IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Vigilance Notification System using Transfer Learning

Pranav Sugre[1], Prof. Shrutika Nalawade[2], Siddhartha Suryawanshi[3],Keyur Shelke[4],Pratham Shelke[5]
[1-5]Department of Computer Engineering, RMD Sinhgad School of Engineering, SPPU, India

Abstract: The project eliminates security threats faced by ATMs by implementing effective auditing procedures. The system combines vibration, heat, smoke, sound sensors and surveillance cameras and is designed to detect and respond to a variety of activities. Vibration sensors detect physical tampering, while thermal sensors instantly detect suspicious activity using the device. Smoke sensors help prevent premature fires and vandalism, and detection equipment detects illegal activity. Carefully placed in plain view provides good visibility and serves as an alert for further investigation. Using advanced signal processing and machine learning for real-time data analysis, the intelligent decision module can reduce false alarms and provide accurate responses. Multi-sensor integration not only increases detection accuracy but also helps improve ATM security in the banking industry by providing better security.

Keywords - IOT, Transfer learning, security.

I. INTRODUCTION

As security threats become more prevalent in the banking industry, the need for advanced surveillance systems to secure automated teller machines (ATMs) increases. This project proposed a way to improve ATM security by integrating multiple sensors, including vibration sensors, heat sensors, smoke sensors, motion detectors, and needle probes.

The main purpose of this project is to create a safe and reliable ATM solution. Intelligent systems detect and respond to suspicious activity in and around ATMs. Integration of multiple sensors provides a better understanding of the ATM environment, enabling the system to respond to a variety of threats.

Vibration sensors are used to detect physical anomalies such as tampering or forced entry. Thermal sensors are used to detect abnormal temperatures that may indicate the use of electrical equipment or equipment during an attack. Smoke helps in early detection of fire or try to extinguish it using smoke method. Electronic sensors are used to detect unauthorized access near ATMs. Additionally, the project is equipped with monitors to clearly see and record events. This camera is well positioned to capture the entire ATM area, and alerts are displayed for further investigation when suspicious activity is detected.

The multi-sensor integration concept not only improves the accuracy of sensing activities but also provides security measures for ATMs. The project aims to contribute to the development of the best security systems for the banking sector in order to ensure the stability of financial transactions and protect assets in the ATM environment.

The aim of this project is we design and implement an IoT and Transfer Learning-Based Security System for Automated Teller Machine (ATM) to improve overall Security,monitoring,and response capability.The System has various sensors Actuators,and communication technology to create a robust and intelligent security infrastructure for ATMs.

It has various key features such as Real time monitoring, Intrusions Detection, Remote access control Tamper Detection and Response.

