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Invisible EYE for Security System

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Abstract:

The main agenda of this work is to design advanced security with affordable and less complex system referred as "Invisible Eye". In this modern era, property crimes are more predominant which necessitates developing an advanced security system. It is a single camera based security system which is used to protect the valuables kept in 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 would lead to less time consuming and this will help to 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 slews to the point ofintrusion and takes pictures; and the keypad that is used to interface with the system which allows any person to disable the system by entering the right password

DESIGN METHODOLOGY

Invisible eye an advanced security system is mainly designed to use a single camera to perform the security. The reason for security is, the user of a system may have valuable belongings kept in his home, or a jewellery shop owner need security at night times for his property. The present technologies have many disadvantages like multiple camera's, more cost, power consumption, the owner has to always view the recording of the footage without any

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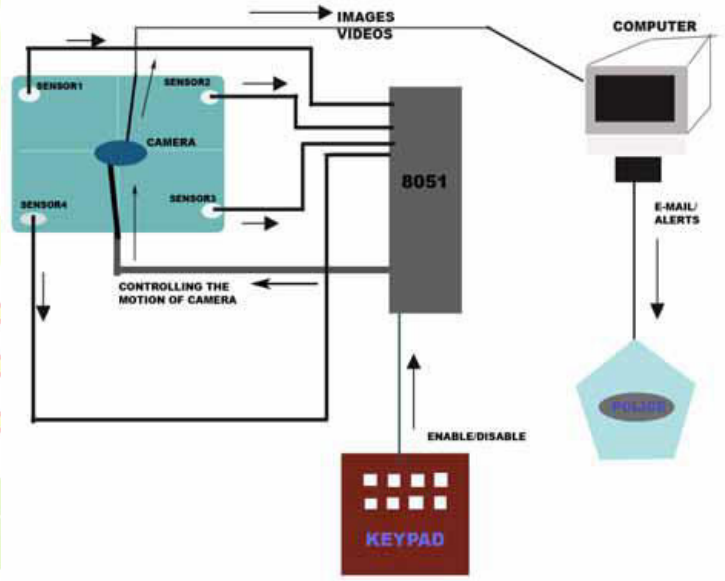
assurance of the theft. One can design the model using different sensors like motion sensor, vibration sensor, the motion sensor detects the motion of a human being in that particular area where a sensor is placed. Once the sensor, senses the motion or vibration it sends that information of motion to the Microcontroller. Here we are using stepper motor, wireless camera and also a PC.

MODERN SYSTEM

Today's security systems are extremely effective in preventing burglary and thefts as well as helping police respond to emergency situations. The mainstay of the home security system is definitely the high decibel siren. Today the siren is used to ward off would be intruders not for monitoring purposes. In most cases home security systems are monitored by large companies with multiple monitoring centers. These centers house countless trained professionals who are there in times of need for residences and businesses across the country. These monitoring centers also can provide support for other potential disasters such as carbon monoxide, fire, freezing pipes, and much more.

Modern security systems use alarms, infrared motion sensors, digital surveillance and contemporary monitoring stations. Monitoring is extremely efficient and emergency response time for triggered alarms has improved dramatically due to technology

HARDWARE PART



PIC16F877A belongs to a class of 8-bit microcontrollers of RISC Architecture. PIC microcontroller is an amazing powerful fully

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featured processor with Internal RAM, EEPROM FLASH memory and peripherals

PIR Motion Detector Module:

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.

To increase the efficiency of SIP signaling, yet maintain 100% standards compatibility with external VoIP systems and soft switches, xG has created patent pending SIP compression technology for the Invisible Eye system that reduces SIP overhead bandwidth from 400% to 66% on the over the air links and backhaul links from the Base Stations to the Invisible Eye MSCs. The MSCs do the SIP compression and decompression to maintain 100% interoperability with third-party VoIP systems. This also has the benefit of making more bandwidth available for mobile data applications being carried alongside voice traffic.

WORKING

Step1: User enters the password, if password entered is correct the system starts else he is prompted to re-enter the password.

Step 2: If sensors sense any change, then an intrusion is detected. Else there is no intrusion.

Step 3: If intrusion is detected, then relay triggered, stepper motor rotates the camera starts recording and an e-mail is sent to the user

CONCLUSION

Invisible Eye security system solves many of the problems faced by the multiple camera based systems at an easily affordable cost.

The biggest advantage is that we can avoid

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having to wade through hours of footage of empty rooms. One can also avoid having to install multiple cameras to cover a single room.

Cost required for the installation is very less compared to multiple camera based system.

We can avoid hours of footage of empty rooms. Good view of the video footage can be obtained as camera turns 360°.

This work can be extended to completely eliminate the use of the microcontroller and instead use parallel port of the PC to monitor the sensors. Also advanced image processing techniques can be applied to track the intruder once his position has been identified.

In future we can provide a memory so that one can store the footage which is recorded

Steps involved Testing the source code: The source code for the microcontroller was tested without connecting the other parts such as the sensors and the keypad. The signals indicating the presence of intruders was simulated.

Testing the sensor circuit : The sensor was placed on the surface of a table and its output was observed for vibrations caused by tapping on the table. Verifying the keypad interface The next step was to verify the keypad interface to see whether the code works properly. The code was tested by burning into another microcontroller. Integrating the system By assembling the stepper motor(along with the camera), sensor circuits and the keypad with the main microcontroller kit. Next, the keypad was integrated into the system whose activation depends on the password entered on the keypad

SCOPE OF FUTURE WORK:

To completely eliminate the use of the microcontroller and instead use the parallel port of the PC to monitor the sensors and control the sensors. Also, advanced image processing techniques can be applied to track the intruder once his position has been identified.

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