

# **MINI PROJECT REPORT ON PIR SENSOR BASED SECURITY ALARM SYSTEM**

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**BY**

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## ABSTRACT

The improvement of a cheap and compelling electronic security framework utilizing PIR sensor is point by comprises of a transmitter and a beneficiary. The transmitter area conveys an IR bar which is by and large constantly gotten by the recipient segment. At the point when a gatecrasher strolls past the gadgepoint this report. This sensor based security framework can be utilized in family just as local applications and even in other high security zones. An ordinary electronic security framework which is regularly utilized, the IR bar gets upset and in this manner the alert is enacted. Significant drawbacks of the framework incorporate restricted range and poor observable pathway. This PIR Sensor put together Security System can change with respect to a light or caution when it distinguishes the warmth from an item like a moving individual. The name Passive Infrared Sensor is called so in light of the fact that it gets the infrared beams inactively and don't produce any infrared beam. The alert that goes off can be physically reset.

## INTRODUCTION

A PIR Sensor is a pyroelectric gadget that can detect infrared (IR) radiation changes inside its review go. These sensors are touchy to moving items transmitting IR. A PIR sensor makes transitory electric potential at whatever point a difference in IR radiation happens on the survey scope of the sensor, yet the electric potential created is little in plentifulness and must be enhanced fundamentally. That is on the grounds that PIR sensors can't be utilized alone, rather they become one of the key parts of an inactive infrared gadget (PID) with some other hardware. The fundamental structure of a PID comprises of a Fresnel focal point, a PIR sensor, a speaker hardware and a comparator in addition to time delayer hardware. Fresnel focal point centers IR radiation around PIR sensor and PIR sensor estimates the adjustment in the IR rate and makes an electric potential contrast relating to the variety in the IR radiation. In any case, this potential distinction is little and must be enhanced without presenting commotion. The speaker hardware intends to have a substantial increase for the sensor flag and smother the surrounding clamor in the meantime. Along these lines, for the most part a two phase bandpass enhancer is utilized. The intensified sensor flag is then contrasted and a limit. In the event that the flag remains in the range controlled by the limit, at that point it is expected that no movement is watched, else it is accepted that there is a moving target. In this manner customary PIR sensors are basic and give a yield of intelligent one when they identify a movement and a coherent zero when there is no moving article inside their review ranges.

The PIDs are ease, simple to utilize and broadly accessible economically. These handy highlights made them utilized in numerous indoor and outside applications including the security frameworks.

## **EXISTING SYSTEM**

Home automation is building automation for a home, called a smart home or smart house. It may also include home security such as access control and alarm systems. Existing system is manual method of detecting the motion. There will be no alarm system we have to detect whether anyone is there or not. Many existing, settled home mechanization frameworks depend on wired correspondence. IoT is a framework that utilizes PCs or cell phones to control essential home capacities and highlights naturally through Internet from anyplace around the globe.

## **DISADVANTAGE OF EXISTING SYSTEM**

As we can't detect any motion there is no alarm system in our home, so if thief comes inside our house we will not be able to detect.

## **PROPOSED SYSTEM**

The proposed framework comprises of use of the module can be clarified by a precedent. Assume the proprietor is expecting a visitor at his home yet he isn't accessible there. Presently, as the visitors reach at his home the proprietor will get a video call. Additionally if the client or someone goes out, the client will even now get a video call and this time he can turn Off the apparatuses or can empower the security framework again by squeezing appropriate digits known to him. Since the apparatuses are associated with mains supply through a transfer they can be effectively controlled utilizing small scale controller. Along these lines, in the event that a person is distinguished by the PIR sensor circuit, at that point the computerized yield is created by it. This computerized yield is encouraged to the IC UM3561 that produces the alarm or alert.

