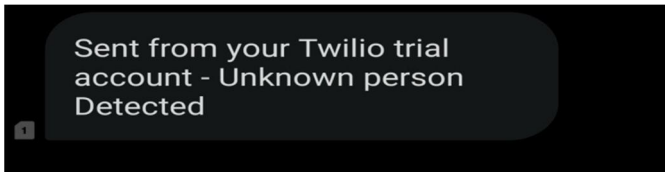


Fig. 3 SMS sent to authorized person if face recognized is not authorized

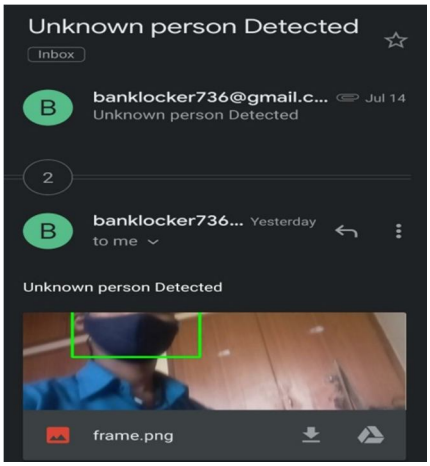


Fig. 4 Mail sent to authorized user if unknown person tries to access the locker

## VI. CONCLUSION

Thus it is a real time embedded system providing security to bank lockers and like systems. As this system provides the high level security over our vaults. Thus this system is an ideal way of securing bank lockers. It provides assurance to bank locker holders that only authenticate users can access lockers thus overcoming all possible frauds.

## VII. ACKNOWLEDGEMENT

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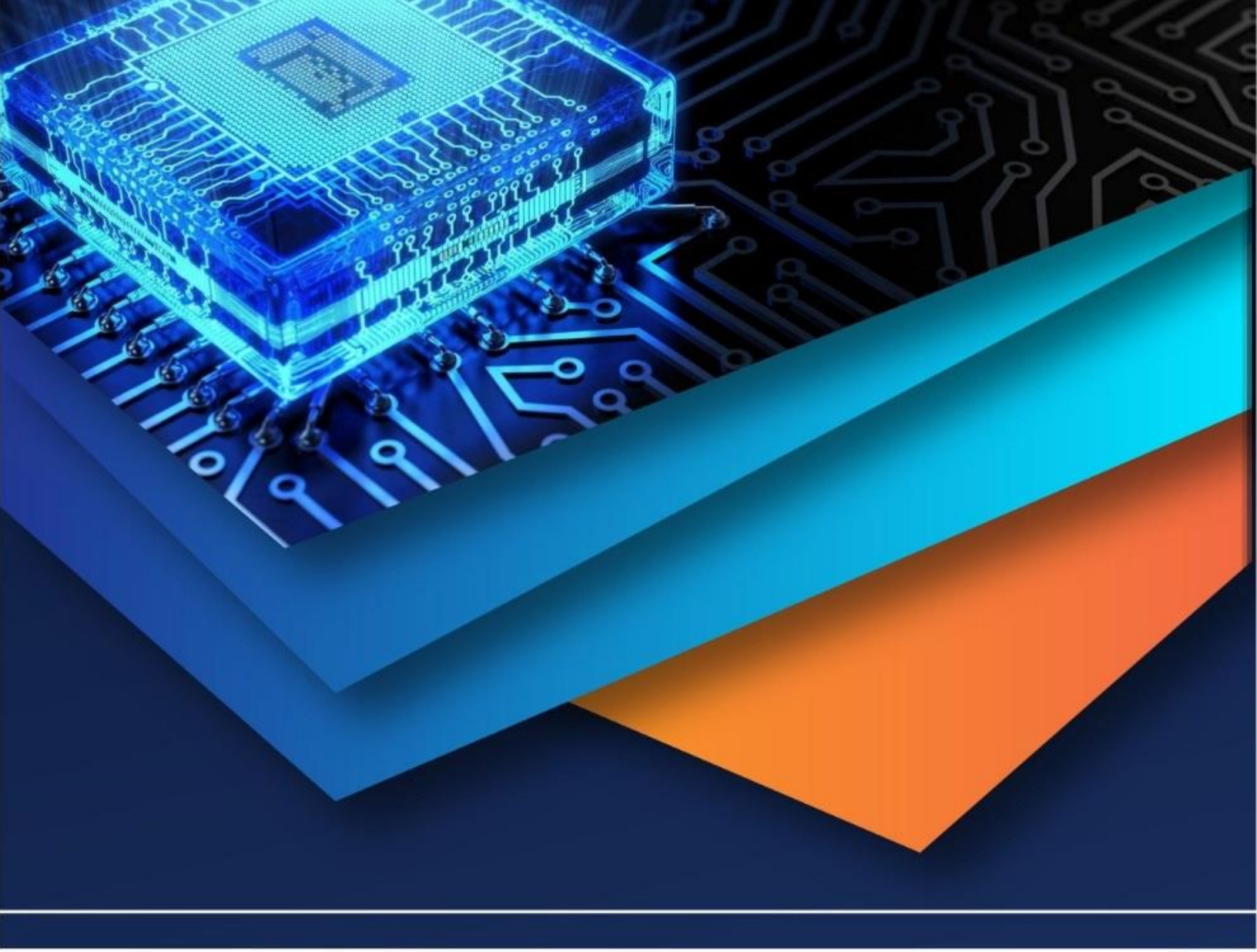

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