

**ANTI THEFT SECURITY AND AUTOMATIC DOOR LOCKING SYSTEM FOR
ATM MACHINE****¹MS.G.ANUSHA, ²D.ESHWARI CHANDRIKA, ³D.BHAKTI PATEL, ⁴C.VAISHNAVI**

¹Assistant Professor, Department of Electronics and Communication Engineering, Malla Reddy Engineering College For Women, Maisammaguda, Dhulapally Kompally, Medchal Rd, M, Secunderabad, Telangana.

^{2,3,4}Student, Department of Electronics and Communication Engineering, Malla Reddy Engineering College For Women, Maisammaguda, Dhulapally Kompally, Medchal Rd, M, Secunderabad, Telangana.

ABSTRACT

Automatic Teller Machines can be used for a variety of purposes, most notably cash withdrawals. ATM customers will do billions of transactions and make use of a wide range of services. Meanwhile, because there is little security, the number of robberies in ATMs is also large. Therefore, it is necessary to suggest new technologies that can solve this issue. Our study's primary goal is to reduce the number of ATM robberies. The MEMS sensor is utilized here to detect changes in the ATM's position whenever a heist takes place. The ATM's vibration sensor detects vibrations and initiates the appropriate action. The Arduino processor receives information once the vibration and/or position change are detected. Subsequently, the ATM room door is shut using a DC motor, and a relay is set off to discharge gas into the ATM, rendering the burglar unconscious. An ESP Cam will be utilized to take pictures of the event, and a second relay will be set off to automatically lock the ATM door. The message is sent by the GSM module together with an OTP to the relevant bank authorities and a nearby police station. Eventually, the buzzer will sound an alarm. To unlock the ATM door, enter the OTP using the keypad at the door; the OTP will be shown on the LCD. ATM systems are safeguarded without the need for guards thanks to this system, which also makes it simple to apprehend the thief.

LINTRODUCTION

ATMs are becoming among the most crucial tools in our daily lives in the current situation. We are able to take money out of the authorized account whenever we want thanks to this feature.

With the assistance of an ATM, a user can carry out a number of banking operations, including cash withdrawals and money transfers. The frequency of crimes involving ATMs has been shown to be rising, hence it is imperative that ATM security be improved [1]. Even though the banks have

security guards stationed at the ATM locations, the security setup is insufficient to protect the building in the event that a group of thieves attempts to take the ATM. In recent times, there have been numerous instances where a mob of individuals broke into an ATM, overwhelmed the guards, and took money out of the machine. Generally speaking, one person cannot control a group of robbers [2]. Because the need for ATMs is growing daily, security is an important consideration. Modern demands call for security systems, which detects theft. Transaction security for authorized user



identification was offered by earlier technologies. However, this is only applicable to safe ATM transactions. While GSM-based approaches are also employed for the same reason, earlier research concentrated on biometric techniques to improve ATM security. Certain systems, however, combine the two methods. A one-time password (OTP) is issued to the transaction's registered phone as part of GSM-based security [3]. Each user is given a special card and an ID code that they can use to conduct all transactions in secret and anonymously. [4] A total of 212,530 thefts and 4,439 robbery incidents occurred in 2007. Similarly, in 2010 and 2011, there were 269,410 thefts and 4,409 robbery cases, as well as 270,109 thefts and 4,509 robbery cases. Such that for the last 12 years, the number of theft and robbery incidents has gradually climbed. Theft and robbery account for a large percentage of crimes against financial organizations over 90% and crimes against ATMs have increased as a result of the growth in external ATM usage and its constant vulnerability to crime. Thus, preventing robberies is greatly aided by the use of automatic security systems. The goal of this project is to create a system that will assist in catching the robbers when they try to take the ATM. In addition, this technology will serve as an ATM facility security barrier [5]. The idea for using MEMS sensors and vibration detection is what the suggested project comprises of. Every time someone tries to damage, force open, or move the ATM machine, these sensors will produce a signal. The authorized person of the bank and police station will receive an SMS through the GSM module informing them of the situation upon detection of such a signal. Additionally, we are employing a wireless camera so that the authorized person can

have the incident images on their phone in such circumstances [6]. Subsequently, the DC pump sprinkler system within the ATM chamber will initiate, dispersing a chloroform chemical to induce unconsciousness while concurrently sounding an alarm. Operational The proposed project aims to enhance security for ATM machines and expedite the identification of robberies through the utilization of an embedded system [7].

II.LITERATURE SURVEY

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.

