

# Electronic Eye Security Systems

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**Abstract** – Electronic eye controlled security system is also known as magic eye. As automation is an emerging technology, these days it is possible to visualize a concept like a door bell ringing automatically when a person visits a home. This also provides security to the home when any person is trying to enter without your permission. Electronic eye controlled security system is an electronic device that continuously watches if anyone is visiting your home. This is done using a PIR Motion Sensor which can detect a person or a pet, in turn making a buzzer automatically ring and sending a message quickly to the concerned persons to alert them using a Wi-Fi module and IFTTT. The PIC microcontroller is connected to the PIR sensor. If any person is detected it sends signal to the Microcontroller and the image will be captured using a camera. It checks with the data whether the person is a stranger or not. Then the buzzer rings and an alert message is sent to the concerned person along with the image captured by the camera Eye tracking technology provides a new interaction mechanism to strengthen the existing security techniques. Thus the electronic system is an essential security automation tool.

**Index Terms** – Wi-Fi module, monitoring, Microcontroller, Buzzer alarm, PIR sensor.

## 1. INTRODUCTION

Security is primary concern with day to day life and properties in our environment. Robbery has become common in our day to day life. Countering it, Security systems with Web cameras are commercially available. These systems are powered entire time and they capture videos, images throughout the day and hence consuming large amount of electricity. In most the places remote surveillance is needed. These system captured image as door opens alarm gets on with transferring data through microcontroller control unit with image can be seen on PC or Laptop with VB application software. The term electron eye is also called as magic eye, is a one type of electronic device, used for lookout always if any person is visiting your home. Nowadays, automation is an emerging technology. For example, a doorbell generates continuous ringtones when an unauthorized person visits your home. This system gives safety for homes when any illegal person is trying to enter into your home without your permission.

Here is a smart security system for your cash box that stops the theft attempt by activating an emergency beeper. A battery is provided to supply the power to the circuit with the help of a switch. When cash box is closed LDR in dark state resets the IC CD4060 which goes low and has no impact on BC547

results Relay in off condition. When LDR in bright mode, the counter will start counting and oscillates resulting both transistors in ON condition indicating load ON and buzzer will blow. This circuit is mainly useful at Banks, Hotels, shopping malls, household appliances..Etc.

Security system has been concern of worldwide. As technology is emerging every second, abundant home based or office based or industries based security systems have been developed and implemented to keep welfare security safe. Home security system is an essential mean of protecting homes from illegal invasion and false intrusion. A general home security system consists of CCTV, Web cameras, Buzzer alarm. Web camera or CCTV capture image in 24 hours to identify what goes around the house and in the house around the door which holds evidences if there is false intrusion in house breaking around the door of captured areas. The power consumption is also considerably large as camera is always on to keep recording non- stop and for capturing images. The power consumption is considered as concern of installing a security system

## 2. PRINCIPLE

The main principle of the circuit is to ring the door bell when there is any person at the entrance. It also alerts the concerned person by sending a text message. Light on the LDR determines whether a person is present or not. When there is any object at the entrance, LDR is in dark and buzzer starts ringing and the LED starts glowing.

## 3. WORKING

Early days with advancement of technology things are becoming simpler and easier for users. Automated systems/machines are being preferred over manual system. In this paper the basic definitions needed to understand the Project better and further defines the technical criteria to be implemented as a part of this project. Automation reduces the need of human work and also the use of control systems and information technologies reduces the need for human work in the production of goods and services. In the scope of industrialization, home automation is a step beyond mechanization. For machineries mechanization provided human operators with machinery to assist them with the muscular requirements of work, where automation greatly reduces the need for human sensory and mental requirements as well. Automation in security system plays

an increasingly important role in the world economy. Automatic security systems are being preferred over manual system. Through this paper we have tried to show home automatic security system control of a house as a result of which power is saved to some extent with the help of home automation for door image capture for security system. When light falls on the sensor, its resistance drastically decreases which lead to triggering an alarm to alert the user. This system best suits in the application of providing friendly security system for cash boxes and lockers, which can be found in malls, jeweler shops, and banks. The project can be enhanced by using a GSM modem and a PIC microcontroller. GSM modem can be interfaced to the microcontroller to send an SMS to the user in case of burglary.

