



INTELLIGENCE-BASED ATM CASH AVAILABILITY DETECTION WITH THEFT PREVENTION SYSTEM

Nivetha E , Parthasarathi K, Prasanth N, Dr.J. Kirubakaran, Associate Professor.

Dept of Electronics and Communication Engineering
Muthayammal Engineering College, Rasipuram, Namakkal, Tamil Nadu.

ABSTRACT

In recent decades, the artificial intelligence (AI) system has played an important role in cyber as well as networking sectors in many ways especially ATM systems. An automated teller machine (ATM) is an electronic telecommunications device that enables customers of financial institutions to perform financial transactions, such as cash withdrawals, deposits, transfer funds, or obtaining account information, at any time and without the need for direct interaction with bank staff. The user wouldn't be able to know the cash availability in an ATM machine without card processing. The user must complete the all process for taking the money whether the cash available or not. End of the process only we can know the unavailability of the cash and also wasting the time duration.

This problem can be solved by using our project model idea. The sensor unit is fixed in each cash tray which is used to identify the cash availability of the ATM machine outside of the room through the display unit. The user can know the cash availability of the machine without entering and processing. This system also includes additional features like monitoring and controlling schemes against robbery. Nowadays, there is no proper security for ATM machines. Robbery of ATM machines has increased widely. By using the existing technology ATM machines are not safe in order to provide proper security for money. So, a new technology is proposed which can overcome this problem. The scheme of Designing and Implementation of Security Based ATM theft project is born with the observation in our real-life incidents happening around us. This project deals with prevention of ATM theft from robbery. So, overcome the drawback found in existing technology in our society.

Whenever robbery occurs, Vibration and heat sensors are used here which senses vibration or heat produced from ATM machines. This system uses a NUVOTON controller based embedded system to process real time data collected using the sensor networks. Once the vibration or heat is sensed the beep sound will occur from the buzzer. The AI system is used for closing the door immediately in an ATM cell.

INTRODUCTION

Implementing various features like image processing, GSM, vibration sensor, door locking mechanism. The door of an ATM opens only when the face of the person is completely recognized. In case, if the person covers his/her face and tries to enter, the door will not be opened. If the person breaks the camera and approaches the door and breaks the glass door, a secondary steel door will operate.

If the person tries to steal the amount by breaking the ATM machine, the vibration sensor operates and the anesthesia in the corner of the room spreads in the room. At once the person inhales the anesthesia, he will faint. Simultaneously the information will be sent to the nearby police station as well as respective banks. Suppose if the person covers his face after entering into the room at time of anesthesia spreading, he will not be able to come out as the steel door will be locked. So the criminal cannot escape from the ATM center.

There is a chance of spreading anesthesia, when the ATM machine vibrates due to any earthquake. In order to prevent it, we are using additional vibration sensors under the ATM machine at a certain distance. If both vibration sensors vibrate, the anesthesia will not Spread out. Once the person tries to steal the amount from the ATM, he/she will be caught by the operation of any one of these features. Through this we can Prevent ATM theft and the criminal can be easily caught red-handed. In the present scenario, an ATM has become one of the most important facilities in our day to day life. These sensors will generate a signal whenever someone tries to forcefully open or damage the ATM machine.

After detection of such a 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 live footage of the ATM facility onto his/her mobile phone.

EXISTING METHOD

The user wouldn't be able to know the cash availability in an ATM machine without card processing. The user must complete the all process for taking the money whether the cash is available or not. End of the process only we can know the

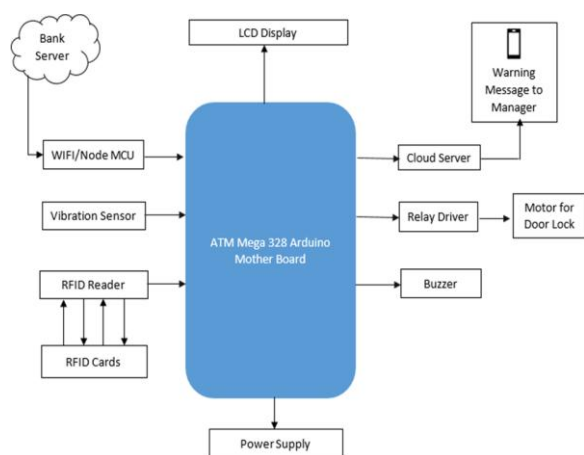
unavailability of the cash and also wasting the time duration