Automated Teller Machines (ATMs) security is the branch of knowledge which focuses on the solutions that delivers various points of protection versus physical and electronic snatch from ATMs and preserve their installations. From the anti fraud secure systems to silent designate systems, integrated ATM video monitoring cameras and ATM monitoring alternative, security authority are always ready to help the people to provide more ATM security and aims high for ATM loss prevention systems. The implementation of the system is achieved with the use of Machine-to-machine (M2M) technology. M2M communications is a topic that has newly attracted much curiosity. It yield real-time monitoring and control without the need for human involvement. The objective of M2M platform advises new system architecture for positioning and monitoring applications with wider scope and higher communication ability. The aim of the proposed work is to implement a low cost stand-alone system



based on ESP8266 low cost Wi-Fi enabled chip and Cloud Computing. System offers a robust networking solution with huge span of application areas over internet. The various sensors like vibration, Temperature, accelerometer and sound are used in the system. The setup is proposed for ATM security, comprising of the modules namely, Controlling of shutter lock, web enabled control, sensors and siren control. An Automated Teller Machines (ATMs) is an electronic mechanization device that allows customers of financial to perform deals, such as cash withdraw, instalments, transfer money, or achieve account information, at any of the time and without the directly need of the interaction with the bank staff. Now a days ATMs are targets for fraud, robberies and other security breaches. Some methods are clever and tactical. Some are destructive and dangerous. Method of physical harm include solid and gas bomb as well as removing the ATM from the site and then using other methods to acquire access to the safe. To avoid all these problems Anti-theft system can be used. Anti-theft system implementation is achieved with the use of Machine-to-machine (M2M) communications technology. The aim of the proposed work is to implement a low cost stand-alone system based on ESP8266 low cost Wi-Fi enabled chip and Cloud Computing. The purpose of this system is to have an automatic theft detection and alerting system in Automatic Tailor machine and saves energy using automation technique. When any threat found like vibration, knocking, fire, high frequency, system start alerting, sending alerts and closing the door and shutter of ATM machine immediately. This is an cost-effective system can improve security, safety in ATM machines.

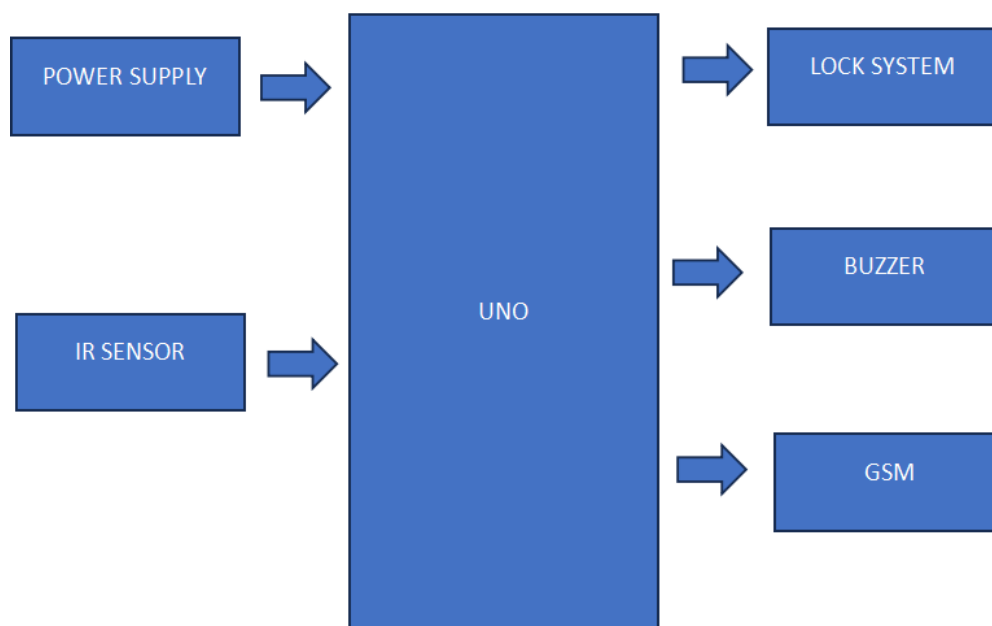
Liu, Yakun, and Xiaodong Cheng. "Design and implementation of embedded Web server based on arm and Linux." Industrial Mechatronics and Automation (ICIMA), 2010 2nd International Conference on. Vol. 2. IEEE, 2010.

Automated Teller Machines (ATMs) security is the field of study that aims at solutions that provide multiple points of protection against physical and electronic theft from ATMs and protecting their installations. The implementation is achieved with the use of Machine-to-machine (M2M) communications technology. M2M communications is a topic that has recently attracted much attention It provides real-time monitoring and control without the need for human intervention. anti-skimming defend system to silent indicate systems, integrated ATM video surveillance cameras and ATM monitoring options, security specialists are ready to help the people get more out of the ATM security and ATM loss prevention systems. The setup is proposed for ATM security, comprising of the modules namely, authentication of shutter lock, web enabled control, sensors and camera control. In recent years, the usage of ATM service is increased drastically as it offers more sophistication for the customers to withdraw their amount at 24*7 hours. The growth in electronics transaction has been adapted by banking sector. Yet ATM service suffers lots of security issues, which threatens the entire banking sector and customer. Due to the prevailing fraudulent act like card skimming, cash trapping etc., the secure financial transaction is not ensured. According to the recent survey, rate of robbery and theft is increasing in every year. The following statistical report shows the