Initially, connect the circuit on the bread board. Now connect the supply voltage of 9v using battery. Place the Light Dependent Resistor in light .You can observe that no sound is produced from the buzzer. Place the LDR in dark, you will notice that the buzzer starts ringing. LED connected to the buzzer also starts blinking. As the intensity falling on the LDR increases sound produced by the buzzer increases.

#### 4. COMPONENTS

1. GSM MODULE
2. PIC MICROCONTROLLER
3. BUZZER
4. PIR SENSOR

##### 1. GSM MODULE

This is an ultra compact and reliable wireless module. The SIM900A is a complete Dual-band GSM/GPRS solution in a SMT module which can be embedded in the customer applications. Featuring an industry-standard interface, the SIM900A delivers GSM/GPRS 900/1800MHz performance for voice, SMS, Data, and Fax in a small form factor and with low power consumption. With a tiny configuration of 24mmx24mmx3mm, SIM900A can fit in almost all the space requirements in user applications, especially for slim and compact demand of design.

##### 2. PIC MICROCONTROLLER



Fig. PIC microcontroller

The PIC microcontroller PIC16f877a is one of the most renowned microcontrollers in the industry. This controller is very convenient to use, the coding or programming of this controller is also easier. One of the main advantages is that it can be write-erase as many times as possible because it use FLASH memory technology. It has a total number of 40 pins and there are 33 pins for input and output.

##### 3. BUZZER

The burglar alarm is built around the PIC microcontroller. This micro controller provides all the functionality of the burglar alarm. Sensors can be connected to the burglar alarm. A power supply voltage of +5 VDC is available for each sensor at the corresponding wiring terminals. A standard bell ringer design works just like a buzzer except the contact arm is attached to a long clapper that hits a metal bell. ... In a buzzer, the simplest sort of doorbell, an electromagnet is used to operate a self-interrupting circuit. Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.



Fig 3. Buzzer

##### 4. PIR SENSOR

Here, we are using a PIR motion sensor. PIR stands for Passive Infrared. This motion sensor consists of a Fresnel lens, an infrared detector, and supporting detection circuitry. The lens on the sensor focuses any infrared radiation/wavelengths present around it towards the infrared detector. Our bodies generate infrared heat and as a result, this gets picked up by the motion sensor. The sensor outputs a 5V signal for a period of one minute as soon as it detects us. It offers a tentative detection range of about 6-7 m and is highly sensitive. The output from the sensor (5V) is used to trigger a transistor BC547. The transistor then switches on a 5V relay. The relay correspondingly switches your appliance ON. The PIR motion sensor is an electronic sensor. The function of this sensor is to find the human body with a certain range of frequency. This sensor is used for the people, animals, and other objects. This type of sensor is mostly used in the theft alarm, and automatic

light activated system. The following diagram shows the basic PIR sensor motion image.



Fig 4. PIR sensor

## 5. CONCLUSION

Hence, Microcontroller based Electronic Eye for security system, device that utilizes Sensor input as key for users' access. It has been successfully demonstrated that, this will serve as a device for securing personal wares in environments where it is deployed against intruders by setting off appropriate alarm for every door opens. Therefore, it can be said that the objectives have been met, hence conclusion is made that this is a successful undertaking design and implementation of Door image capture using Microcontroller based security system for home and offices. It provides the user with efficient and reliable security system

for Door image capture for home, offices and industries that supports the use of an sensor at the door to send the signals to control unit of electronic eye with buzzer alarm for security purpose with image capture as soon as the door opens with image capture at the output of laptop or PC with VB application output.

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