ANALYSIS OF RASPBERRY PI BASED ATM THEFT MONITORING AND SECURITY SYSTEM

[1]G.Jhansi rani, [2]D.Raghava kumari, [3]M.Anitha, [4]B.Sarita

ABSTRACT

This project is designed to prevent theft of ATM from robberies to overcome our society's inconvenience in existing technology. Safety experts are ready to assist people in the process of enhancing ATM safety and ATM loss reduction systems with ATM video surveillance camera and ATM monitoring options. In order to avoid such a situation, the project will produce real time sensor information, images of theft and door and shutter load mechanism, and collect money, as the tart running police will not catch robbery. The system is implemented on the Raspberry Pi credit card size board used for image processing. Security mechanism is provided by the consecutive actions such as when the ATM user swipe the card , person's captured image and SMS of alert is sent to the ATM card holder using the raspberry pi processor and GSM module and depending upon the card holders decision, either the access will be given to the user or the access will be denied and depending upon the entered amount by the user through keypad and the money dispense unit will work thereby providing advance security during the withdrawal of the money from the ATM.

Keywords: ATM, RASPBERRY PI, GSM module

I.   INTRODUCTION

Automated plate (ATM) is also referred to as Cash Machine (Cash Machine), an electronic telecommunication device that enables customers in general to withdraw cash from financing transactions. There are 3 million cash machines installed worldwide, as the ATM Industry Association (ATMIA) progresses. In ATMs, the customer is marked by inserting a magnetic strip plastic ATM card or smart card with a specific card number and safety details such as the CVVC. The customer who enters the Personal Identification Number (PIN) shall provide an authentication. ATM Robberies occur in the business in the meantime, too. Due to a lack of security on the ATM machines, the cause of ATM robberies occurs.

[1] Sumathi Reddy Institute Of Technology For Women ,Warangal, Telangana, India
[2] Sumathi Reddy Institute Of Technology For Women ,Warangal, Telangana, India
[3] Sumathi Reddy Institute Of Technology For Women ,Warangal, Telangana, India
[4] Sumathi Reddy Institute Of Technology For Women ,Warangal, Telangana, India

Cases of stealing and robbers are over 90% among the crimes of financial organization, with the crime of the ATM increased as external ATM was increased and always exposed to crime .. Crimes of the financial organization include This study would therefore propose the method of quick reaction and loss reduction by detecting the ATM machine in real time when it is stolen. Whenever robbery happens, the indicator of vibration from ATM machines is used in such situations. Raspberry pi2 is a device that uses the vibration sensor to process data obtained in real time. The beep sound is made from the buzzer when the vibration is heard. For closing the ATM door and shutter, DC Motor is used. Camera is continuously stored and transmitted to the PC and is saved on your computer.

ATM should be properly protected from fraud or inappropriate activities. Automated plate machines ATMs, mainly withdrawals, are used for different purposes. ATM applications use several ATM services and are going to spend many trillions of them. Meanwhile, theft in ATMs is also high due to the lack of protection.

Fig. 1 ATM machine

This research aims mainly at reducing the robbery of the ATMs. Of this, a standalone Embedded Web Server based on Raspberry Pi processor and Linux operating system needs to be built at a low cost. This ATM Security settings include modules such as Wi-Fi Internet Access, GSM Modem, RFID Scanner, RFID card ATM card, camera. Whenever the RFID tag that is used as an ATM card is brought near the RFID Reader its captured image and SMS of alert is sent to the ATM card holder using the raspberry pi processor and in turn depending upon the image the card holder's will send a reply through email by composing GRANTED or DENIED decision in subject area of the email to the processors email id, then either the access will be given to the user or the access is denied to the user thereby providing advance security during the withdraw of the money from the ATM.

