International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | Impact Factor: 7.488 |

||Volume 8, Issue 5, May 2020||

Intelligent Automatic Teller Machine for Blind People

Shrutika Giradkar[1], Apurva Arole[2], Nikita Marade[3], Prof.Lina Desai[4]

BE Student, Department of E&TC, DYPCOE, Akurdi, Maharashtra, India[1,2,3]

Associate Professor, Department of E&TC, DYPCOE, Akurdi, Maharashtra, India[4]

ABSTRACT: The current method available for access control in ATM is based on smartcard. It is difficult to prevent another person from attaining and using a legitimate person's card, also conventional smartcard can be lost, duplicated, stolen or impersonated with accuracy. The aim of our project is to implement an ATM for visually challenged people. Emphasis the idea of self-dependence to blind as well as poorly educated people. Much safer scheme, as there is no fear of losing the secret PIN by any means confusions regarding memorizing and maintaining PINs can be avoided.

KEYWORDS: Raspberry Pi 3B, DC Motor

I. INTRODUCTION

"ATM" stands for Automated Teller Machine. ATM machine was invented by John Shep-phardbaren on June 1967 at Barclays bank in Enfield, United Kingdom. ATM, also called the cash machine is an electronic telecommunication device that enables the customers of financial institutions to perform financial transactions, without the need for a human cashier. An automatic teller machine requires a user to pass an identity test before any transactions. The current method available for access control in ATM is based on smartcard. Now a days it is very difficult to prevent another person from attaining and using a legitimate person's card, also conventional smartcard can be lost, duplicated, stolen or impersonated with accuracy. We are aiming of our project is to implement an ATM for visually challenged people. Here we implement automatic ATM processing using voice command and finger print. In this, only a single person is strictly permitted at a time. Door will be locked when the sensors detect human presence inside the cabin. There will be two modes - Normal mode and Blind mode. Customer can select their respective modes through voice command. After inserting the smart card, which already has the fingerprint template number of the visually challenged person encrypted on it, user can use the fingerprint scanner which compares the one in the smart card with the fresh one for authentication. In Blind mode, there is a provision using which the blind people can even choose whether to check balance or to withdraw cash by voice command. Normal mode processing is same as that of existing ATM

OBJECTIVES

- More economical as finger print scanner is much easier to set up.
- Fingerprint biometric scheme is much user friendly as it is unique and cannot be copied
- Finger-print authentication is accurate
- Full fill the idea of self-dependence to blind as well as poorly educated people.
- It may results with most safer scheme, as there is no fear of losing the secret PIN by any means
- Confusions regarding memorizing and maintaining PINs can be avoided

