ATM Theft Control Security by Iris Recognition Technique

R.S.Ramya[1], G.Nivetha[2], R.S.Saranya[2], S.Shanmathhi[2], U.Pavithra[2]

[1]Assistant Professor, Department of Electronics and Communication Engineering, AVS Engineering College, Salem, Tamil Nadu, India

[2]Department of Electronics and Communication Engineering, AVS Engineering College, Salem, Tamil Nadu, India

ABSTRACT

In recent times we are experiencing increase in number of fraudulence in the Automated Teller Machine (ATM) systems. This project is to overcome the theft difficulties and provide reliable security. In this system the specified person can only enter the ATM; by using the embedded system we can give access to authorized person using iris recognition modules and keypad. This system is going to be developed using microcontroller, whenever the person accesses the ATM, it asks for the iris recognition and PIN number before the transaction. The authorized person gets message in mobile through GSM technology during the transaction. Iris recognition module is interfaced with microcontroller and the PIN is entered through keypad. If the user puts wrong PIN number more than three times the door of the ATM will be locked automatically and the nearest police station will get alert message via GSM modem.

Keywords: Raspberry pi, Iris sensor, GSM, Buzzer alarm, Key pad, LCD display.

I. INTRODUCTION

For the normal ATM system customer recognition systems depend only on bank cards and passwords. For solving the bugs of traditional ones, the designs a replacement ATM terminal recognition system is meant. By using biometric system we will make sure the secure, safe, and improved system for banking. The iris recognition systems have shown very high accuracies in recent times in verifying an individual's identity. For Iris detection of person we will split this method into following parts which are: Image acquisition, segmentation, encoding and matching. The results of this technique are very efficient for ATM transactions. This project helps for max security for the ATM users. This project will detect the iris of the user and allows the person to form transactions. the amount of ATM card users has increased radically as different banks everywhere the planet have installed an outsized number of cash machine Machines (ATMs).As progress in science has also accelerated the quantity of unlawful pursuit and cyber-crimes like ATM card skimming. In spite of continuous warning by the bank authorities, customers tend to disclose their tip to the fraudsters and hence become their victims. The fraudsters victimize the purchasers by intercepting their PIN through fraud text messages

and emails. Thus, the necessity of advancements in technology and ATM systems is needed to implement so on prevent such skimming activities.

II. PROPOSED SYSTEM

If the IRIS matching security check features a clearance, the system further goes on with the extent security check i.e. the PIN verification. IRIS is that the only a part of our body which doesn't change from birth till our death. So IRIS being the foremost secured biometric system that we've utilized in our proposed system. The banks got to design a database consisting of the knowledge of the IRIS of the purchasers which is to be verified at the ATM counters by the assistance of IRIS scanner. If the scanned data doesn't match with the bank's database, immediately a message gets delivered to the registered mobile number of the user. The system has got to localize the inner boundaries of the iris (pupil and limbs) and also detect subordinates and exclude eyelashes, eyelids and spectacular reflections. As a result, a group of the complex quantity will generate that carry local amplitude and phase information about the iris pattern.

Comparing the database data and live data of the account holder the transaction is processed.

A. BLOCK DIAGRAM
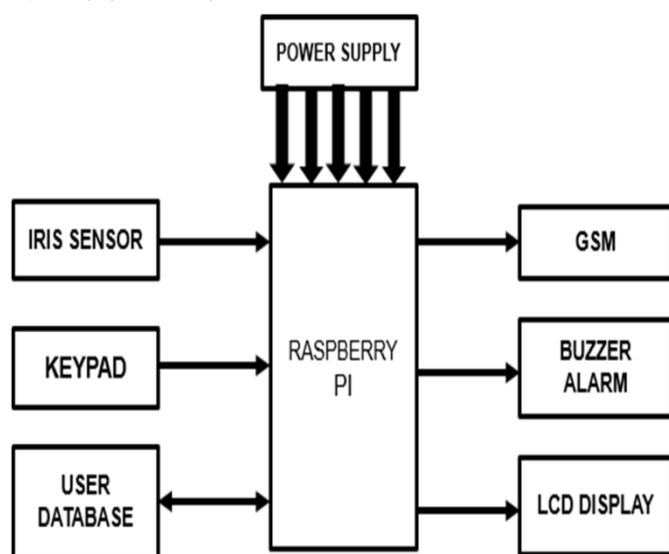
B. RASPBERRY PI

Raspberry Pi 3 model is a mini computer, which has a dedicated 1 GB memory space and a volatile memory RAM. External micro-SD card is supportive in this model. It is a much better version than of any other microcontroller or Arduino. Broadcom BCM2837 SOC chip are used in the 64bit system. A dedicated graphics card is already there in the Pi model. There are two types of cache memories available in the model. First is Level (L1) cache, which has a size of 16 KB and the second one is Level 2 cache, which has a size of 128 KB.