crime rate. The ATM crimes are happening at a frequent rate because of lack of security system in center. Mostly robberies are taken place during off-peak hours, such activities lead to 11% of transaction and 60% of crime on day to day routine. A statistics stated that, about 5500 crimes have been recorded in a year. The lack of security encourages these types of crimes which are increasing steadily. ATM centers play a vital role for money withdrawal. Other than the application it has many purposes like money transactions, cash deposits, registrations. Such wide usage of a card demonstrates as how it is indispensable for modern age. Instead of carrying money which is vulnerable for attacks in a society where the

unemployment and inflation dominates so it is safer to carry thin flat card which is compactable in wallets. It holds the identity of a person which is unique and subjected to personal usage. This system we have a watchman and a camera to monitor the ATM system. The recent enhancement made in the security system for a few ATMs is that it is provided with security to the entrance doors itself such that to enter the ATM we need to use the card to unlock the door. System for a few ATMs is that it is provided with security to the entrance doors itself such that to enter the ATM we need to use the card to unlock the door. Thief can kill the watchman and to break the camera. It cannot be send the information.

Block diagram



III. PROPOSED SYSTEM

The proposed system for anti-theft security and automatic door locking for ATM machines is designed to enhance the safety and security of automated teller machines, safeguarding them from unauthorized access and theft. This system integrates a combination of hardware and software

solutions to ensure robust protection and efficient management of ATM security.

The core of the system is an intelligent security module that includes a series of sensors, cameras, and an automated locking mechanism. The system employs motion detectors and door sensors to monitor the ATM's surroundings and detect any



unauthorized movements or tampering attempts. When suspicious activity is detected, such as forced entry or unusual movements around the ATM, the system triggers an immediate alert.

The ATM is equipped with a high-security electronic locking system that is controlled by a central microcontroller. Upon detecting a security breach, the system automatically locks the ATM door to prevent access to the internal components. Additionally, a real-time alert is sent to the bank's security personnel or monitoring center, providing details about the location and nature of the breach.

For further security, the system includes surveillance cameras that capture video footage of any suspicious activity around the ATM. The footage is stored securely and can be accessed remotely by authorized personnel. The system can also be integrated with a facial recognition module or other biometric authentication methods to further verify the identity of individuals accessing the ATM.

The proposed solution aims to significantly reduce the risk of theft and vandalism, ensuring that ATM machines remain secure even in high-risk areas. By automating the locking mechanism and providing real-time alerts and surveillance, the system enhances the overall security of ATMs and protects both the machine and the funds it contains.

IV.CONCLUSION

To sum up, the integration of solenoid lock, MEMS sensor, vibration sensor, IR sensor, and ESP Cam, as suggested, provides a comprehensive approach to improve ATM security and reduce the likelihood of thefts. The technology considerably lowers the

possibility of successful robberies by identifying unauthorized access attempts and swiftly launching the necessary measures, such as closing the ATM room door and turning on gas discharge to render intruders helpless. The incorporation of real-time alert features through the GSM module guarantees prompt connection with pertinent authorities, enabling quick action and the capture of offenders. An OTP-based keypad entry system is also included to improve security and make access easier for authorized staff. All things considered, this cutting-edge security system effectively safeguards ATMs, doing away with the necessity for human security guards and improving user and financial institution safety.

V.REFERENCES

- [1] 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.
- [2] 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.
- [3] Jothish Kumar M; Ramakrishnan Raman; S. Prabhakar; T. Bernatin.
- [4] Ajaykumar M (2013). "Anti-Theft ATM Machine Using Vibration Detection Sensor" International Journal of Advanced Research in Computer Science and Software Engineering, pp: 23-28.
- [5] R1, Kalaiselvan .M2, Mr. R. Rajagopal3 "Advanced ATM Security System Deepa" International conference on. IEEE, 2016.



- [6] Refaie, M.N. Compute. Eng. Dept., Kuwait Univ., Kaldiya, Kuwait Selman, AA Ahmad, I.2012 “Hybrid parallel approach based on wavelet transformation and principle component analysis for solving face recognition problem” IEEE conference on Volume: 2007.
- [7] Ai based E-Atm security and surveillance system using blynk-lot server international conference on. Ieee, 2022.
- [8] K. Gavaskar, u. S. Ragupathy, s. Elango, m. Ramyadevi, “Iot based security system for organization”, department of eee, b.l.d.e. a’s v.p. dr. P. G. Halakatti college of engineering and technology, vijayapura-586103 vijayapura, karnataka, india, ©2020 ieee.
- [9] Arjun kumar mistry, suraj kumar and vicky prasa, “Secured atm transaction using gsm”, international journal of electrical and electronic engineering & telecommunication, vol. 2, no. 3, july 2013.
- [10] Taha Ayesha, Pallavi B V Dr. Baswarajgadgay “Securing ATM Transactions using Raspberry Pi Processor”, International Journal for Research in Applied Science & Engineering Technology (IJRASET), Vol. 6, No. VII, 2018.