ATM SECURITY SYSTEM USING PIR AND VIBRATION SENSOR

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ABSTRACT:
We hereby present a circuit that can help in securing the ATM by using a security system having PIR and Vibration sensors to sense the motion of a human body which enters the ATM premises and if shake the ATM the vibration is sensed and a alert message is sent to the respective mobile through SMS by an android device.

INTRODUCTION:
In today's technically advanced world, autonomous systems are gaining rapid popularity. As the social computerization and automation has been increased and the ATM and credit card has been installed and spread out to simplify the activity for financial activity, the banking activity has been simplified, however the crime related with financial organization has been increased in proportion to the ratio of spread out of automation and devices. Among the crime for financial organization, the cases of theft and robber have very high proportion of over 90% and the crime for the ATM has been increased because the external ATM has been increased and it is always exposed to the crime. Therefore, this study is going to suggest the method of rapid reaction and minimization of loss by detecting the ATM machine at real-time when it has been stolen can be found through android device connected to Bluetooth. It is done by detecting the intruder and indicating it by producing an alarm and also sending an SMS to the respective owner. Android device provides the communication mechanism between the user and the microcontroller based control system by means of SMS

ABOUT PIR AND VIBRATIONS SENSOR:
A Passive Infrared sensor (PIR sensor) is an electronic device that measures infrared (IR) light radiating from objects in its field of view. PIR sensors are often used in the construction of PIR-based motion detectors (see below). Apparent motion is detected when an infrared source with one temperature, such as a human , passes in front of an infrared source with another temperature, such as a wall.

.Accelerometers operates on the piezoelectric principal: a crystal generates a low voltage or charge when stressed as for example during compression. (The Greek root word"piezein" means "to squeeze") Motion in the axial direction stresses the crystal due to the inertial force of the mass and produces a signal proportional to acceleration of that mass. This small acceleration signal can be amplified for acceleration measurements or converted (electronically integrated) within the sensor into a velocity or displacement signal. This is commonly referred as the ICP (Integrated Circuit Piezoelectric) type sensor. The piezoelectric velocity sensor is more rugged than a coil and magnet sensor, has a wider frequency range, and can perform accurate phase measurements. Most industrial piezoelectric sensors used in vibration monitoring today contain internal amplifiers

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PRACTICAL ASPECTS:

Our model basically involves the use of PIR and Vibration sensor for detecting the robbery, by PIR detecting the motion of the person entering the ATM premises and vibration sensor sensing the vibratation if done in the ATM at the time of breaking it. Signals from these sensors are sent to the microcontroller simultaneously then only the microcontroller send the signal to android device to send the sms alert to the nearby police station and bank authorities.

CIRCUIT DETAILS AND WORKING:

There is a microcontroller in the circuit,it is the control unit of circuit .It need +5v supply to get started which is provided by the power supply section a crystal oscillator connected to the microcontroller pin 13 and 14 to provide clock pulse to the microcontroller. It also provide the delay to the microcontroller, a reset pin is connected to pin 1 ,it is used to reset the microcontroller when it is not giving the desired output. Pin 15 and 16 are connected to pir sensor and vibration sensor. PIR sensor sense the motion of the warm blood body, if anyone will enter in the ATM premises the pir sensor will sense it's motion and the bit of pir will be high ,and it will give an signal to the microcontroller . Vibration sensor will sense the vibration happen in ATM it will be placed at that place where money is been kept and if someone will try to break it then it will sense the vibration and the bit of vibration sensor will be high , so it will send a signal to the microcontroller .If there will be signals received from pir and vibration sensor simultaneously then the microcontroller to which a bluetooth is connected to receiver and transmission pin 25 and 26 , it will send a digital signal to the bluetooth to which a android device is connected it will send an sms to the registered mobile numbers which are stored in the microcontroller. It will also capture a photograph of the intruder.
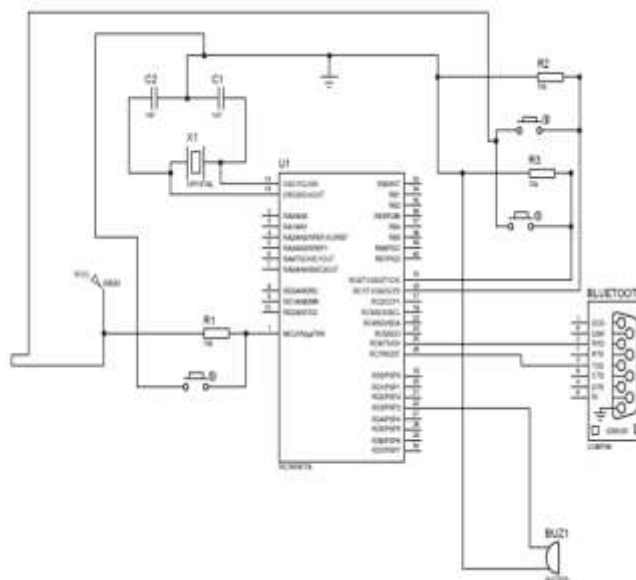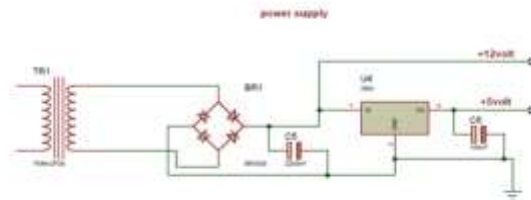
APPLICATIONS:
1. Home automation
2. Office automation
3. In this project in future we can add a multimedia camera to see what is going inside the ATM

ADVANTAGES:
1. Lower insurance rates and better security for ATM.
2. Installation is generally quick and uncomplicated.
3. It can also be installed in remote areas.
4. SMS technique is more beneficial than call technique in case of weak network.
5. Alert SMS can be sending to multiple numbers simultaneously.
6. It can save electricity and power.

CONCLUSION:
An easy and inexpensive ATM security system is described in this project report. It is based on SMS technology using android device. This system was tested and responded successfully, which verifies the feasibility of this system's theory and concept .This project has a very secure structure. As we all know, these days most of the ATM has been attacked by the robberies. Also gradual increases the theft of ATM after the year by year By implementing this project we can catch thief and robberies' in ATM itself and also we can save our precious time. The system has also implemented and tested in all conditions. By this project one may gain the ability of administering several predefined electronic devices, simply sending an SMS message.

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