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A PROTECTED AND IMPROVED ATM SECURITY SYSTEM EXPLOITATION IMAGE CAPTURE AND SMTP PROTOCOL

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ABSTRACT

People regularly use automated teller machines in today's society. The simplicity of using automated teller machines (ATMs) comes at the expense of a higher fraud risk. Mistakes and misrepresentations have occurred on a number of occasions, which are common in financial transactions. Therefore, there is a critical need for the development of a system that will protect customers from fraud and other security breaches. With the help of picture capture, the current system will receive an additional three tiers of protection. Cardholders who use this technology will be given an OTP (One-Time Password) before starting the cash withdrawal process at the ATM. If the entered OTP is inaccurate, the intruder's image will be sent through SMTP protocol to the cardholder's email. If the entered OTP is correct then only withdrawal of money can happen.

1. INTRODUCTION

Customers of financial institutions can execute financial transactions such cash withdrawals, deposits, money transfers, and account information inquiries whenever they want and without having to interact with bank staff by using an automated teller machine (ATM). There are numerous additional names for ATMs, including automated teller machine (ATM) in the US (often just referred to as "ATM machine"). The ATM Industry Association (ATMIA) reports that 3 million cash machines have been installed worldwide. A plastic ATM card or smart card with a magnetic stripe that holds a unique card number and some security information, such as CVVC (CVV), is inserted into an ATM to identify the user. The customer enters a Personal Identification Number (PIN) to establish authentication. ATM thefts are also increasing in the society at the same time. The absence of security at ATM-installed machines is the root cause of ATM robberies. Even though there are security guards at ATMs, thieves continue to commit robberies by using some technological techniques. The government suffered damages amounting to many lakhs and cores as a result.The bank issues the cardholder a plastic smart card that can be used to access an ATM. This smart card has a magnetic black stripe on the reverse that holds the user's unique information (card number, among other things) specifically for them. The bank additionally gives the smart card bearer a PIN code to access the account in addition to the smart card. A PIN is a three-digit number that the bank generates. Every cardholder has their own PIN number. The PIN is simple to remember for the user and can be modified by the cardholder if necessary. A plastic ATM card must be inserted, together with the customer's personal identification number (PIN), to identify the user. Customers can use ATMs to access their bank accounts, make deposits and withdrawals, check their account balances, and purchase prepaid credit for their mobile phones. Additionally, an ATM enables bank customers to conduct their financial transactions from virtually every other ATM worldwide. Only three password entries are permitted at a time.

ATMs are becoming one of the most crucial amenities in our daily lives, given the current situation. We have the option to take money out of the authorised account whenever we want thanks to this capability. Given that the demand for ATMs is growing daily, security is the most important factor. Today's requirements for security systems help prevent theft. The security setup is not quite good enough to secure the facility in case a group of thieves try to take the ATM machine, despite the banks stationing security officers at the ATM locations.

2. LITERATURESURVEY

Consumer electronics have grown significantly in recent years, according to arguments made by Arju Aman, Aryan Singh, A Raj, and Sandeep Raj. The ability to recognise and efficiently retain information in computers is essential for the production, storage, and sale of commodities to consumers.

Therefore, having a useful and effective QR code recognition system is crucial. This study offers a useful technique for reading bar codes and QR codes simultaneously. The procedure, which was created in the Python environment using the Open CV module, automatically recognises the Bar code and QR code and shows all of the product's details. Open CV, however, lacks any specialised coding modules. For more than 100 products, including books, sofas, tables and chairs, individual bar codes and QR codes have been issued in the database. The proposed method is used to process the real-time acquired image of the QR code. The outcome of decoding the code and comparing it to the product's data frame is shown as the comprehensive description of the product.

The idea was put out by B. Saranraj, N. Sri Priya Dharshini, R. Suvetha, and K. Uma Bharathi to provide protected and secure assistance to ATM users so they can do transactions without visiting a bank. Each record holder is unique in their own way. ATM cards with individual account numbers. Their suggested method offers secure measures, such biometric authentication, to prevent hacking of ATM machines. The information concerning a unique mark will be on ATM cards. This project's main goal is to ensure increased security at ATM exchanges. In addition, RFID tags can be used in place of ATM cards.