## **ADVANTAGE OF PROPOSED SYSTEM**

- This ease framework with least necessities deals with both home security just as home mechanization.
- This home security framework does not utilize any cell phone application or any sort of UI rather utilizes digits from the keypad on the telephone, the framework is stage free and subsequently can be gotten to from a wide scope of telephones with various working frameworks.
- To work home security framework the client need not have information association empowered in his telephone. The framework runs fine with the launchpad associated with wifi at home/office.
- The discretionary advanced cell application deals with the way that the client may likewise wish to control his home apparatuses without sensors being activated.
- To work home security framework the client need not have information association empowered in his telephone. The framework runs fine with the launchpad associated with wi at home.

# SYSTEM ARCHITECTURE

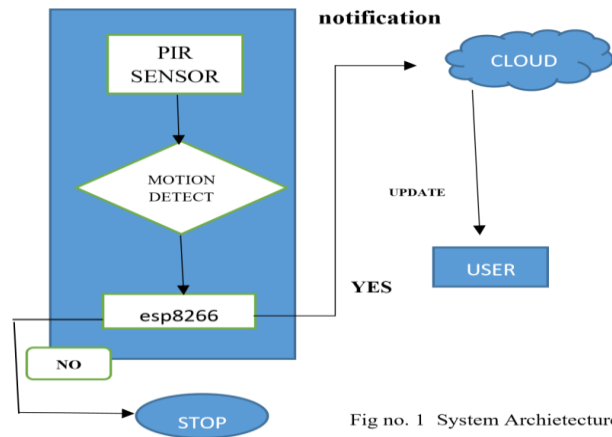
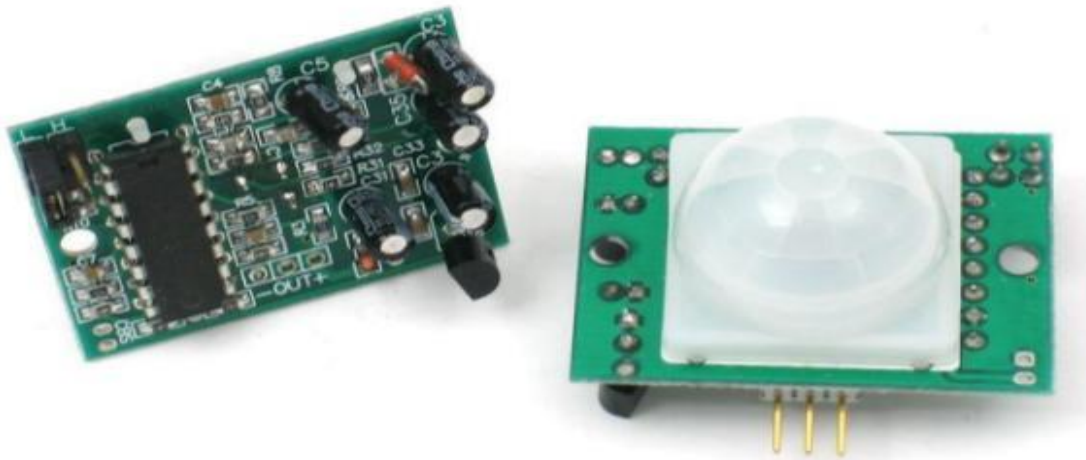


Fig no. 1 System Architecture

## 1. PIR SENSOR

A detached infrared sensor (PIR sensor) is an electronic sensor that estimates infrared (IR) light emanating from items in its field of view. They are frequently utilized in PIR-based movement locators. PIR sensors are normally utilized in security cautions and programmed lighting applications. PIR sensors recognize general development, however don't give data on who or what moved. For that reason, a functioning IR sensor is required. PIR sensors are generally called basically "PIR", or some of the time "PID", for "uninvolved infrared finder". The term latent alludes to the way that PIR gadgets



don't emanate vitality for location purposes. They work totally by distinguishing infrared radiation (brilliant warmth) produced by or reflected from items. **LDR** light-dependent resistor, LDR, is a light-controlled variable resistor. The resistance of a photoresistor decreases with increasing incident light intensity; in other words, it exhibits photoconductivity. A photoresistor can be applied in lightsensitive detector circuits, and lightactivated and dark-activated switching circuits.