II.   LITERATURE REVIEW

In this part, we will quarrel about the counsel start by deliberation and investigation that is systematic and acknowledge a significant sum in the expansion of the practiced task. It aswell gives some basal capacity or conceptual wretched and is accustomed as an establishment to promisingly achieve the capital targets. The vast majority of the literary works are from the going with articles, diaries, books and precursor works of the previously mentioned fields. These written works are again total and use as a counsel to the arrangement of this project.In the present Macintosh as the robotization and computerization is growth step by step and the free frameworks are tolerating rich popularity.Thecyberbanking and cyberbanking exercises has gotten simpler with the accumulation of ATM's and on the additional duke the violations on the cyberbanking associations acknowledge been continuously included during achieved 12 years.A investigation has been pronounced that the wrongdoings related. In the time of 2007, 212,530 of addition and 4,439 of desperado cases are occurred, and 269,410 of extension and 4,409 of scoundrel cases are occurred in year 2010 and aswell in the year 2011, 270,109 of theft and addition had happened.This action manages the blockage of ATM burglary and maltreatment of mishap by tryout the ATM mechanical assembly at complete time observing. The point of the proposed arrangement is to device a low sum independent Anchored Web Server (EWS) relies upon Linux working plan and ARM11 processor with the guidance of Raspberry Pi. It proposes a well-to-do organizing bandage with widely inclusive beat of machine territories over web. The Web server can be run on a secured course of action tolerating responsible advantages for abetment moored site page to an internet browser. The administration is reckless for ATM security, made out of the modules explicitly, oath of blast lock, web empowered control, sensors and camera control.

The capital cold of this deliberation is to lessen the burglaries completion in the ATM's. For that we acknowledge to contraption a low sum independent Anchored Web Server dependent on ARM11 processor and Linux working course of action apparatus Raspberry Pi. This administration is apprenticed for ATM security, to be made out of the modules unmistakably Door lock, web confirmation Wi-Fi, GSM Modem, sensors and camera. At whatever point theft yield place, Beating sensor, Fire sensor is adjusted reality which detects beating and calefaction began from ATM

mechanical assembly and makes total move. This course of action utilizes ARM7 minister based secured game plan to activity complete time abstracts accumulate with the counsel of beating sensor. When the beating has been detected, the exhortation is again moved to ARM11 based capable extra GSM Modem and it sends belletrist to adjoining identification base and agnate coffer specialists and finished with an uneasiness complete will emerge from ringer. This will ahead the burglaries, and the acceptioncommitted in the theft can be serenely unsettled out.

The primary ATM in Korea was introduced by Korea trade Bank in 1975, and after establishment of ATM by Shinhan Bank in 1982, the non military personnel can utilize the ATM of different manages an account with