LITERATURE SURVEY

S. M. H. a. R. Z. A. m. p. u. A. I. t. A. s. I. D. T. 1. Hasheminejad, "ATM Management Prediction Using Artificial Intelligence Techniques," vol. 11, 2017. Ajay Kumar M (2013). "Anti-Theft ATM Machine Using Vibration Detection Sensor" International Journal of Advanced Research in Computer Science and Software Engineering,

pp: 23-28. Automobile Anti-theft System Based on GSM and GPS Module, Published in Intelligent Networks and Intelligent Systems (ICINIS), 2012 Fifth International Conference, Authors: Hu Jian-ming, Tianjin Univ. of Technol. & Educ, Tianjin, China, Li Jie ; Li Guang-Hui. D. Beymer. Pose-Invariant Face Recognition Using Real and Virtual Views. M.I.T., A.I. Technical Report No.1574, March 1996

BLOCK DIAGRAM



The arduino UNO microcontroller is the main part of this block diagram . Arduino is used to send the alert message and information to the RFID reader and vibration sensor. When someone tries to mishandle the ATM machine or tries to break it vibration sensor the imbalance and predicts future imbalance and it will pass the alert message to arduino

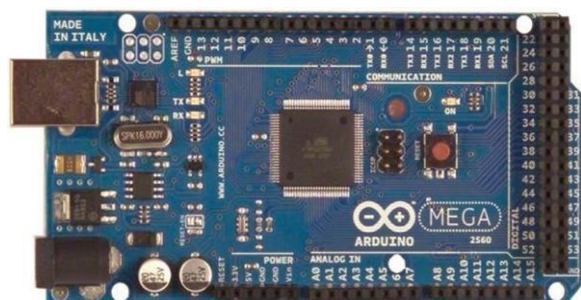
RFID card is authentication for which is used to identify people and object whenever people use their card on when come thief is using at illegally every information will be passed to arduino

The data from the arduino is sorted to the cloud server as well as relay drives and buzzers. The cloud server warning message is set to the bank manager . Messages given to the relay driver will mode the motor to locate and the buzzer will provide an alarming sound to alert people around the zone.

HARDWARE SYSTEM

WORKING ON ATMEGA328

If you want to start working on this Microcontroller then I would suggest you do it using Arduino. The benefit of using Arduino is that you get to use all of its built-in libraries, which will make the work a lot easier. After designing your project on Arduino, then design the basic circuit of Atmega-328 which is quite simple and I have discussed above. Now you must be careful while using its Pins, Atmega328 and Arduino Pins are discussed above.



ATMEGA328 PIN DIAGRAM

ATmega328 Pinout			
Arduino Pins	Arduino Pins		
RESET	Pin #1: PC6	Pin #28: PC5	Analog Input 5
Digital pin 0 (RX)	Pin #2: PD0	Pin #27: PC4	Analog Input 4
Digital pin 1 (TX)	Pin #3: PD1	Pin #26: PC3	Analog Input 3
Digital pin 2	Pin #4: PD2	Pin #25: PC2	Analog Input 2
Digital pin 3 (PWM)	Pin #5: PD3	Pin #24: PC1	Analog Input 1
Digital pin 4	Pin #6: PD4	Pin #23: PC0	Analog Input 0
Voltage (VCC)	Pin #7: VCC	Pin #22: GND	Ground (GND)
Ground	Pin #8: GND	Pin #21: Aref	Analog Reference
Crystal	Pin #9: PB6	Pin #20: AVCC	Voltage (VCC)
Crystal	Pin #10: PB7	Pin #19: PB5	Digital Pin 13
Digital pin 5	Pin #11: PD5	Pin #18: PB4	Digital Pin 12
Digital pin 6	Pin #12: PD6	Pin #17: PB3	Digital Pin 11 (PWM)
Digital pin 7	Pin #13: PD7	Pin #16: PB2	Digital Pin 10 (PWM)
Digital pin 8	Pin #14: PD0	Pin #15: PB1	Digital Pin 9 (PWM)