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | Impact Factor: 7.488 |

||Volume 8, Issue 5, May 2020||

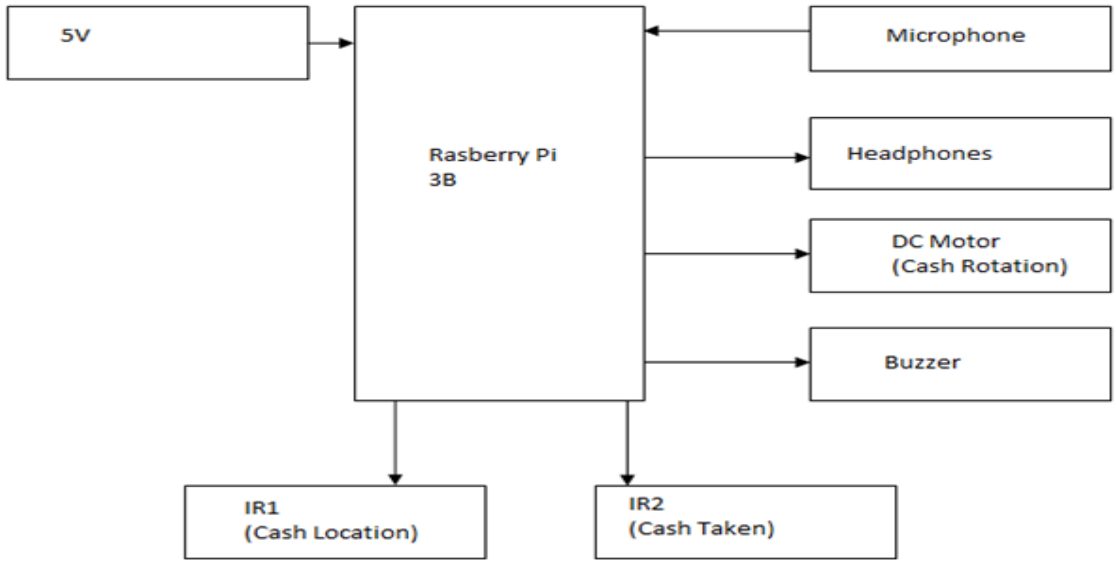

Fig -1: Block diagram

Overview of Architecture

1. Raspberry Pi 3B

- It is an operating system for small hardware system which is completely based on Debian optimized for the Raspberry Pi hardware. An operating system is the set of basic programs and utilities that make your Raspberry Pi run. However, Raspbian provides more than a pure OS: it comes with over 35,000 packages, pre-compiled software bundled in a nice format for easy installation on your Raspberry Pi.
- The initial build of over 35,000 Raspbian packages, optimized for best performance on the Raspberry Pi, was completed in June of 2012.
- It run on the top of Linux-kernel OS.
- It provides some available deb software packages, pre-compiled software bundles.
- A minimum size of 2 GB SD card is required, but a 4 GB SD card or above is recommended. There is a Pi Store for exchanging programs.

2. DC Motor

- Motor driver: - Digital systems and microcontroller pins lack sufficient current to drive the circuits like relays, buzzer circuits, motors etc. While these circuits require around 10milli amps to be operated, the microcontroller's pin can provide a maximum of 1-2milli amps current. For this reason, a driver such as a power transistor is placed in between the microcontroller and the motor.

3. I**Buzzer:-** A buzzer or beeper is an audio signaling device; it may be mechanical, electromechanical, or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers and confirmation of user input such as a mouse click or keystroke.

4. Headset /Speakers: - A system's speaker is the component that takes the electronic signal stored on things like CDs, tapes and DVDs and turns it back into actual sound that we can hear.

5. Microphone: - A microphone is a device that translates sound vibrations in the air into electronic signals or scribes them to a recording medium. Microphones enable many types of audio recording devices for purposes including communications of many kinds, as well as music and speech recording.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | Impact Factor: 7.488 |

||Volume 8, Issue 5, May 2020||

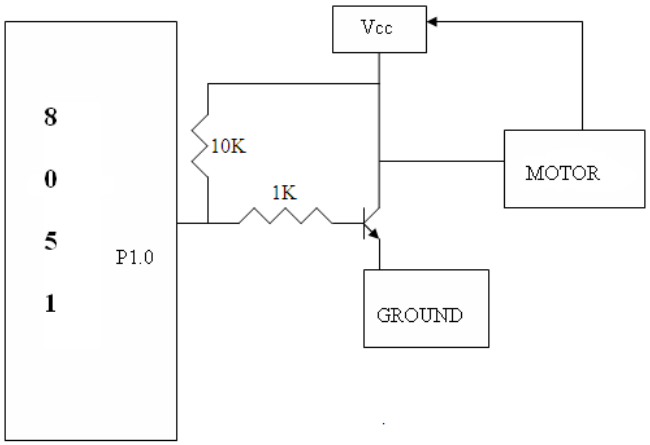

Fig-3: DC Motor

6. **Adapter:** - A USB adapter is a type of protocol converter which is used for converting USB data signals to and from other communications standards. Commonly, USB adapters are used to convert USB data to standard serial port data and vice versa. Most commonly the USB data signals are converted to either RS232, RS485, RS422, or TTL-level UART serial data. The older serial RS423 protocol is rarely used anymore, so USB to RS423 adapters are less common.