## 2. ARDUINO UNO

The Arduino UNO is an open-source microcontroller board dependent on the Microchip ATmega328P microcontroller and created by Arduino.cc. The board is outfitted with sets of computerized and simple info/yield (I/O) sticks that might be interfaced to different development sheets (shields) and different circuits. The board has 14 Digital pins, 6 Analog pins, and programmable with the Arduino IDE (Integrated Development Environment) by means of a sort B USB link. It tends to be fueled by a USB link or by an outer 9-volt battery, however it acknowledges voltages somewhere in the range of 7 and 20 volts



Fig no. 2

### 3. LED



A light-emitting diode (LED) is a semiconductor light source that radiates light when current courses through it. Electrons in the semiconductor recombine with electron gaps discharging vitality as photons. This impact is called electroluminescence. The shade of the light (comparing to the vitality of the photons) is dictated by the vitality required for electrons to cross the band hole of the semiconductor.[6] White light is gotten by utilizing various semiconductors or a layer of lighttransmitting phosphor on the semiconductor gadget.

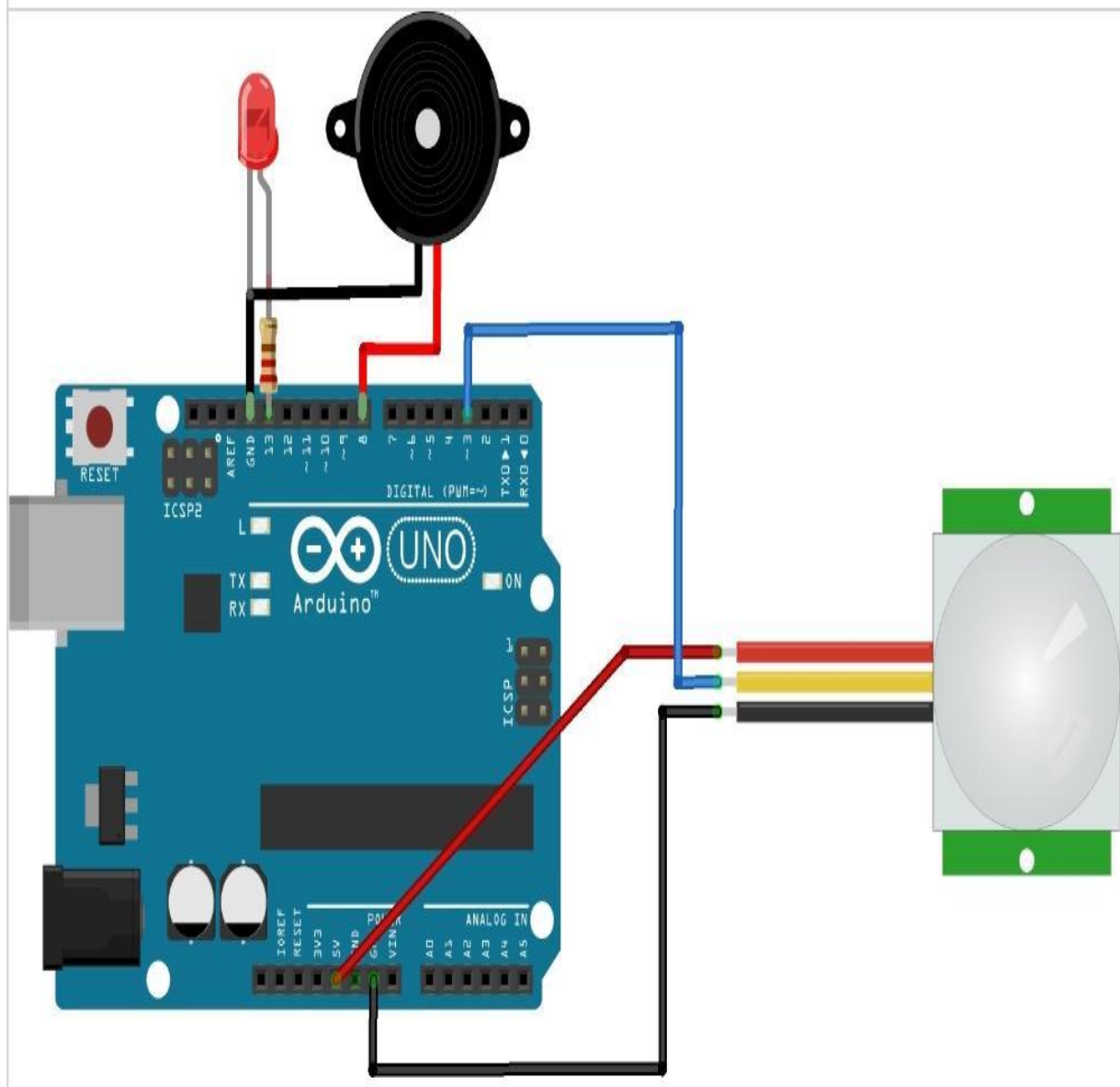
#### 4.BUZZER



The piezo, also known as the buzzer, is a component that is used for generating sound. It is a digital component that can be connected to digital outputs, and emits a tone when the output is HIGH. Alternatively, it can be connected to an analog pulse-width modulation output to generate various tones and effects. The **Grove Buzzer** operates at both 3.3V and 5V with a sound output of 85 decibels. This module can be used to provide sound feedback to your application just like the click sound of a button on a digital watch.

Inside the buzzer there is a membrane, like a drumhead, that vibrates due to electric current. When `tone(BUZZER, 85)` is executed, the current passes through the membrane and deforms it. For `noTone(BUZZER)` the current stops and the membrane goes back to its original shape. When current is turned on and off very quickly, the membrane vibrates back and forth, creating sound waves that are audible. By changing how fast the current is turned on and off, you can control the speed of the vibration. Faster vibrations create higher pitches while slower vibrations create lower pitches.

