

ATM SECURITY WITH AUTOMATED DOOR LOCK AND SPRAYS UNCONSCIOUS LIQUID WITH ALERT MESSAGE USING GSM

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Abstract: In the era of digitalization, everyone needs money without interaction with bank at any time. So, the ATM (Automotive Teller Machines) are installed everywhere in the localities. As the number of ATMs increased, prevention of theft and security of customer is the prime objective. At present, security systems are not highly secured as they are only provided with alarm system. This project deals with design and implementation of ATM security system using vibration sensor and GSM Modem. The prime objective of this project is, to secure the ATM system using vibration sensor and GSM modem. In this project, when a thief enters and tried to harm the machine, the vibration sensor which is attached to the machine get vibrated and sends the signal to the ARDUINO microcontroller. Once the controller receives signal, it locks the door of ATM room and sprinkler sprinkles the chloroform to make the thief unconscious. The buzzer will also be getting activated at the same time to alert the nearby people of ATM system. Simultaneously, the controller will send a message to an authorized person of the bank and police station through GSM modem.

Keywords: Automotive Teller Machine, Vibration Sensor, GSM modem, Door lock, ATmega328 Micro controller.

I. INTRODUCTION

In present outline, ATM is that the most principal facilities in our day-to-day life. This facility enables us to withdraw the cash from the authorized account at any time. Security is that the major aspect, because the need of ATM is increasing day by day. Security systems are

the strain of the day, which helps to avoid theft Although the banks are deploying security personnel at the ATM spots, but the protection arrangement isn't quite ok to secure the power just in case a gaggle of thieves tries to stole the ATM machine. Recently we've seen many cases wherein a gaggle of individuals getting into ATM and overpowering the protection. Personnel and stole the cash from the ATM. Generally, one person is unable to handle the gang of robbers. Thus, an automatic security system plays important role to avoid robberies. The Idea of Designing and Implementation of Security Based ATM Security Alert project is born with the observation in our real-world incidents happening around us, during this project we are visiting design system which will help in catching the thieves when an endeavor is formed to stole the ATM this method also will act as a security barrier for the ATM facility the proposed project consists of a plan of implementing Vibration Detection sensors. These sensors will generate an indication whenever someone tries to forcefully open or damage the ATM machine. After detection of such signal immediately an SMS are going to be sent to the authorized person of the bank making him/her conscious of things. together with that door are locked automatically using door lock and also by using solenoid valve unconscious spray are sprayed together with-it loud alarm is additionally implemented to point the theft to true. Every of those actions are performed simultaneously.

II. RELATED WORK

By Reviewing several papers and connecting them all in this paper. [1] The concept Door locking and unlocking system uses GPRS to open and close the door. In addition to this the

security will be provided using GSM in case of any unauthorized access. The main aim of this project is to provide security at homes, offices etc. The system automatically locks the door as soon as it receives predefined message from the user. The user will have to first register. His information will be stored in database. [2] The existing methods are mostly based on the enhancement of LR (low resolution) video by super resolution techniques. But these methods require high computational cost. This cost further increases if we are dealing with events detection. [3] Our proposed algorithm is able to recognize the occurrence of uncommon events such as overcrowding or fight in the low-resolution video simply by using statistical property, standard deviation of moving objects. It is fast enough because it processes low resolution frames and could be helpful in surveillance system for enhancing the security of ATMs where conventional camera of low resolution is still used. It does not use any classifier and avoids the requirement of training the system initially. [4] The proposed project consists of an idea of implementing Vibration Detection sensors. These sensors will generate a signal whenever someone tries to forcefully open or damage the ATM machine. After detection of such signal immediately an SMS will be sent to the authorized person of the bank, making him/her aware of the situation. Also, we are using a wireless camera, so that in such cases, the authorized person can have a live footage of the ATM facility onto his/her mobile phone.

III. EXISTING METHOD

Human based security system, this provides security only to the entrance door. Surveillance system is too difficult to detect unusual event because it can be broken easily and also need large storage device to store every event and also thief may escape. If some theft occurs, the system alerts only to police but arriving may take time. Theft monitoring system in ATM - In this security system, whenever theft occurs, the ALARM rings and hence the thief gets alerted and hence he may escape.

IV. PROPOSED SYSTEM

The proposed system could be a self-activating device which perceive by vibration. It encompasses Arduino board, GSM module, door lock sensor, solenoid and spray. Whenever a robber tries to interrupt the ATM, vibration sensor senses the vibration and send signal to controller. If the vibration is detected Arduino does following actions simultaneously; Door lock, Chloroform spray, send message to atm branch office and nearest police station, alarm.

V. BLOCK DIAGRAM



Fig:5.1 Block Diagram for Proposed System

VI. WORKING PRINCIPLE

This consist of Arduino, Vibration sensor, Servo motor, GSM module, Submersible pump (spray chloroform), buzzer. Arduino is used to run and control the entire system. The vibration sensor operates based on different optic otherwise mechanical principles for detecting observed system vibration. If vibration is detected it sends the AC signal to controller. The door is locked using servo motor which works on the principle of PWM (Pulse Width Modulation). Alert message is sent to the contact using GSM which works by Time Division Multiple Access (TDMA). The relay is turned on which works on electromagnetic induction. Buzzer and submersible pump are connected with relay. when current is applied to buzzer it causes the ceramic disc to contract or expand. The submersible pump pushes stored chloroform to the surface by converting rotary energy into kinetic energy into pressure energy. Every action is performed simultaneously.