II. RELATED WORK

THE OPERATION OF THIS CIRCUIT IS AS FOLLOWS:

The work begin with the input to the base of the transistor is applied from the microcontroller port pin P1.0 where we see the transistor will be switched on when the base to emitter voltage is greater than 0.7V (cut-in voltage). Thus when the voltage applied to the pin P1.0 is high i.e., P1.0=1 (>0.7V), the transistor will be switched on and thus the motor will be switched ON.When the voltage at the pin P1.0 is low i.e., P1.0=0 (<0.7V) the transistor will be in off state and the motor will be switched OFF. Thus the transistor acts like a current driver to operate the motor accordingly.

DESIGN STEPS

1. Design of required circuit for implementation of project.

2. **Decide the regulator to be used and its input voltage.**

- Here to get 5V regulated output we use LM7805.Output voltage of LM7805 regulator is 5V.
- Dropout Voltage of LM7805 is 2V,So minimum input voltage required at input of regulator to get 5V output is= Output of LM7805 + Dropout voltage=5+2=7V
- So minimum input voltage is 7V and maximum input voltage is 35V for which LM7805 gives 5V regulated o/p.

3.Decide the transformer to be used

RMS secondary output voltage of transformer is

Vs=(Vm+n*1)/1.42

n=1 for FWR or HWR

n=2 for BWR.

But Vm =Vdc* pi /2=14.13=15(aprox.)

So,Vs=(15+2)/1.42

Vs=12V

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | Impact Factor: 7.488 |

||Volume 8, Issue 5, May 2020||

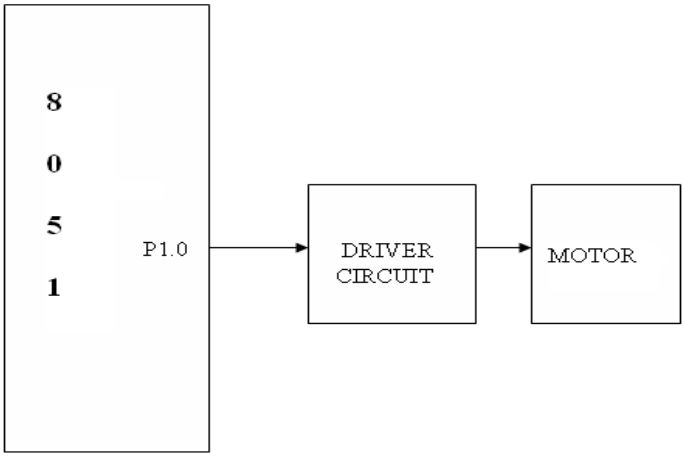

Fig-4: Work Flow of DC Motor

4. Decide the value of the filter capacitor

- As output of bridge rectifier is pulsating DC .We need a capacitor to smooth.Select standard capacitor=1000 uF/25V. 25V is selected as voltage across C should be greater than Vin.
- We connected 100 uF at output of regulator as a decoupling capacitor. It is optional. When devices connected to the 5V supply heavy current from power supply, output of regulator may fall down and become unstable. In such cases 100uF provides
- Power to the device by discharging itself to maintain 5V output constant. Value of decouplingcapacitor may be >10 uF.

5. Rectifier design

Diode Selection

I(f) average =Io/2=300mA/2=150mA

Now Im = 300mA

PIV rating=Vm=pi*Vc(DC)/2

=3.14*9/2=15V

Hence, the diode with PIV rating greater then 15V is suitable.

IN4007 is more than sufficient as it has

PIV=1000V.

