INVISIBLE EYE

G. Prakash Ganesan
III Year, EEE
P. A.C. Ramasamy Raja Polytechnic College,
Rajapalayam.

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G.Prakash Ganesan
III Year, Diploma in Electrical and Electronics Engineering
P.A.C. Ramasamy Raja Polytechnic College, Rajapalayam.

ABSTRACT:

The primary goal for this topic is to provide a simple, safe and reliable method of surveillance for individuals as well as industries. This will give us the power to protect our belongings and also not be too intruding by not installing large security cameras that make innocent people feel violated of their privacy. This method involves installing a tiny camera connected to a micro-controller that powers and controls the whole system. It also consists of a camera that will shoot the video and send the footage live to the user through GSM.

A few sensors are also allotted to detect when there is movement in front of the place being protected. This is so that the camera doesn't record all the time and only record when there is movement and a suspect is nearby. The biggest advantage is that we can avoid having to wade through hours of footage of empty rooms and also avoid having to install multiple cameras to cover a single room. Invisible Eye security system solves many of the problems faced by the multiple camera based systems at an easily affordable cost.

Such a system would consist of three components; sensors that detect the intrusion, the camera that slews to the point of intrusion and takes pictures or records a video and the keypad that is used to interface with the system which allows any person to disable the system by entering the right password.

KEYWORDS: Surveillance, Camera, Micro-controller, GSM, wireless, security, IOT.

INTRODUCTION:

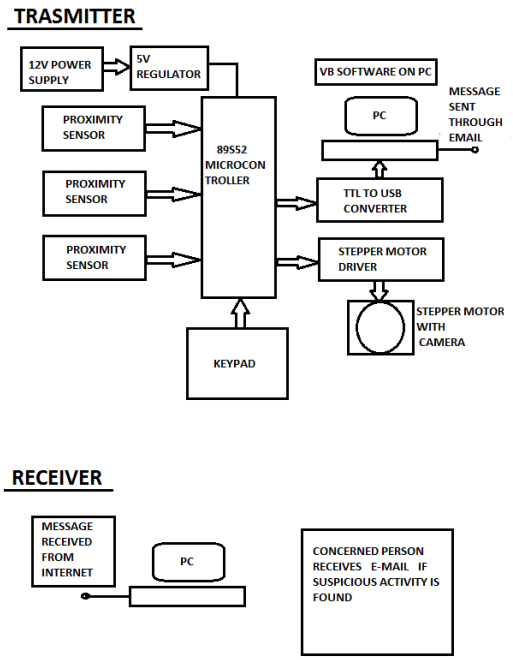
It works with single camera based on security system which can be used to protect valuables kept in a room of a house or property. Manager can only view footage which was alerted on the presence of trespasser. Once the trespasser has been detected this information about trespasser will be directed to the police and owner through

the SMS. The Cameras which continuously record footage of the room and save it on a Central Monitoring Station. And the same time camera can slew around the room and record only when it is alerted by the presence of trespasser. This type of system would lead to less time consuming and this will help to keep track of the trespasser easily in less time.

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 Micro-controller. Here we are using stepper motor, wireless camera and also a PC. Most existing digicam based protection structures involve the use of more than one cameras located around the room to be monitored.

HARDWARE USED:

1. Micro-controller
2. Sensors - Left and Right Passive Infra Red Sensors.
3. Stepper motor
4. Web Camera
5. Keypad
6. PC



NEED FOR THIS TECHNOLOGY:

Today's protection structures are extremely powerful in stopping burglary and thefts in addition to helping police reply to emergency conditions. The mainstay of the house protection gadget is genuinely the excessive decibel siren. Today the siren is used to ward off could be intruders not for tracking functions. In most cases home security systems are monitored by means of large groups with more than one monitoring. All that is good but it does come with it's drawbacks.

These preventive systems may be effective towards amateur burglars, but will not work with experienced ones.

These preventive systems are big and very much obvious. This not only deters some burglars but also lets others know of the details and locations of the camera network. This information can easily help experienced criminals to disengage specific cameras or just simply follow a path in the blind spot of the cameras. Therefore using an “invisible eye”, we could record the burglar without them knowing. So they are more likely to not wear any masks.The recordings could easily be sent to the police, who can then easily arrest the burglar with his now revealed identity.

PIR Motion Sensor:

PIR sensors allow you to feel motion, almost always used to stumble on whether a human has moved in or out of the sensors range. They are small, less expensive, low-strength, easy to apply and don't put on out. For that cause they're usually determined in appliances and devices used in homes or corporations. They are often known as PIR, "Passive Infra Red", "Pyroelectric" or "IR movement" sensors.