VII. RESULTS AND DISCUSSION

This is a self-activating device which perceive by vibration. Whenever a robber tries to break the ATM, vibration sensor senses the vibration and send signal to controller. If the vibration is detected Arduino does following actions simultaneously. Door lock, Chloroform spray, Send message to atm branch office and nearest police station, Alarm.

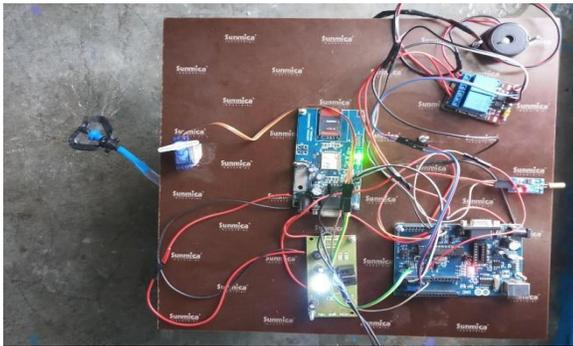


Fig 7.1: Experimental setup of activated device



Figure 7.2: Sprinkler sprays unconscious liquid (chloroform)



Fig 7.3: Door Lock

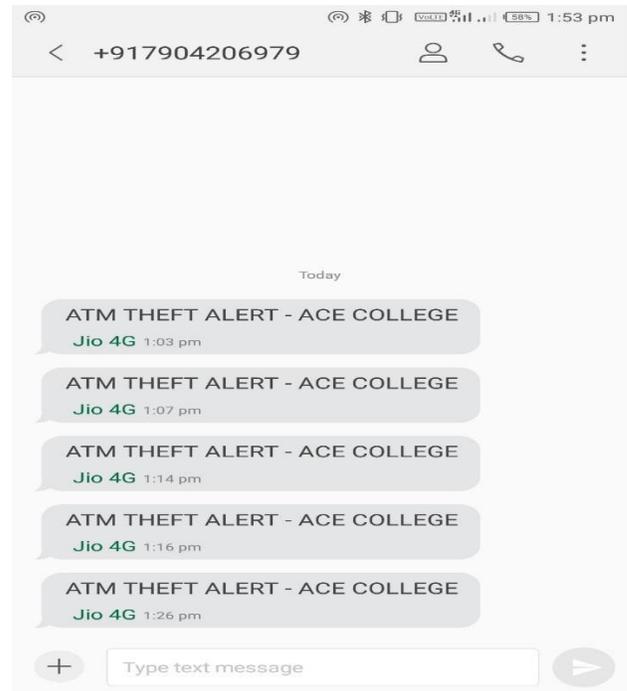


Fig 7.4: Alert Message to mobile phone

VIII. CONCLUSION

Based on the results obtained, the target of implementing ATM security system using GSM & vibration sensor has been achieved. This project is employed to supply security to ATM. Whenever an individual tries to distract the ATM, the sensor which senses the vibrations & send a symptom to the microcontroller. Once the controller receives signal, it locks the door of ATM room by sending signal to the dc motor and sprinkler sprinkles the chloroform to form the thief unconscious. At the identical time, the buzzer also gets activated. Simultaneously, the controller will send a message to a certified person through GSM modem and also the door is open only after entering the password.

REFERENCES

- [1] Joaquin Gutierrez, Juan Francisco Villa-Medina, Alejandra Nieto- Garibay, And Miguel NGEL PortaGndara, "Automated Irrigation System Using A Wireless

- Sensor Network And Gprs Module”,IEEE Transactions On Instrumentation And Measurement, Vol. 63, No.1, January2014.
- [2] Vimal.p, Priyanka.V, Rajyasree.M,Santhiya Devi.P.T, Jagadeeshraja. M, Suthanthira Vanitha.N,”A Novel Approach for Automatic Irrigation and Fustigation Using Embedded System,” International Journal of VLSI and Embedded Systems-IjvesVol05, Article 03257; March2015.
- [3] Sathiyabama P, Lakshmi Priya C, Ramesh Sm, PreethiB, Mohanaarasi M,”Embedded System Design For Irrigating Field With Different Crops Using Soil Moisture Sensor, “International Journal Of Innovative Research In Computer And Communication Engineering Vol. 2, Issue 8, August2016.
- [4] Liai Gao, Meng Zhang, Geng Chen,”An Intelligent Irrigation System Based On Wireless Sensor Network and Fuzzy Control, “Journal of Networks, Vol. 8, No. 5, May2013.
- [5] K.Prathyusha, M. Chaitanya Suman,”Design of Embedded Systems for the Automation of Drip Irrigation,”International Journal of Application or Innovation in Engineering Management (Ijaiem) Volume 1, October 2012.
- [6] Razio Mirabella, Senior Member, IEEE, and Michele Brischetto,”A Hybrid Wired/Wireless Networking Infrastructure for Greenhouse Management,” IEEE Transactions on Instrumentation and Measurement, Vol.60, No.2, February 2011.
- [7] B.Sivakumar, P.Gunasekaran, T.Selvaprabhu, P.Kumaran, D.Anandan, “The Application of Wireless Sensor Network in the Irrigation Area Automatic System”, IjctajJan-Feb2012.
- [8] M. Ajaykumar &N. Bharath Kumar”Anti-Theft ATM Machine Using Vibration Detection Sensor”, December2013.
- [9] Sivakumar T, Gajjala Askok & k. Sai Venuprathap”Design and Implementation of Security Based ATM theft Monitoring system”, August 2013.