3.EXISTING SYSTEM

The Automatic Teller Machine (ATM) is a popular way to obtain quick cash. It is a device that keeps money in the form of cash in a cash box. Therefore, when an authorised ATM Card is inserted and the correct PIN is entered, cash is withdrawn. The cashbox of ATMs had become the easiest spot to target because cash was easily available inside. and these robbery-style ATM incidents are increasing quickly. For the owner of ATMs, this has turned into a severe issue because there is a potential for financial loss. In a typical ATM booth, there is a security device to protect against robbers. Recurring rates of ATM fraud are happening as a result of internal attacks by criminals, such as card skimming, cash trapping, hacking, etc..

The user initially inserts his card and PIN number into the current system. The system permits the user to carry out the transactions if the PIN number is accurate. A maximum of three attempts are allowed to enter the PIN before the system prompts the user for another PIN. There is no method to stop such withdrawals from taking place through the current ATM machine when the fraudster has both the bank card and the right PIN.

4.PROPOSED SYSTEM

The creation of such a system that will defend consumers against fraud and other security lapses is desperately needed. Three levels of security will be added to the current system by the Enhanced Automatic Security System Using Image Capturing. When initiating the cash withdrawal process at the

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ATM, cardholders will receive an OTP (One-Time-Password) through this system. If the entered OTP is incorrect, the intruder's image will be sent to the cardholder's email using the SMTP protocol. Only the money can be withdrawn if the OTP entered is accurate. The primary goal of this project is to deliver an improved ATM security system and a safer user interface free from dangers and security gaps. This proposed system provides three levels of security stages to the existing system.

Our study's major goal is to reduce the number of robberies that take place in ATMs. Here, we're utilizing a Raspberry Pi to construct a low-cost standalone Embedded Web Server (EWS) powered by an ARM11 processor and running Linux. With the help of this real-time application project, we may go beyond the drawbacks of the current ATM scenarios.

5. BLOCK DIAGRAM OF PROPOSED SYSTEM

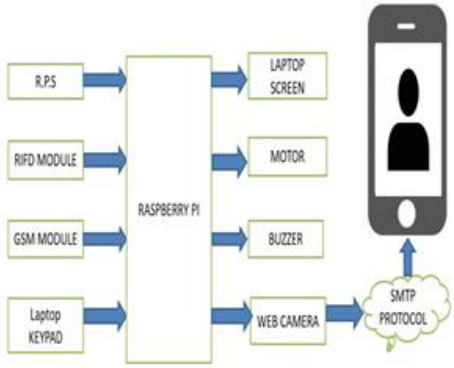

Fig1: Block diagram

6.WORKING PROCESS

The goal of this project is to only allow users with valid smart cards to access certain areas or operate certain devices. The primary priority for the relevant authorities is always the security of any organisation. Only the authorised user with a current smart card is permitted to activate the gadget.

The Raspberry Pi 0 is connected to the RFID identification system. RFID is used to read the data from a smartcard when it is placed in front of a reader. When a smartcard's data is delivered to a Raspberry Pi, that device checks its database to see if the card is legitimate or invalid. The buzzer and camera turn on if the card is invalid. The image of the intrusion provided to account holders by camera. The user is required to input the OTP, a three-digit random password delivered by the server to the user's registered cellphone number, if the card is legitimate. If the OTP is entered correctly, the motor will turn on and the transaction procedure will start. If the OTP is entered incorrectly, the camera and buzzer are turned on. The image of the intrusion provided to account holders by camera.

SOFTWARE

PUTTYSOFTWARE

Putty is a free and open-source terminal emulator, serial console, and network file transfer programme. It allows two computers to connect and communicate with each other via a command line or graphical user interface. Both 32-bit and 64-bit versions of Windows are supported. It does not support scripting. However, it can be used in conjunction with Win-SCP..

PYTHON3IDE

Software for creating programmes that incorporates standard developer tools into a single graphical user interface (GUI) is known as an integrated development environment (IDE). Typically, an IDE consists

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of an editor, compiler, interpreter, and debugger. Python is a general-purpose language, making it suitable for a variety of applications.

SMTPPROTOCOL

The common email service protocol on a TCP/IP network is called Simple Mail Transfer Protocol (SMTP).Email messages can be sent and received via SMTP.

7. EXPERIMENTAL RESULT

First the overall project kit shown in figure

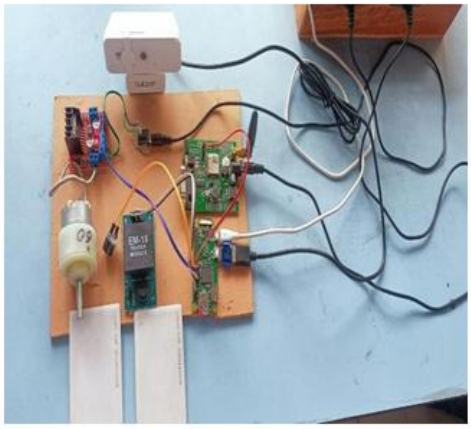

Fig.2: Hardware results

If the card is Invalid card, then the buzzer and camera will get activated.