## ARCHITECTURE







```

    if(digitalRead(pirPin) == HIGH){
        digitalWrite(ledPin, HIGH); //the led visualizes the sensors output pin state
        digitalWrite(Buzzer, HIGH);    if(lockLow){
            //makes sure we wait for a transition to LOW before any further output is made:
            lockLow = false;          Serial.println("---");
            Serial.print("motion detected at ");
            Serial.print(millis()/1000);

                                   Serial.println("
                                   sec");
                                   delay(50);    }

            takeLowTime = true;

                                   }

    if(digitalRead(pirPin) == LOW){
        digitalWrite(ledPin, LOW); //the led visualizes the sensors output pin state
        noTone(Buzzer);

                                   if(takeLowTime){
            lowIn = millis();    //save the time of the transition from high to LOW
            takeLowTime = false; //make sure this is only done at the start of a LOW phase
            }
            //if the sensor is low for more than the given pause,
            //we assume that no more motion is going to happen
            if(!lockLow && millis() - lowIn > pause){
                //makes sure this block of code is only executed again after
                //a new motion sequence has been detected
                lockLow = true;
                Serial.print("motion ended at ");    //output
                Serial.print((millis() - pause)/1000);
                                   Serial.println(" sec");
                                   delay(50);

            }
        }
    }

```

```

33     }
34     Serial.println(" done");
35     Serial.println("SENSOR ACTIVE");
36     delay(50);
37 }
38
39 //////////////////////////////////////////////////
40 //LOOP
41 void loop(){
42
43     if(digitalRead(pirPin) == HIGH){
44         digitalWrite(ledPin, HIGH); //the led visualizes the senso
45         digitalWrite(Buzzer, HIGH);
46         if(lockLow){
47             //makes sure we wait for a transition to LOW before any fu
48             lockLow = false;
49             Serial.println("---");
50             Serial.print("motion detected at ");