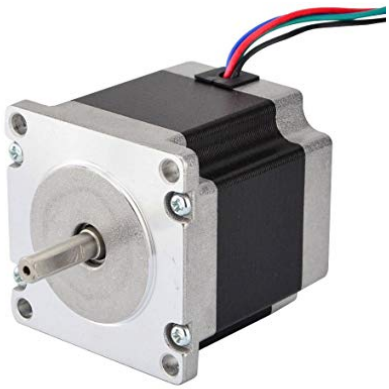
MICRO-CONTROLLER:

The AT89S52 is an 8-bit low-power, high-performance CMOS micro-controller with 8K bytes of in built system programmable Flash memory. This device is manufactured using Atmel’s high density non-volatile memory technology and is compatible with the industry-standard 80C51 instruction set and pin out. The on-chip Flash memory allows a conventional non-volatile memory programmer to be programmed or by the program memory to be reprogrammed in-system. On a monolithic chip, by combining in-system programmable Flash with a versatile 8-bit CPU, the Atmel AT89S52 is a potentially huge micro-controller which provide a highly-manageable and cost-serviceable solution to many embedded system control applications. The features of AT89S52 are 8K bytes of Flash, two data pointers, watchdog

timer, 32 I/O lines, 256bytes of RAM, three 16-bit timer/counters, a two-level interrupt architecture, full duplex serial port and clock circuitry and a on chip oscillator. In addition, for operation down to zero frequency the AT89S52 is designed with static logic and supports two selectable power saving software modes. The Idle Mode allows the RAM, serial port, timers, counters and interrupt system to continue functioning and stops CPU functioning. The Power-down mode solidifies the oscillator, until the next hardware or the next interrupt resets it disables all other chip functions but saves the RAM contents.

STEPPER MOTOR:

A Stepper Motor or Step Motor or Stepping Motor is a brush-less DC electric motor that divides a full rotation into a number of equal steps. The motor's position can then be commanded to move and hold at one of these steps without any position sensor for feedback, as long as the motor is carefully sized to the application in respect and speed. Stepper motors are DC motors that move in discrete steps. They have multiple coils that are organized in groups called "phase". The motor will rotate, one steps at a time. Stepper motors come in many different sizes and styles and electrical characteristics. Usually for the interfacing of the unipolar stepper motor generally the 4 wire connection method is used, but we can even more simplify the design by the help of the 2 wire connection method by making the controller use less number of pins.

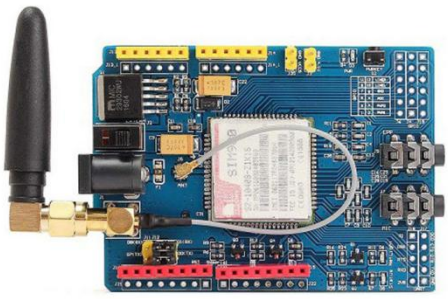


GLOBAL SYSTEM FOR MOBILE COMMUNICATION (GSM):

GSM (Global System for Mobile Communications, originally Group Special Mobile), is a standard set developed by the European

Telecommunications Standards Institute (ETSI) to describe protocols for second generation (2G) digital cellular networks used by mobile phones.

A GSM modem is a specialized type of modem, which accepts a SIM card and operates as mobile operator. GSM modem just like mobile phone. GSM modem is communication medium. GSM modem is an external device that is connected via serial port RS232 to PC.GSM modem sends and receives messages by using radio waves, AT commands is set of commands which are used for communicate with GSM modem.[1].These commands can be used for sending, receiving and deleting messages. Any processing unit can make an interface with GSM modem using these command sets.



WORKING:

1. Initially the user has to engage the security system in order to turn on the sensors. This is done by inputting a specific pass code onto the included keypad. Once the pass code is entered, The sensors will turn on.
2. Now the sensors are on, so if it detects any movement, i.e., any shift in thermal radiation, the camera will turn on.
3. Since there are two sensors, one on the left and right side of the camera, when the movement is sensed by the right sensor first, then the camera will rotate towards the right side in order to capture the burglar. The same happens when the left sensor senses movement first. The camera would rotate towards the left side. This rotation is done using an inbuilt stepper motor.
4. The video footage or images will then be sent to the respective personnels or/and the police through a GSM module that has also been inbuilt.

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 stop recording the hours of footage of the empty rooms. One can also avoid installing multiple camera to cover a whole single room. Cost required for the installation is very less compared to multiple camera based

system. Good view of the video footage can be obtained as camera turns 360 degrees. This work can be extended to completely eliminates the use of the micro-controller and instead use parallel port of the PC to monitor the sensor. Also advanced image processing techniques can be applied to track the intruder once his position has been identified.