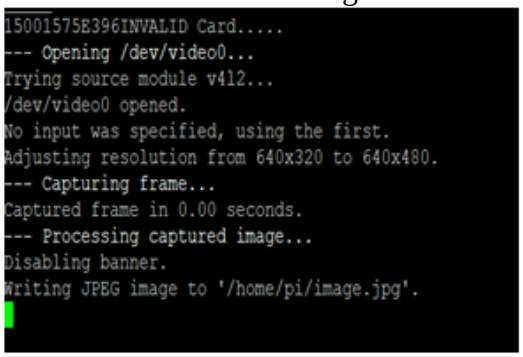

Fig.3:Invalid card detection

Intruder‟s image will get captured by camera and will be sent to the account holder‟s mail using SMTP protocol.

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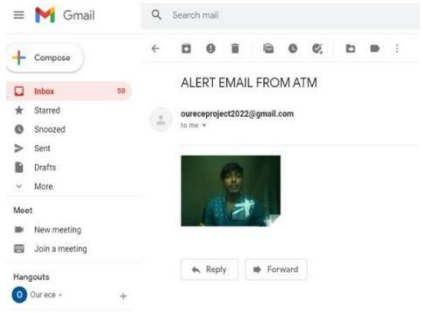

Fig.4:Alert message sent to the Mail

If the card is valid card, then GSM module will be on and OTP will be sent as SMS.

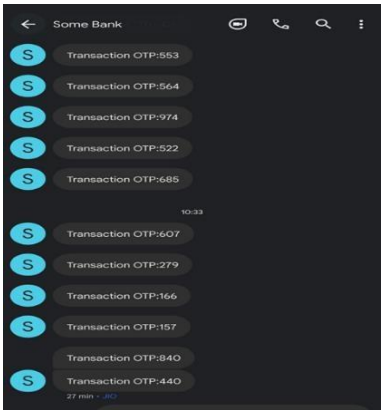

Fig.5:OTP sent to the Mobile

1. If the entered OTP is correct then the motor will start to operate which begins the transaction process.

Fig.6:Transaction process

2. If the entered OTP is incorrect, then the buzzerand camera will get activated.
3. Intruder‟s image will get captured by camera and will be sent to the account holder‟s mail using SMTP protocol.

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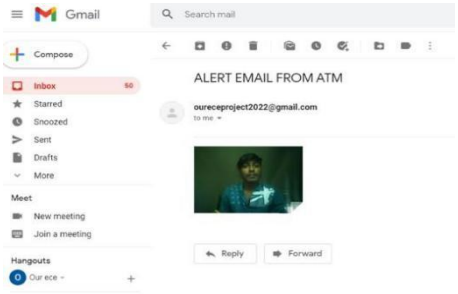

Fig.7:Alert message sent to the Mail

ADVANTAGES

1. Detection of thefts and illegal transactions will become easier.

Cost efficient.

2. Prevention of the fts and illegal transactions.

CONCLUSION

It has been successfully developed and put through testing in order to implement the project "ENHANCED AUTOMATED TELLER MACHINE SECURITY SYSTEM USING IMAGE CAPTURING." It was made by merging features from each piece of tested and used hardware and software. The ATM machine needs to have an extremely robust infrastructure to handle all the transactions that will be conducted. Numerous new services are being added in order to increase the system's effectiveness. For many issues, the system is dependable, secure, and easy to use. It is now easier to use and more handy for both end users. Features that stop spoofing (Third party access), protect OTPs, identify thieves, and authenticate identities. There have only ever been features that have been used in the current system. Only theft prevention is achievable with the current system; however, theft detection and prevention are both possible with this system. by utilising modern security methods like the Image Sharing Technique and an OTP. It is conceivable to strengthen the security of current systems while also giving users an interface that is simpler and safer.

FUTURESCOPE

The adoption of technologies like face recognition technology and biometric recognition will make it feasible to improve account security and user privacy. Face recognition technology enables the machine to recognise every user separately, turning the face into a key. As a result, there are no longer any opportunities for ATM theft or ATM fraud.ATM design that uses facial recognition software to give security Facial recognition technologies can significantly reduce forced transactions and offer hard-secure authentication by being added to the identity confirmation procedure used in ATMs..

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