```

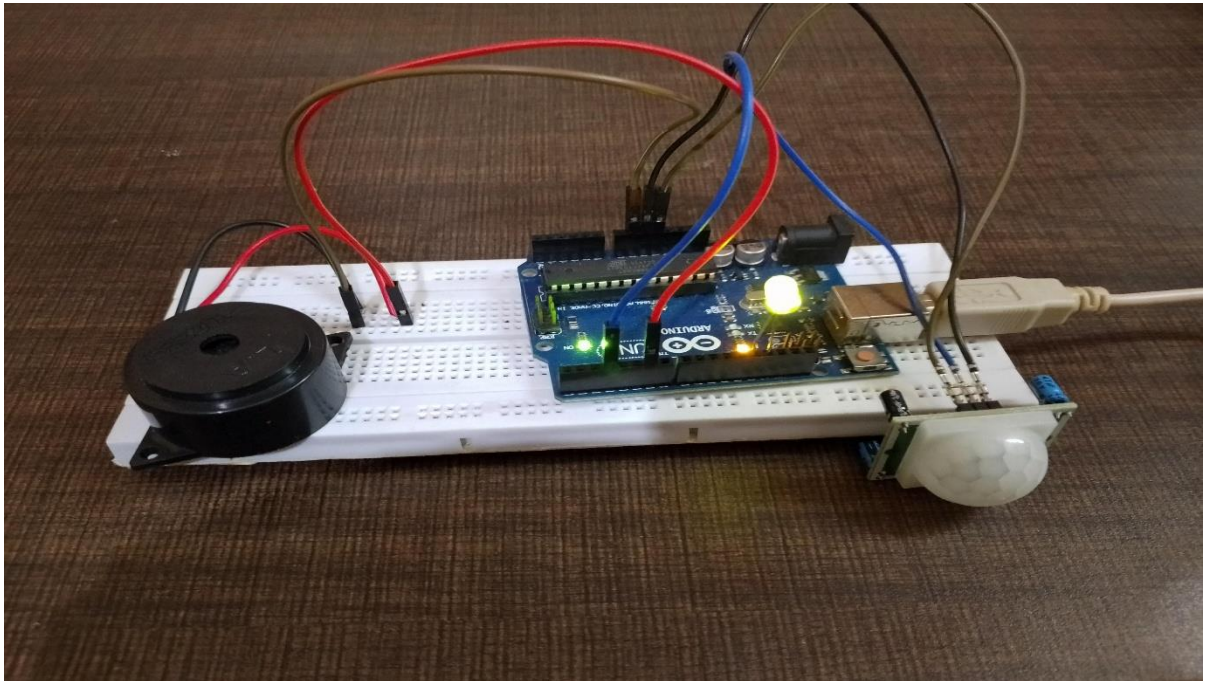
Output

Sketch uses 2862 bytes (8%) of program storage space. Maximum is 32256 bytes.  
Global variables use 281 bytes (13%) of dynamic memory, leaving 1767 bytes free.

## SYSTEM

## OUTPUT AND RESULTS

The result shows the final hardware design of the proposed system. This result clearly shows how all the components required for our system is connected.





## CONCLUSION AND FUTURE SCOPE

As the framework is subject to the client's caution and judgeability of the circumstance (regardless of whether it is a visitor or an interloper going into his home) the utilization of a camera associated with the microcontroller may help the client in taking choices whether to enact the security framework or welcome the visitor. The caught image of the visitor or gatecrasher after face identification, can be sent to the client. The client can additionally advance a similar photo to the police headquarters in the event that he wishes. Further the framework might be made increasingly synchronized by coordinating the voice call highlight inside a similar advanced cell application through which the client can even control his home apparatuses with no voice call being activated to his telephone.

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