The IR sensor is installed at the money locker as the barrier passes through the IR sensor, It transmits the data to Raspberry Pi through the GPIO pins. We use the camera to remember the face. Using the Servo motor to open and shut the door. If all of these sensors are temperature-like, IR will activate a buzzer to warn the sound, and the resulting alert message will be transmitted to the designated person. In addition, if someone manages to open the money locker, the gas is sprinkled on the robber to render him unconscious.

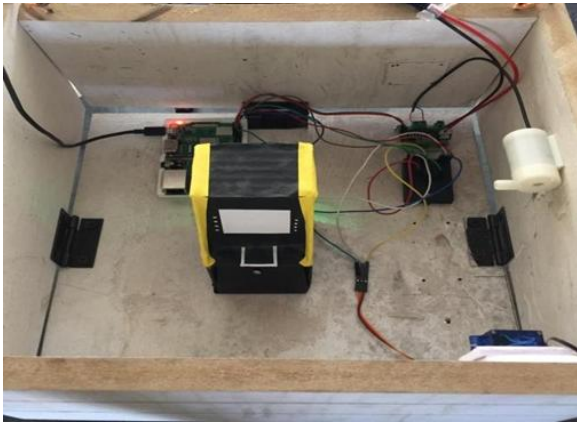
ARDUINO IDE

An embedded system is a computer system designed to perform one or a few dedicated functions often with real-time computing constraints. It is embedded as part of a complete device often including hardware and mechanical parts. By contrast, a general-purpose computer, such as a personal computer (PC), is designed to be flexible and to meet a wide range of end-user needs. Embedded systems control many devices in common use today.

[illegible]

OUTPUT

In recent decades, the artificial intelligence (AI) system has played an important role in cyber as well as networking sectors in many ways especially ATM systems output



Hardware Output

RESULT

The elimination of ATM theft by incorporating two sensors to overthrow the loopholes found in the existing technology. Whenever robbery occurs, one sensor senses vibration produced from an ATM machine, and the other senses vibration from the camera. The system uses an ARM controller-based embedded system to process real-time data collected utilizing the vibration sensor.

CONCLUSION

The elimination of ATM theft by incorporating two sensors to overthrow the loopholes found in the existing technology. Whenever robbery occurs, one sensor senses vibration produced from an ATM machine, and the other senses vibration from the camera. The system uses an ARM controller-based embedded system to process real-time data collected utilizing the vibration sensor.

The H bridge-driven DC MOTOR is used for closing the door of the ATM. The camera is continuously processing real-time feed with no hindrance. The LCD display board facilitates the output message continuously. This allows prevention of any threat /robbery, and also, the suspect is caught immediately.

REFERENCES

- [1] 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.
- [2] Automobile Anti-theft System Based on GSM and GPS Module, Published in Intelligent Networks and Intelligent Systems (ICINIS), 2012 Fifth International Conference, Authors: Hu Jian-ming, Tianjin Univ. of Technol. & Educ, Tianjin, China, Li Jie ; Li Guang-Hui.
- [3] Refaie, M.N. Compute. Eng. Dept., Kuwait Univ., Kaldiya, Kuwait Selman, A.A.; Ahmad, I. 2012 "Hybrid parallel approach based on wavelet transformation and principal component analysis for solving face recognition problem" IEEE conference on Volume: 2007.
- [4] R. Gross, J. Shi, and J. Cohn. Quo Vadis Face Recognition? Third Workshop on Empirical Evaluation Methods in Computer Vision, December, 2011.
- [5] Das, S. & Debbarma, J.(2011). Designing a biometric strategy (fingerprint) measure for enhancing ATM security in India e-Banking system. International Journal of Information and Communication Technology Research vol 1 no 5 p 197- 203.