IOT BASED AUTOMATED TELLER MACHINE SECURITY SYSTEM

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ABSTRACT: Automated Teller Machine (ATM) security is the field of study that aims the solutions that provides multiple points of protection against physical and electronic theft from ATMs and protecting their installations. The implementation is achieved with IOT technology. It provides real-time monitoring and control without the need for human interference. This project deals with the design and application of an ATM security system using a vibration sensor and GSM Modem.

1. INTRODUCTION

In recent years, the usage of ATM services is increased drastically as it offers the most reliable and efficient solutions to the customer. Customers can withdraw money 24*7 hours. As technology is progressing and plastic money is adapting the banking sector. As electronic services are in boom and it is very important to ensure a secure transaction. According to the latest Survey published the bank robbery rate is increased by year by year. This growth rate is increasing yearly due to a lack of security in Atm centers. In ATM centers watchman, camera and alarms are already provided to monitor the malicious activity. But these sources are not sufficient for keeping the centers secured. Lack of security encourages different types of crimes in Atm centers. Previously the crimes were been done using dummy cards but nowadays cases related to the robbery of the ATM machine are capturing attention. One more recent enhancement has been done in centers as secure entrances are provided too few of the Atm one should use the Atm card to unlock the doors and enter the center. In such an Atm center, the watchman is killed or harmed cameras are broken down. These cases of robbery are been proving that security services should be increased and new technology should come into action. 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 condition. Also, we are using a wireless camera, so that in such cases, the authorized person can have live footage of the ATM facility on his/her mobile phone.

Objective :-

This study is going to propose the method of rapid reaction and minimization of loss by detecting the ATM machine in real-time when it has been stolen can be found through GSM technology. So, by using the GSM technology, Vibration sensor, Gyro sensor, Servo Motor, Shutter latch theft of external ATM machine can be predicted. In this project, we are using messages to give signals for the corresponding bank and police station. Here Servo Motor is used to close the door of the ATM to latch the theft.

1.1 Methodology:-

The working of this security system is by providing various sensors such as gyro, vibration to detect the malicious activity which can be caused by the thieves by assigning threshold values to detect it. As soon as any suspicious activity is noticed, the servo motor comes into action which detects this activity and the shutter is shut down. As soon as the shutter is shut down the GSM module comes into action and the message is sent down to the bank authorities and the nearby police station. If the bank authorities want to use the ATM for maintenance work or for adding money to the ATM they can use the RFID tag to simply authenticate themselves and put the system in sleep mode.

2. SYSTEM ARCHITECTURE:-

The lower figure gives you the complete idea of several connections recognized between the microcontroller and extra sensors for decent functionality

3.1   Block diagram of The System
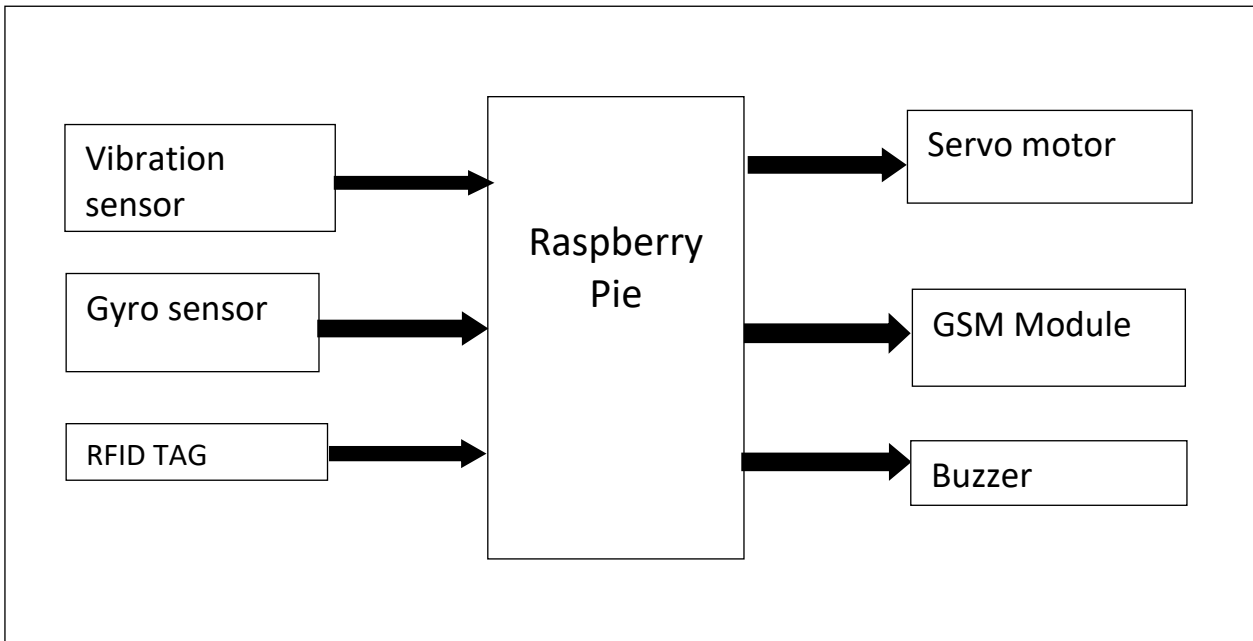
3.   EXPERIMENTAL RESEARCH

Fig- 1 Gyro Sensor

Fig 2. RFID Tag

Fig 3. Vibration Sensor

Fig 4. Servo Motor

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Fig 5.SMS to police

4.   ALGORITHM

- ALGORITHM TO GET VALUE FROM SENSOR

```
function sensor(var) {
    while(true) {
        if(var==1) {
                Read the Raw Data;
                Convert it into readable format;
                Print the Reading;
                Check the movement;
        }
    }
}
```

- ALGORITHM TO SCAN RFID TAG

```
function rfid() {
    while(true) {
        Read the reader tag;
        if(the tag is aunthenticated) {
                Sleep the system for 10 min;
        }
    }
}
```

• ALGORITHM FOR GSM MODULE TO SEND MESSAGE

```
function sendSMS() {
    begin the serial;
    provide the delay;
    disable the echo;
    set GSM module to text mode;
    Send the message to specified Number;
    Send the required message;
    Enable the send message;
}
```

GYRO SENSOR \

```
if Gx>=6 or Gy>=6 or Gz>=6 or GPIO.input(channel) {
    Print the movement detected;
    Pass the information to servo motor;
    Get back to orginial position;
}
```

5.   FUTURE SCOPE

In the future we can add more security with door locking mechanism while doing transaction no transaction can be done without door lock.

6.   CONCLUSION

Based on the results obtained, the objective of implementing an ATM security system using a Gyroscope, GSM & vibration sensor has been achieved. This system is used to provide security to ATMs. Whenever a person tries to distract the ATM, the sensor senses the vibrations & sends a signal to the operating system. Once the OS receives the signal, it locks the door of the ATM room by sending a signal to the servo motor. Simultaneously, the OS will send a message to an authorized person through a GSM modem and the door is made to open only after the authorized RFID tag.

ACKNOWLEDGEMENT

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