III. EXISTING SYSTEM AND PROPOSED MYTHOLOGY

EXISTING IDEA

In the previous systems there was no unit made available stationary like ATM for blind person. No previous research or we can say prior study of ATMs for blind person is introduced. But in 2015's in Europe some university student get matter like that for study using for different purpose basically that is only concept and some intent over the current work repository.

Disadvantages of Existing Methods

- No proper model to get proper interaction to the client.
- Cost is high and accuracy of getting proper service is unavailable.
- Hard to use and understand.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | Impact Factor: 7.488 |

||Volume 8, Issue 5, May 2020||

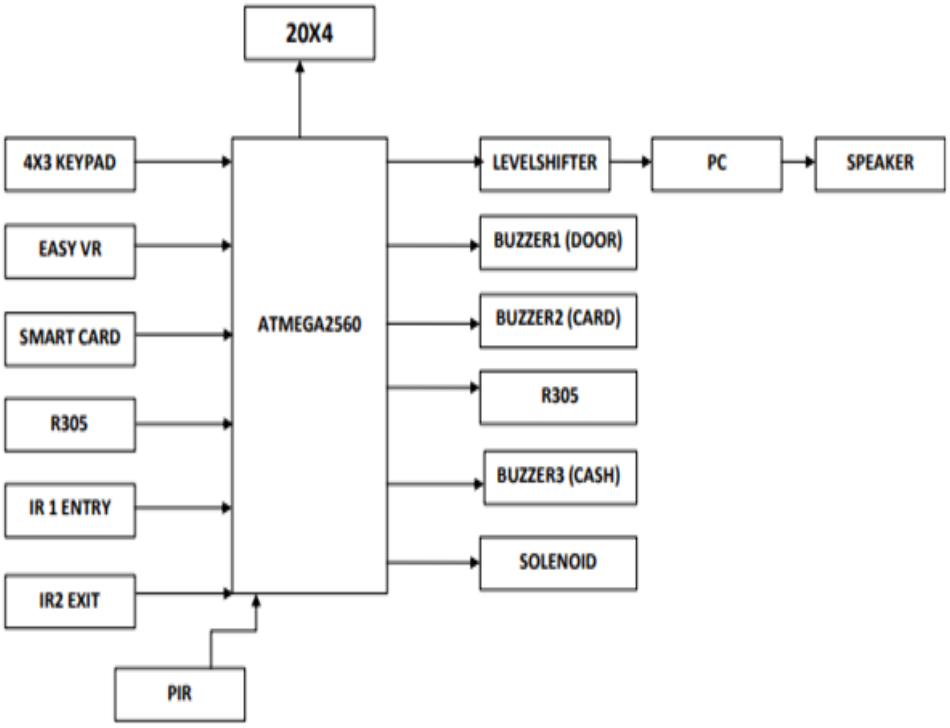

Fig -5:Existing Architecture

PROPOSED FEATURES OR ADVANTAGES

- As compare to older model we proposed system which is completely based on IR sensor.
- We use proper speaker with more detailed indication about the step wise information.
- Easily maintainable and easy to adopt.
- Implementation cost is not too high as compare to others proposed methods.

Features

- Extra high radiant power and radiant intensity
- High reliability
- Low forward voltage
- Suitable for high pulse current operation
- Standard T-1¾ (Ø 5 mm) package
- Peak wavelength λp = 940 nm

IV. HARDWARE SIMULATION

A real-world process or system is imitated through simulation. The act of simulating something first requires that a model be developed; this model represents the key characteristics, behaviours and functions of the selected physical or abstract system or process.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | Impact Factor: 7.488 |