Starting of activity of regular CD arrange which is constrained by Korea monetary broadcast communications and clearings organization. The quantity of introduced ATM machine has demonstrated the pattern of expanding constantly with the high expanding proportion in the principal half of year 2000s, and steady increment after the year. Particularly outside ATM machine has been expanded consistently. The outer ATM machine is situated in the passage of stand stall and sidewall for the most part. The security arrangement of those outside ATM ensures the first stage with the sign light introduced in the machined itself, and spreads the others with the open and effect recognizing sensors. The effect distinguishing sensor creates and imparts the sign to the security community promptly to ensure the ATM machine. The control community has a standard if the crisis signal is sent and request to dispatch to the operator, the specialist will be the area inside 25 minutes at the most recent, anyway the late dispatch because of the absence of obligation of operator and absence of number of operator and gear won't be done of legitimate and fast response for the ATM burglary.
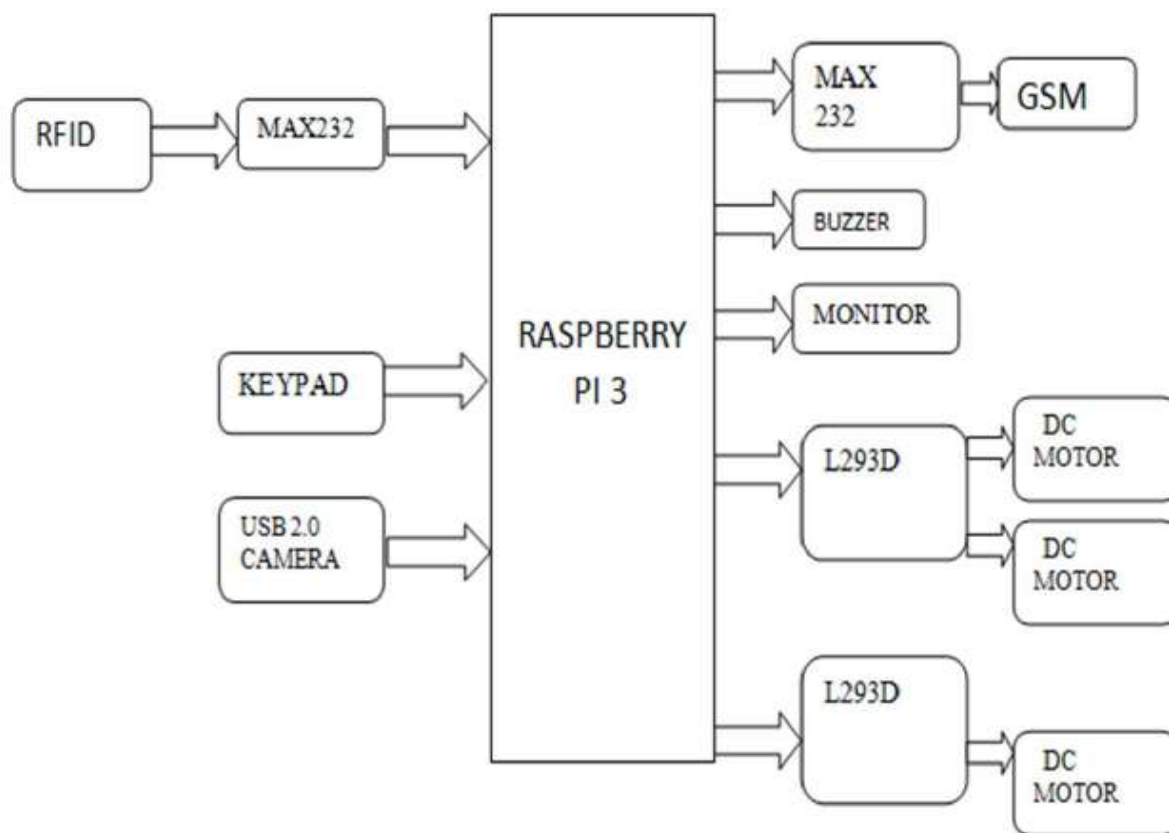
III.   PROPOSED SYSTEM

Fig. 2 The block diagram of proposed method at host side

The proposed method for the securing ATM transaction using Raspberry Pi processor is illustrated in fig 2. The gracefully of 5Volt DC 'is given to the framework which is changed over from 230Volt AC flexibly. Right off the bat, the progression down transformer will be utilized here for changing over 230Volt AC into 12Volt AC. The microcontroller will bolster just the Direct Current flexibly, so the Alternating Current gracefully will be changed over into DC utilizing the extension rectifier. The yield of rectifier will have a few waves so we are utilizing the 2200uf capacitor for separating those waves. The yield from the channel is given to the 7805 voltage controller which will change over the 12V Direct Current into 5V DC. The yield from the controller will be sifted utilizing the 1000uf capacitor, so the unadulterated 5Volt DC is getting as the yield from the force gracefully unit. Here we can utilize the ARM 11 processor which will be equipped for getting the gracefully of 5

Volt DC so we need to change over the 230Volt AC flexibly into 5V DC gracefully. The Raspberry Pi is the core of the venture that will work at 5V. The force flexibly required by RFID and GSM is 9 V and the force gracefully required by engine driver is 12V. RFID tag that is use as an ATM card that consists of unique number that is assign to a one particular user. GSM is used for communication that is used to send the alert SMS to the ATM user, Web or internet is used to send the image of the person that wants to access the ATM through email. In this project two L293D motor driver IC's arrangement is used to drive the gear DC motors that will dispense the money that is 2000,500 or 200 rupees depending upon the entered amount using keypad and the monitor is used to display all the consecutive actions of this project.