C. WEBCAM

Webcam is used to get picture of iris. Iris recognition is an automatic method of biometric authentication that uses mathematical pattern- recognition techniques on images of 1 or both of the irises of a person's eyes, whose complex patterns are unique, stable. Camera used in project is a high quality resolution 25 Megapixels, angle of view: 58, focus range is 5cm and above image sensor used is CMOS.

D. KEYPAD

The 4*4 organization keypad generally is used as commitment to an undertaking. It has 16 keys through, which suggests comparative data regards.

The SunFouner 4*4 Network Keypad Module is a structure non-encoded keypad involving 16 keys in equivalent. The keys of each line and fragment are related through the pins outside – pin Y1-Y4 as named near control the lines, when X1-X4, the portions. First test whether any key is pushed down. Interface ability to lines, so they are significant level. By then set all the lines Y1-Y4 as Low and a short time later perceive the circumstance with the portions. Any portion of Low shows there is key crushing and that the key is among the 4 keys of the fragment. If all sections are High, it infers no key is

pushed down. At that point, locate the key. Since the portion where in the pressed key misrepresentation is recognized, understanding the line would settle the testing. Thus, set the lines as Low in turns until any is uncovered as necessities be various sections will regardless be High.

E. GSM

The GSM framework is the most generally utilized cell innovation being used on the planet today. It has been an especially effective cell innovation for an assortment of reasons including the capacity to wander worldwide with the conviction of having the option to have the work on GSM networks in the very same manner - gave charging arrangements are in place. The letters GSM initially represented the words Groupe Speciale Mobile, however as it turned out to be clear this cell innovation was being utilized worldwide the significance of GSM was changed to Global System for Mobile Communications. Since this cell innovation was first conveyed in 1991, the utilization of GSM has developed consistently, and it is presently the most broadly PDA framework on the planet. GSM arrived at the 1 billion endorser point in February 2004, and is presently above and beyond the 3 billion supporter imprint and still consistently expanding.

F. GSM BASICS

The GSM cell innovation had assortment of configuration points when the occasion began:
- It should offer great emotional discourse quality.
- It ought to have a low telephone or terminal expense.
- Terminals ought to have the option to be handheld.
- The framework should uphold global wandering.
- It should offer great otherworldly proficiency.
- The framework should offer ISDN similarity.

GSM cell innovation utilizes 200 kHz RF channels. These are time division multiplexed to empower up to eight clients to get to every transporter. In this manner it's a TDMA/FDMA framework.

G. BUZZER ALARM

Buzzer alarm is a sounding contraption that can change over sound signs into sound signs. It is all around obliged by DC voltage. It is generally utilized in alarms, PCs, printers and other electronic things as sound contraptions. It is on a very basic level detached into piezoelectric ringer and electromagnetic sign, tended to by the letter "H" or "HA" in the circuit. As indicated by various plans and uses, the ringer can pass on particular seem like music, prepared, sign, alarm, and electric cost.
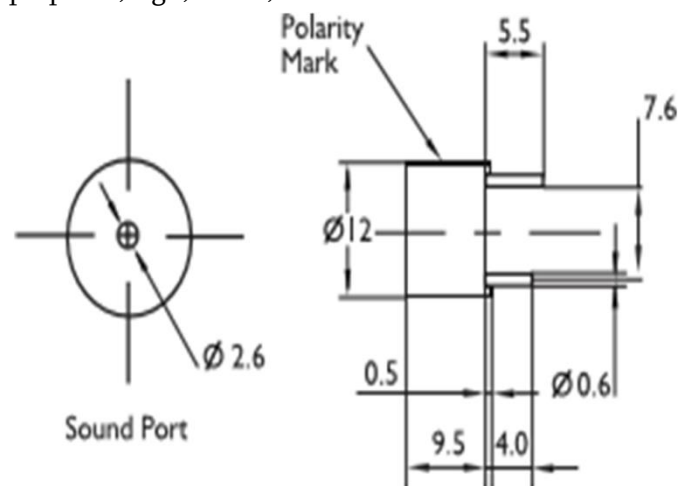