||Volume 8, Issue 5, May 2020||

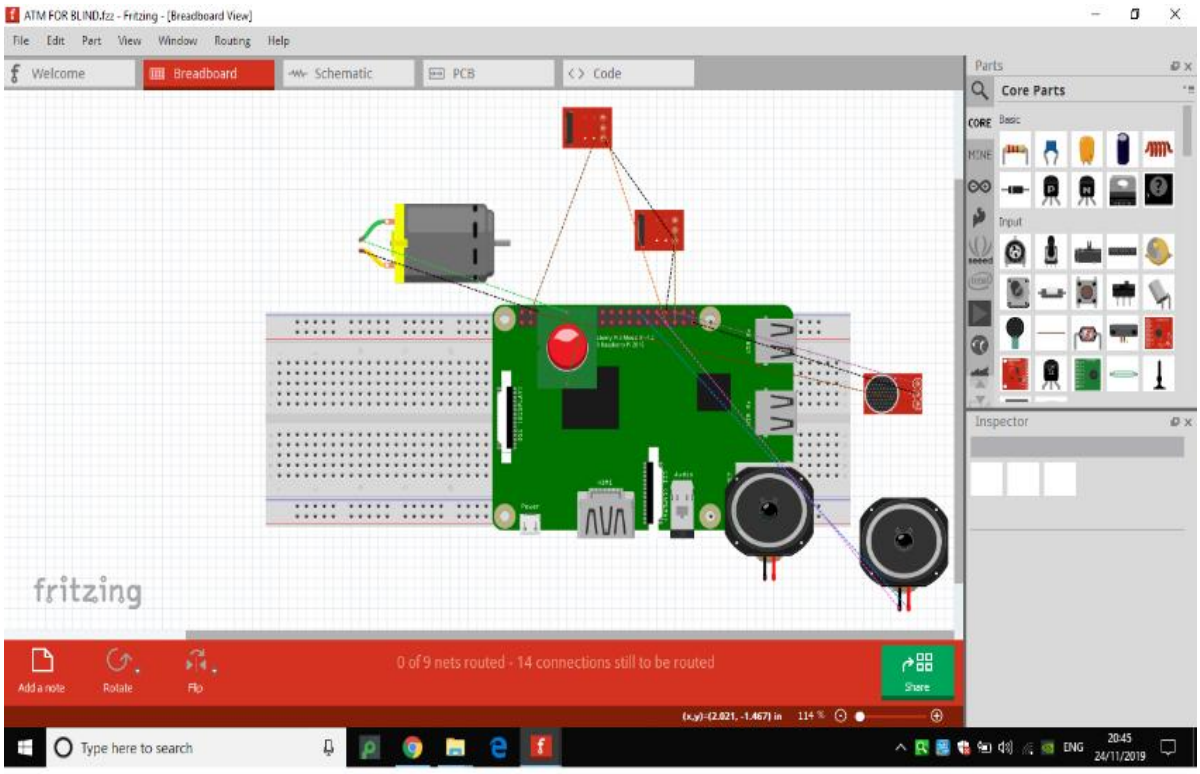

Fig -6:At Initial Stage with No Power Supply

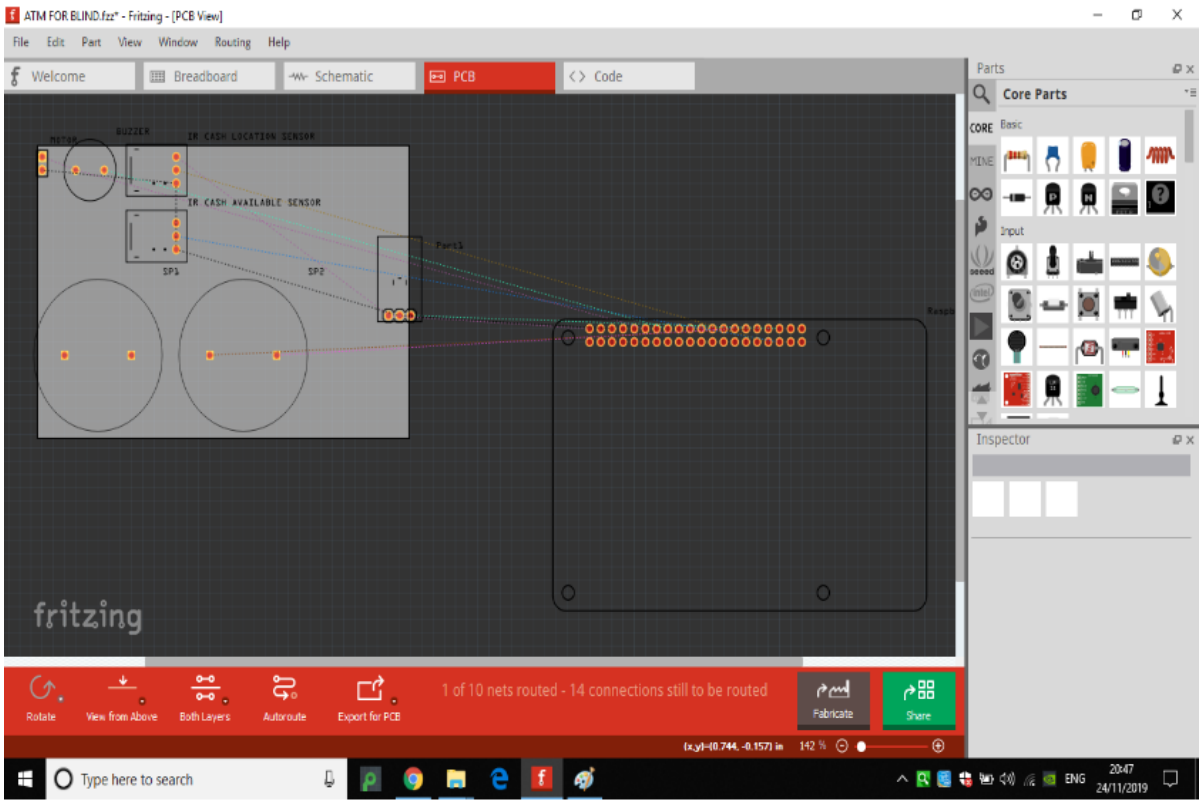

Fig -7: When Push Button1 Is Pressed Detection of Bus1

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | Impact Factor: 7.488 |

||Volume 8, Issue 5, May 2020||

V. FLOWCHART AND CODE SNAP

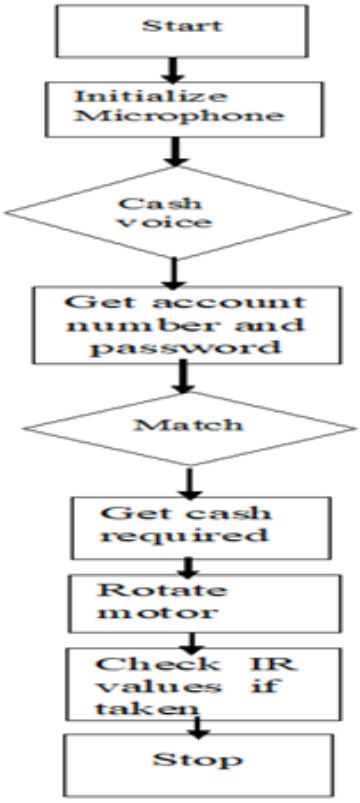

Fig -8: Flowchart of our project

```
Execute | Share   main.asm   STDIN
#ifndef MAINWINDOW_H // checks whether the given token has been #defined earlier in the file or in an included file; if not, it in
    the closing #else or, if no #else is present, #endif statement.

#define MAINWINDOW_H // #define is a C preprocessor directive used to define macros. ...
//The preprocessor directives are used to provide general instruction or required data which is used inside a program.
//A macro is a block of code which has been given a name.

#include <QMainWindow> // including this files
#include <QTimer>   // including this files

namespace Ui { //namespace container contains all classes and functionalities , name of the namespace is UI)
class MainWindow; // this is class name , it is parent class
}

class MainWindow : public QMainWindow // this is inheritance where child class is inheriting parent class
{
    Q_OBJECT // here object is created for child class

public:
    explicit MainWindow(QWidget *parent = 0);// explicit declaration of MainWindow method where reference parameter is passed
    ~MainWindow();

    QTimer *t1,*t2; // variable declared and assigned value as pointers t1 and t2
    QString ch;   // string variable ch declared

private slots:
    void on_press_clicked(); non returning methods declared
    void update();
    void update1();

private:
    Ui::MainWindow *ui;
};

#endif // MAINWINDOW_H// end of program
```

