



Invisible Eye

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Abstract: The main agenda of this work is to design improved security with a more affordable and sophisticated system reference such as the "invisible eye". is a single camera-based security system used to protect important items stored in the room a system that can be used when the recording room is executed where the presence of any access controller changes only the view recorded changes all presence access.

I. INTRODUCTION

In modern times, property crime is very high. This makes it necessary for us to upgrade the enhanced security system which is INVISIBLE EYES. it is basically a single camera-based security system that can be used to protect important items stored in a room or a local manager who can watch the video and be warned of intrusion. Once a criminal has been found this information about the criminal will be directed to the police via SMS. And at the same time, the camera can be killed in the room and only recorded if alerted to the presence of any Entry Manager can only watch the video alerted to the presence of interference. This type of system will result in less time and this will help to track the culprit easily in less time. Once the culprit has been identified, this information about the burglary will be directed to the police via email.

2. DESIGN METHODOLOGY

- Microcontroller
- Stepper motor
- sensor
- Camera
- Personal computer

2.1 MICROCONTROLLER

A microcontroller is a small and inexpensive computer, designed to perform the functions of embedded systems such as displaying microwave information, receiving remote signals, etc. A typical small controller contains a processor, memory (RAM, ROM, EPROM), Serial holes, peripherals (times, counters), etc. Types of Microcontrollers are divided into different categories based on memory, properties, fragments and instruction sets. The following is a list of their types - Bit Based on the bit configuration, the sub-directory is further divided into three categories.

16-bit microcontroller - This 8-bit microcontroller - This type of small controller is used to perform arithmetic and logical functions such as addition, subtraction, multiplication, etc. For example, Intel 8031 and 8051 are 8 bits smaller controls.

A small control type is used to perform calculations and logical operations where high accuracy and performance are required • 32-bit microcontroller - This type of small controller is often used in automated controls such as switches, medical devices, etc.

2.2 STEPPER MOTOR

A Stepper motor is an electromechanical tool that converts electrical energy into mechanical energy. Also, it is a brushless, synchronous electric motor that can split a complete rotation into a growing number of steps. The position of the vehicle can be accurately controlled without any response, as long as the engine is carefully measured in the application. The stepper motor uses the theory of magnetic operation to make the motor

2.2.1 Construction & Working Principle

Shaft turn a certain distance when the electric pulse is supplied.. Rota will need 24 electric pulses to move 24 steps to make one complete transformation. One way to say this is that the rotor will move accurately 15° to each electric pulse received by the engine. The design of the stepper motor is closely related to the DC motor. It incorporates a permanent magnet as a central rotor and will rotate when power is applied to it. The rotor is numbered. of stator damaged by a magnetic coil everywhere. The stator is positioned near the rotor so that the magnetic fields inside the stators can control the rotor movement



Fig 1: Stepper motor

The stepper motor can be controlled by empowering all the stators individually. The stator will therefore act as a magnet and will act as an electric pole that uses offensive energy to move forward. The other stator magnetizing and demagnetizing will change the rotor gradually and allow it to rotate with greater control.

The principle of operation of the stepper motor is Electro-Magnetism. It consists of a rotator made of permanent magnet while the stator has electric magnets. Once the supply is supplied to the stator threat then a magnetic field will be developed within the stator. Now the rotor on the motor will start to move through the rotating magnetic field of the stator. So, this is the basic operating principle of this car.

In this motor, there is a soft metal covered with electric stators. The stator and rotor poles do not depend on the type of stepper. When the stators of this motor are strong, the rotor will rotate to match the stator otherwise it will turn to have a small gap in the stator. In this way, stators are activated in a series to rotate the stepper motor.



Fig 2: Inside Stepper motor coils

2.3 SENSOR

To establish wireless communication over a remote device, we often use radio waves, optical rays and occasional sound waves. Basically, these types of wireless communications change their frequency. All of these connections have various waves starting in bands like HF, LF, VHF, UHF bands, and so on. Optical radiation uses the infrared and visible part of the spectrum; acoustic waves using the ultrasonic part of the frequency spectrum; also, small waves and millimeters are called radio waves.