II.LITRETURE SURVEY

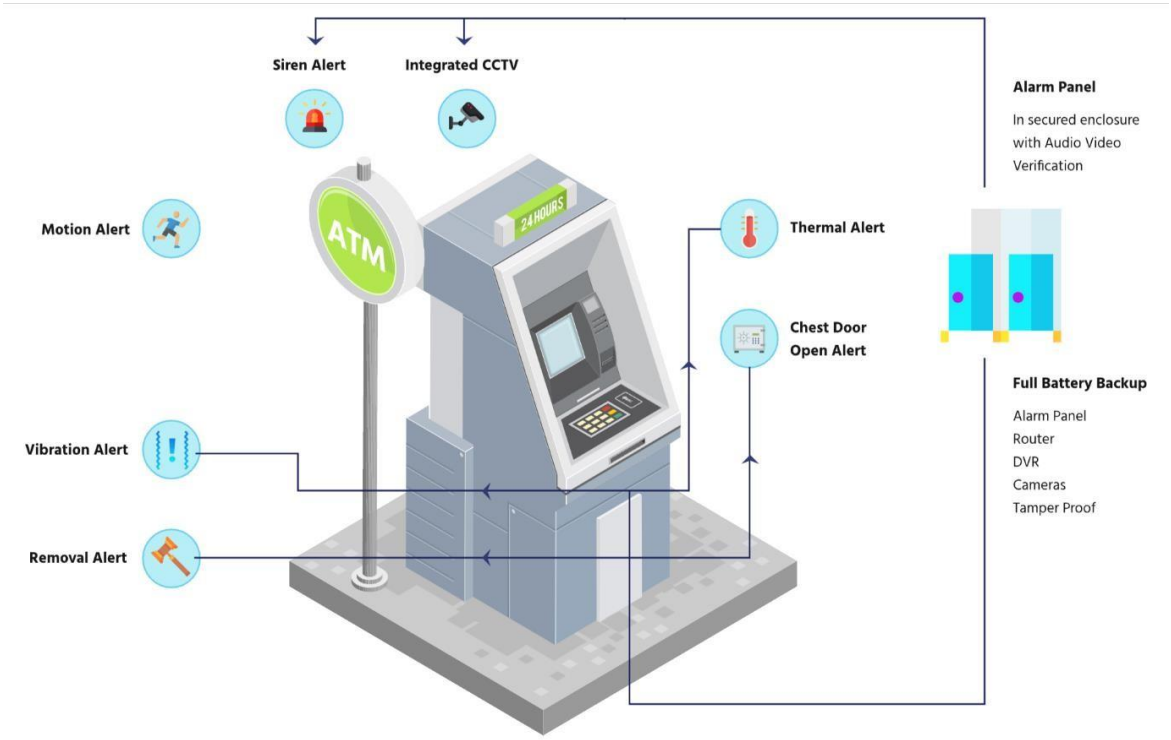
Table 1: literature survey

Ref.no	Paper Title and Paper publication	Year	Methodology Used	Accuracy	Research gap Identified / Future Scope
[1] M.J.A.Sabani and U.M.Rishan	Title: Effectiveness of ATM Security Mechanisms Journal: ResearchGate	2019	This study was carried out from the facts on different articles related to the security aspects of banks and ATM services. The common security risks were identified and compared different security measures published in studies	84%	Real time applicationsand performance must be increased.
[2] Deepa.R, Kalaiselvan.M, Mr. R. Rajagopal	Title: Advanced ATM Security System Journal: IJERA	2020	It provides activity recognition byusing different types of sensors	89%	Real time applications and performance must be increased.
[3] S.Ramyasri, and M.Mahalakshmi	Title: IOT Based Progressive Anti Theft ATM Security System Journal: IOP PUBLISHING	2020	A Raspberry Pi 3 Display B operated with the Broadcom BCM2837 System-On Chip (SoC), which has four excellent 1.2 GHz ARM Cortex-A53 process cores with 32 Kb Level one or 512 Kb Level A reserve memory, a quad - Core example device, which is mounted to the back of the board with a 1 GB LPDDR2 usb drive	85%	expand the database so that more users are stored and can access the ATM facilities safely. We may also give a caught image of crime to a local police station so that the matter can be fixed quickly

[4] Gitanjali Mehta	Title: A Review Paper on ATM Security Journal: JETRI	2018	This paper proposed a content secret word section involvement called as versatile confirmation. With their strategy, each selectable content is orchestrated in a square, with every content comprisingits own shading experience	85%	Performance Should be increased
[5] S. Lakshmi Manasa,Y. Kavya Sri Ramya, A. Yashwanth, K. Roopanth, R. Varun	Title: Atm threat detection with hidden alarm Journal: JES	2022	The STT-433 is ideal for remote control applications where low Cost and longer range is required. The transmitter operates from a 1.5-12V supply, making it ideal for battery-powered applications. The transmitter employs a SAW-stabilized oscillator, ensuring Accurate frequency control for best range performance	90%	We can increases the database so that more users are stored and can access the ATM facilities safely
[6] D Rambabu, Durga Prasad, A.Rajesh NaiduR.L.R.Lokesh Babu	Title: Design And Implementation Of Anti-Theft Atm Journal: IJCRT	2018	This Paper proposed	89%	In future, we can also record these live streaming data by connecting external memory storage as the storage space is less. The smart surveillance system has been designed aiming to fulfil the needs of the user for particular surveillance area. It has countless applications and can be used in different environments

[7] Prof.Kanchan P.Borade, Rutuja Bagul, Vidya Salunkhe	Title: Design and Implementation of security based atm theft monitoring system Journal: JETRI	2017	This Paper proposed various sensors such as vibration sensor also used the web camera, and SIMCOM 900 GSM(Global System For Mobile Communications),DC MOTOR.	92%	This is the embedded plus DIP based so we can make our own algorithm in micro controller for more security concern. We can use the powerful antennas for longer communication.
[8] D. P. Patil, Vaishali Ingole, Shilpa Datir, Monica Shejwal, Priyanka Ahire	Title: Ensuring Atm Security & fault Monitoring Journal: JETRI	2018	This paper proposed ATM security using IR SENSOR, Smoke Sensor, Temperature Sensor, Arduino AT mega328.	90%	It can be increased the Sensor Accuracy.
[9] Raj M, Anitha Julian	Title: Design and Implementation of Anti-theft ATM Machine using Embedded Systems Journal: ICCPCT	2015	RFID reader is placed on the outside of the shutter and is separate from the main controller unit. The controller receives serial data from the Reader and controls the shutter lock or unlock. When the card is brought near to the RFID module it reads the data in the card(as shown in Fig 4) and displays on the LCD. The data in the card is compared with the data in the program memory and displays authorized or unauthorized message. The door opens for a licensed person, closes for associate unauthorized person	95%%	In future, we can increases the M2M technology accuracy.