Fig -9: Code of our project

VI. CONCLUSION AND FUTURE WORK

FUTURE SCOPE

Blindly and partially sighted people can check their accounts on their own.As the transaction is through voice commands, it is very helpful to the uneducated people as well as the aged ones.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | Impact Factor: 7.488 |

||Volume 8, Issue 5, May 2020||

CONCLUSIONS

The project ensures that the blind is able to withdraw cash safely from ATMs and there is no forgery or no trapping is possible. The blind's money is safeguarded in his /her hands and system is efficient to deliver the appropriate results

RESULTS

In existing system we were using finger print authentication and tracking but this system provides an easy and efficient alternative where voice recognition is used.

REFERENCES

1. Pote, S. A., & Mehta, M. A. (2017). "An improved technique to detect text from scene videos." 2017 International Conference on Communication and Signal Processing (ICCSP). doi:10.1109/iccsp.2017.8286566
2. Taralekar, A., Chouhan, G., Tangade, R., &Shardoor, N. (2017). "One touch multi-banking transaction ATM system using biometric and GSM authentication." 2017 International Conference on Big Data, IoT and Data Science (BID). doi:10.1109/bid.2017.8336574
3. Jog, V. V., Jain, D., Arora, R., &Bhat, B. (2013)." Theft prevention ATM model using dormant monitoring for transactions." 2013 IEEE CONFERENCE ON
4. Mandalapu, A., DaffneyDeepa V, Raj, L. D., & Anish Dev J. (2015). "An NFC featured three level authentication system for tenable transaction and abridgment of ATM card blocking intricacies." 2015 International Conference and Workshop on Computing and Communication (IEMCON). doi:10.1109/iemcon.2015.7344491
5. AshokaRajan, R., Angelinjosphia, R., Gayathri, P., Rajendran, T., &Anandhakumar, P. (2013)." A novel approach for secure ATM transactions using fingerprint watermarking." 2013 Fifth International Conference on Advanced Computing (ICoAC). doi:10.1109/icoac.2013.6922010
6. Murugesh, R. (2012)." Advanced biometric ATM machine with AES 256 and steganography implementation." 2012 Fourth International Conference on Advanced Computing (ICoAC). doi:10.1109/icoac.2012.6416799
7. Mondal, P. C., Deb, R., & Adnan, M. N. (2017). "On reinforcing automatic teller machine (ATM) transaction authentication security process by imposing behavioral biometrics." 2017 4th International Conference on Advances in Electrical Engineering (ICAEE). doi:10.1109/icaee.2017.8255383
8. Imran, M. A., Mridha, M. F., &Nur, M. K. (2019). "OTP Based CardlessTransction using ATM." 2019 International Conference on Robotics,Electrical and Signal Processing Techniques (ICREST). doi:10.1109/icrest.2019.8644248
9. Kandel, A., Manor, O., Klein, Y., &Fluss, S. (1999). "ATM traffic management and congestion control using fuzzy logic." IEEE Transactions on Systems, Man and Cybernetics, Part C (Applications and Reviews), 29(3), 474–480. doi:10.1109/5326.777081
10. Roy, P., PagariyaDarshan P, & Mary, G. I. (2015). "Embedded System for Cash Deposit in ATM. 2015 International Conference on Innovations in Information, Embedded and Communication Systems" (ICIIECS). doi:10.1109/iciiecs.2015.7192886