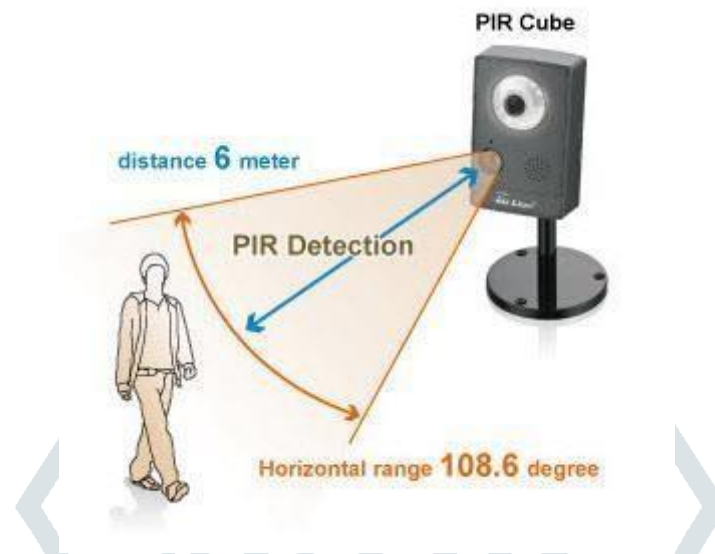


Fig 3: PIR Detection System

2.4 GSM

GSM is a cellular modem. It stands for Global System for Mobile Communication (GSM). The idea for GSM was developed at Nokia Bell Labs in 1970. It is a mobile communication system widely used all over the world. GSM is an open digital cellular technology used to transmit mobile voice and data services, operating in the 850 MHz, 900 MHz, 1800 MHz, and 1900 MHz frequency bands.

The GSM system comes in a variety of cell sizes, including macrocells, microcells, and umbrella cells. Each cell depends on the implementation domain. GSM network macro, micro, and umbrella cells come in five different cell sizes. The coverage area of each cell depends on the GSM technology developed as a digital system that uses time division multiple access (TDMA) technology for communication purposes. GSM digitizes and reduces data, sending it over channels with two different client data streams, each in its own time slot. Digital systems have the ability to transmit data rates from 64 kbps to 120 Mbps in a deployment environment.

Time Division Multiple Access (TDMA) technology is based on assigning different time slots to each user on the same frequency. It can be easily adapted to data transmission and voice communication and can transmit data rates from 64kbps to 120Mbps.

2.4.1 GSM Technology Architecture

The main elements of the GSM architecture are:

- GSM Technology Architecture
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- Network and Switching Subsystem (NSS)
- Base Station Subsystem (BSS)
- Mobile Station (MS)
- Operation and Support Subsystem (OSS)
- Network Switching Subsystem (N)

2.5 DIGITAL CAMERA

A digital camera is a camera that stores images in electronic memory rather than moving images. This allows digital cameras to take far more pictures than traditional film cameras. Digital cameras may be able to capture hundreds or even thousands of images. Many use memory cards to store them. Most digital cameras can send the images in the camera to your computer using a USB cable that connects to your computer.

Digital photography is a type of photography that uses a digital camera to take pictures. Digital cameras use image sensors instead of photographic film. Often, you use a memory card to store your photos in digital format. Most photos are digital, but some photographers still use older film cameras.

Most cameras are part of a cell phone called a "camera phone". They can send their photos to other phones and other devices. Most camera phones can't take as good a picture as a large standalone camera, especially if the lights aren't bright.

Most digital cameras act as video cameras. Some are directly connected to another computer that can store the data.



Fig 4: Camera

2.6 PERSONAL COMPUTER

A personal computer (PC) is a general-purpose microcomputer whose size, function, and price enable personal use. Personal computers are intended to be operated directly by the end user, not by a computer expert or technician. Unlike large and expensive minicomputers and mainframes, personal computers are not time-shared by many at the same time. Especially in the late 1970s and 1980s, the term home computer was also used.

3. WORKING

Step 1: The user enters the password. If the password you entered is correct, the system will boot, otherwise you will be prompted to re-enter the password.

Step 2: When the sensor detects a change, an intrusion is detected. Otherwise, there is no intervention.

Step 3: When an intrusion is detected, the relay will be triggered, the stepper motor will rotate, the camera will start recording and an email will be sent to the user.

4. APPLICATIONS

- Crime deterrent
- Data room
- Protect employees
- Lawsuits
- ATM
- Jewellery shop
- Entry and exist of the mall
- A remote corner of a parking lot requires security coverage 24 hours a day, year-round
- A warehouse storing high explosive demand constant surveillance.

5. ADVANTAGES

The biggest advantage is that we can avoid having to wade through hours of footage of empty rooms

One can also avoid installing multiple cameras to over a single room

6. DISADVANTAGES

We have to deactivate the system while your shop is open

If the owner is out of network the message will not be sent

7. CONCLUSION

The Invisible Eye security system solves many of the problems faced by multiple camera-based systems easily and affordably. The biggest advantage is that you don't have to dig into the footage of an empty room for hours. It also eliminates the need to install multiple cameras to cover a single room. The cost of installation is very low compared to multi-camera systems. You can avoid hours of recording in an empty room. The camera rotates 360 ° so you can see the video material better.

You can extend this task to completely eliminate the use of microcontrollers and instead use the PC's parallel port to monitor the sensor. Once the intruder is located, advanced image processing techniques can be applied to track the intruder. In the future, we may provide storage for storing recorded footage.

8. FUTURE ENHANCEMENT

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 identifier.

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