Dimensions : Millimetres
Tolerance : ±0.5mm

H. LCD DISPLAY

LCD stands for liquid crystal display this is an output device with a limited viewing angle. The choice of LCD as an output device because of its cost of use and is way better with alphabets when compared with a 7-segment LED display. It has 16 characters per a line and in which there are 2 such lines. This display is capable of displaying 224 different character and symbols. It has 8 data lines, 3 control lines and supply voltage (Vcc).

I. POWER SUPPLY
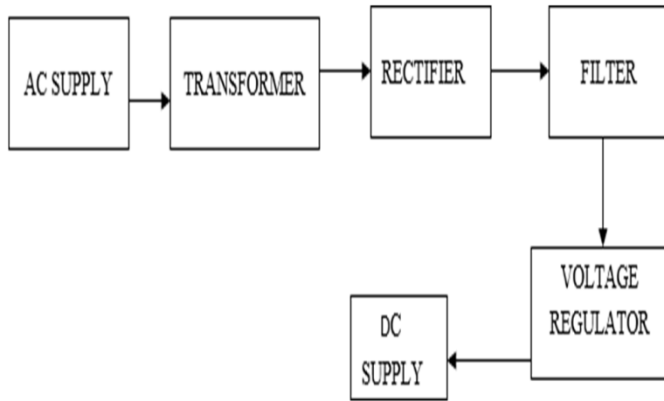
All digital circuits work only with low DC voltage. A power supply unit is required to provide the appropriate voltage supply. This unit consists of transformer, rectifier, filter and a regulator. AC voltage typically of 230Vrms is connected to a transformer which steps that AC voltage down to the desired AC voltage level. A diode rectifier then provides a full wave rectified voltage that is initially filtered by a simple capacitor filter to produce a DC voltage. This resulting DC voltage usually has some ripple or AC voltage variations. Regulator circuit can use this DC input to provide DC voltage that not only has much less ripple voltage but also remains in the same DC value, even when the DC voltage varies, or the load connected to the output DC voltage changes. The required DC supply is obtained from the available AC supply after rectification, filtration and regulation

III.CONCLUSION

Iris recognition is a useful, versatile and highly accurate technique. This technique has many successful applications. It increases both privacy and identity and also is highly secure. Iris recognition is a very quick process involving very less steps when compared to other biometrics. IRIS is the only part of our body which doesn't change from birth till our death. So IRIS being the most secured biometric system that we have used in our system is used to reduce the skimming activity in ATMs. System is easy to construct on the raspberry pi board because, the raspberry pi board is highly compatible for image processing based application. This technique is used in fields involving high security concerns.

IV. REFERENCES

[1]. S. Mishra, A. Jain, S. Kumar and A. Goyal, "Enhanced ATM security system using GSM, GPS and Biometrics", IJETR, vol. 7, issue. 8, pp. 34-35, August 2017.

[2]. A.M. Jaiswal, M. Bartere, "Enhancing ATM security using Fingerprint and GSM technology", IJCSMC, vol. 3, issue. 4, pp. 28- 32, April 2014.

[3]. A. Hatekar, H. Babani, T. Kakde, N. Wadhwa, "Fingerprint based security system using GSM module", Int. Journal of Engineering Research and Application, vol. 7, issue. 5 (part 2), pp. 31-34.

[4]. Sivakumar T, G. Askok, K.Sai Venuprathap, "Design and implementation of security based ATM theft monitoring system", International Journal of Engineering Invensions, vol. 3, issue. 1, pp. 01-07, August 2013.

[5]. S. Lim, K. Lee, O. Byeon and T. Kim, "Efficient iris recognition system by optimization of feature vectors and classifier", Etri Journal.

[6]. V.Soffel, "Asynchronous interfaces overview: UART and LIN bus", MicroController Pros Corporation, May 12, 2003.