INVISIBLE EYE- AN ADVANCED PROTECTION TECHNOLOGY

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Abstract— In this modern era, property crimes are more predominant. This necessitates our need to develop an advanced security system which is the INVISIBLE EYE. It is basically a single camera based security system that can be used to protect valuables kept in a room of a house or property. Most existing camera based security systems involve the use of multiple cameras placed around the room to be monitored. This camera continuously records the video footage of the room and saves it on a central monitoring station.

I.   INTRODUCTION

It is a camera based security system used to lookafter the valuables kept in the room.
This system can be used when slew around the room and recorded when it is alerted by the presence of any intrusion.Manager can only view the footage which was alerted on the presence of intrusion. This type of system is used to reduce the time period which is consumed by other systems and keep track of the intruder easily in less time. Once the intruder has been detected this information about intrusion will be directed to the cop through the E-mail. Such a system would consist three components – sensors that detect intrusion.The camera that moves to the point of intrusion and captures the pictures and the keypad that is used to interface with the system which allows anyperson to disable the system by entering the right password.

II DESIGN METHODOLOGY

This type of systems use single camera for security purpose. The reason for the security is the user of the system may have valuable belongings in kept in his or her home or office so the owner should need security at night times for his or her property. The present technologies may have multiple cameras, cost more, power consumption will be high and the owner should view the recording of the footage without any assurance of the theft. But this technology is far better than any other system because of its low cost and low power consumption. In this invisible technology we can use different sensors like motion sensor, vibration sensor, the motion sensor detects the motion of a human being in that

particular area where a sensor is placed.when the sensor senses the vibration or movement it sends the information to the microcontroller.

III.   HARDWARE DESCRIPTION
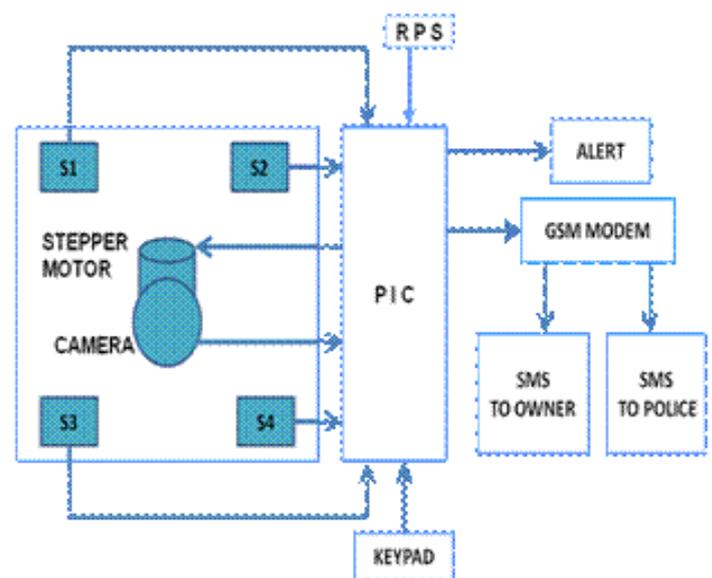
Here we are using stepper motor ,wireless camera,and a PIC microcontroller.

A. MICRO CONTROLLER

Small computers on single ICs containing a cpu memory, timer. It is a programmable input output ports. It is of various word length such as 8 bit, 16 bit, 32 bit. The earliest microcontroller use mask ROM to store the firmware. Later microcontrollers had quartz windows that allowed ultraviolet light to erase the EPROM. The micro chip PIC16C84 was the first micro controller to use EPROM to store the firmware.
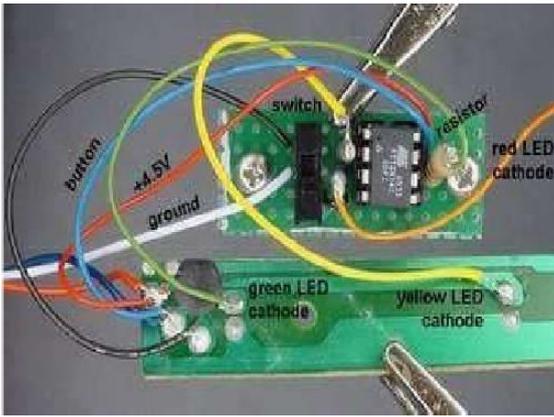
A . STEPPER MOTOR

Steppermotors or step motor are digital motors which is a brushless, synchronous motor which divides the full rotation into number of steps. Unlike a brushless DC motor which rotates continuously when a fixed voltage applied to it , a stepper motor rotates in discrete step angle . The stepper motors are manufactured with steps per revolution of 12, 24, 72, 144, 180 , and 200, resulting in step angles of 30,15,5,2.5,2, and 1.8 degrees per step. The stepper motor is also used to sends position signals to motor to drive them.