3.1 Raspberry Pi

The Raspberry Pi 2 has 6 times the ability of previous versions for processing. The BCM2836 processor, a powerful ARM Cortex-A7- based quad-centered processor running 900 MHz, has been upgraded with this second-generation Raspberry Pi. The board has a memory size boost to 1Gbyte. The total specifications of raspberry is mention below

Fig -3: Raspberry Pi board

The BCM2836 system is on the chip from Raspberry Pi. Raspberry pi has a Quad-core ARM in its main architecture

cORTEX-A7. Raspberry Pi boots from the Micro SD card is used as Linux operating system. It has an Ethernet adapter for 10/100 frame. It supports a 3,5 mm jack audio output and 4*USB 2.0 pins, and an HDMI video output.

3.2 GSM/GPRS

GSM/GPRS modem is worked with double band sim900A takes a shot at frequencies 900/1800 MHz. The modem is accompanying RS232 interface, which permits us to associate pc just as microcontroller. The baud rate is configurable from 9600-115200 through AT orders and it has inner TCP/IP stack to empower you to interface with web by means of GPRS. It is generally appropriate for information move application in Mobile to versatile interface. Some significant highlights of GSM are recorded underneath

☐ Quad-Band 850/900/1800/1900 MHz

☐ GPRS multi-space class 10/8

☐ GPRS portable station class B

☐ Control by means of AT orders (GSM 07.07, 07.05 and SIMCON upgraded AT orders)

☐ Supply voltage extend is 3.4 to 4.5 V

3.3 USB Camera

We 're taking images and video on the Raspberry Pi using a USB camera here. Use 1280 * 720 resolutions, USB cams. If robbery happens in the ATM the Embedded Web Server (EWS) takes snaps and stores.

3.4 Buzzer

Become "beep" because of vibration buzzers.

Fig. 4. Buzzer

IV. CONCLUSION

The Securing ATM transaction Using Raspberry Pi Processor project is used to alert the user whenever the usage of ATM is done for money withdrawal by the unknown person. All the hardware and software components designed and implemented successfully and the project outcome is carried out accurately and thus highly securing ATM card holder's transactions with the help of Raspberry Pi Processor. Individuals are tolerating more intelligent and more astute with the exhortation of new innovation and new expansion Economic development of apple makes the action more brilliant and greater when contrasted with predecessor movement style. A scholarly footfall seem intense city. This supreme apparatus gurantees us a guaranteed and exact exchange through RFID and Biometric address with basal sum and merest support. Affiliation will achieve utilization of new and obtained blazon of cash endeavors. The alone issue is that essential measure of RFID turn around of the supreme game plan is the fitting one time speculation. The sum included record that this plan awards and builds the credibility of the cyberbanking associations and the banks drag the accessibiity to its client.

REFERENCES

[1] Fang, Xiang et al: An extensible embedded terminal platform for wireless telemonitoring, Information and Automation (ICIA), 2012 International Conference on Digital Object Identifier: 10.1109/ICInfA.2012.6246761 Publication Year: 2012 , Page(s): 668 - 673.

[2] Kannan, P, and Ms P. Meenakshi Vidya. "Design and Implementation of Security Based ATM theft Monitoring system.".

[3] Dujak, Mico, et al. "Machine-to-machine communication as key enabler in smart metering systems." Information & Communication Technology Electronics & Microelectronics (MIPRO), 2013 36th International Convention on. IEEE, 2013.

[4] Liu, Yakun, and Xiaodong Cheng. "Design and implementation of embedded Web server based on arm and Linux." Industrial Mechatronics and Automation (ICIMA), 2010 2nd International Conference on. Vol. 2. IEEE, 2010.

[5] Matt Richardson and Shawn Wallace, *Getting Started with Raspberry Pi*. United States of America: O'Reilly Media, 2013.

[6] SIM900_AT Command Manual_V1.03, Shanghai SIMCom Wireless Solutions Ltd.2010.

[7] Eben Upton and Gareth Halfacree, Raspberry Pi User Guide. A John Wiley and Sons Ltd., 2012.

[8] Python Software Foundation[US], https://pypi.python.org/pypi

[9] Raspberry Pi Foundation, http://www.raspberry.org