III.PROPOSED WORK :



MQ2 SENSOR:

The MQ-2 sensor is a popular gas sensor module used in electronic projects and various applications to detect the concentration of different gases in the air. It is part of a series of gas sensors manufactured by Winsen. The MQ-2 sensor is particularly known for its ability to detect multiple gases, including methane (CH4), propane (C3H8), carbon monoxide (CO), smoke, and other combustible gases.

VIBRATION SENSOR:

A vibration sensor is a device that measures the amount and frequency of vibration in a given system, machine, or piece of equipment. Vibration sensors can be used to give maintenance teams insight into conditions within key assets that might lead to equipment failure, allowing them to predict the maintenance of the machinery, to reduce overall costs and increase the performance of the machinery.Their construction consists of a crystal of piezoelectric material to which is attached a seismic mass. When the crystal is stressed in tension or compression, it generates an electrical charge which is proportional to the acceleration level it is experiencing. Internal circuitry converts this signal into a voltage or current (4-20mA) output for data collectors or process control loops.

LM35 SENSOR:

The LM35 series are precision integrated-circuittemperature devices with an output voltage linearly proportional to the Centigrade temperature. TheLM35 device has an advantage over lineartemperature sensors calibrated in Kelvin, as the useris not required to subtract a large constant voltagefrom the output to obtain convenient Centigradescaling. The LM35 device does not require anyexternal calibration or trimming to provide typicalaccuracies of ±¼°C at room temperature and ±¾°Cover a full −55°C to 150°C temperature range. Lowercost is assured by trimming and calibration at thewafer level. The low-output impedance, linear output,and precise inherent calibration of the LM35 devicemakes interfacing to readout or control circuitryespecially easy.

PIR SENSOR:

PIR sensors allow you to sense motion, almost always used to detect whether a human has moved in or out of the sensors range. They are small, inexpensive, low-power, easy to use and don't wear out. For that reason they are commonly found in appliances and gadgets used in homes or businesses. They are often referred to as PIR, "Passive Infrared", "Pyroelectric", or "IR motion" sensors.Output: Digital pulse high (3V) when triggered (motion detected) digital low when idle (no motion detected). Pulse lengths are determined by resistors and capacitors on the PCB and differ from sensor to sensor.Sensitivity range: up to 20 feet (6 meters) 110° x 70° detection rangePower supply: 5V-12V input voltage for most modules (they have a 3.3V regulator), but 5V is ideal in case the regulator has different specs

IV.CONCLUSION

Now days, most of the ATM has been attacked by the robberies. Also gradual increases the theft of ATM after the year by year. Therefore this study demonstrates how an automatic “ATM theft prevention” system can be design and also monitors faulty conditions in ATM machine using IOT technology.

V.REFERENCES

[1] M.J.A.Sabani and U.M.Rishan, “ Effectiveness of ATM Security Mechanisms: A Review Analysis”

[2] Deepa.R, Kalaiselvan.M, Mr. R. Rajagopal “Advanced ATM Security System”.

[3] S. Ramyasri, and M. Mahalakshmi “ IOT Based Progressive Anti Theft ATM Security System”.

[4] Gitanjali Mehta .“ A Review Paper on ATM Security”.

[5] S. Lakshmi Manasa, Y. Kavya Sri Ramya, A. Yashwanth, K. Roopanth, R. Varun“Atm threat detection with hidden alarm”.

[6] D Rambabu, R.Durga Prasad, A.Rajesh Naidu, R.L.R.Lokesh Babu, “Design And Implementation Of Anti-Theft Atm”.

[7] Prof.Kanchan P.Borade, Rutuja Bagul, Vidya Salunkhe, “Design and Implementation of security based atm theft monitoring system ”.

[8] D. P. Patil, Vaishali Ingole, Shilpa Datir, Monica Shejwal, Priyanka Ahire.“ Ensuring Atm Security &

fault Monitoring".

[9] Raj M, Anitha Julian,"Design and Implementation of Anti-theft ATM Machine using Embedded Systems".