B. PIR SENSOR

PIR sensor allows us sense the motion and detects the motion of the human in or out of the sensor range. They are small , inexpensive, low power, easy to use and don't wear out because of this attributes they are found in appliances and gadgets whose sensitivity range is up to 20 metres which is mainly used in homes and business. Here PIR refers to Passive Infrared or Pyroelectric motion sensors.

C. GSM MODEM

GSM (Global System for Mobile) is a special type of modem which uses the sim card. Which provides the mobile connectivity. Many of them can also be used for sending and receiving SMS but in this technology we use the GSM modem to for sending the messages only. GSM was intended to be a secure wireless system. It has consider the user authentication using a pre shared key and challenge response , and over the air encryption. However GSM is vulnerable to different types of attack each of them aimed at a different part of network. GSM uses general packet radio service(GPRS) for data transmissions like browsing the web. The most commonly deployed GPRS ciphers were publicly broken in 2011.


D. WIRELESS SECURITY CAMERAS

Wireless security cameras are closed circuit television (cctv) that transmit a video and audio signal to a wireless receiver through a radio band. These wireless cameras are very popular among the consumers because of its low installation costs and flexible mounting options. It also allows the users to leverage broadband wireless internet to provide seamless video streaming over internet. This invisible eye technology uses the wireless security cameras because its transmission range will be wide which is close to450 feet , high quality of audio and video, we can also araise a two way communication between the user and the receiver we can also transmit commands and

functions such as turning lights on and off. And also can connect multiple receivers to one recording device such as security DVR

E. PERSONAL COMPUTER:

A general purpose computer is intended to be operated directly by the an end user with no intervening computer time sharing models that allows larger and more expensive mainframe computers and mini computers used by many people simultaneously
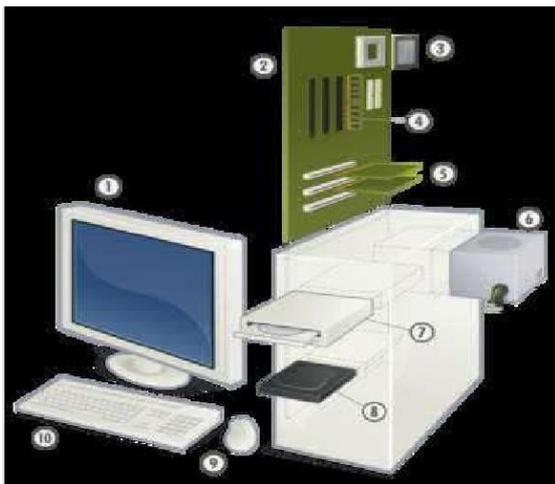
IV. WORKING

When the user enters the appropriate password the system starts its work other wise it asks to re enter the password. If the sensor senses any motion then the intrusion will be detected else there will not be any intrusion. When any intrusion is detected then relay triggered stepper motor rotates the camera if it starts recording then an email will be sent to the user.

V. LIMITATIONS OF THE TECHNOLOGY

The user must have internet connection to receive the message of the intrusion other wise the user will not be able to receive the information what has been happened. And also we cannot use this technology in open surrounding as there will be a lot of heat producing elements which cause numerous amount of

intrusion and the system will begin to work as a normal cctv camera as is captures the images continuously. Also it sends messages to the user every next second whenever there is intrusion occurs and that makes the user to get annoyed. PIR sensor senses the intrusion created by hot bodies only. It is not able to sense the sense the bodies that have lower temperature.

VI. ADVANTAGES

The invisible eye system is easily affordable because of its low cost. The biggest adavantage is that we can avoid having to wade through the hours of footage of empty rooms we can also avoid having multiple cameras in the same room. We can use this to monitor the remote areas like parking lots, garages and in hazardous areas such as radioactive waste dumping areas, chemical storage areas. We can also use this technology for concealed observation purposes like loading docks, lobby areas and sustained area with infrequent activity which also includes simultaneous observation of multiple areas eg: high-rise buildings, multiple building campuses.

VII. DISADVANTAGES

The biggest advantage is that we can wade through hours of footage of empty rooms .We have to deactivate the system when the shop is closed. If the owner is out of network then the message will not be sent.

VIII. APPLICATIONS

This system could be used in home ,office, shops, bank , crime deterrent, data room, to protect the employees, law suits, ATM, entry and exit areas in malls, remote corner of a parking lot , ware house storing high explosives .

IX. CONCLUSION

This invisible eye technology offers more security than anyother security systems. It solves many problems faced by the multiple camera security systems. This work can be extended to completely eliminate the use of the microcontroller and instead of using parallel port to the PC to monitor the sensors. Also advanced image processing techniques can be applied to track the intruder once his position has been indentified. In future we can also provide memory so that one can store the footage which has been record. Good view of video footage can be obtained as camera turns 360.

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