

Motion Detection

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Abstract: In this project, we are going to make a motion detection security alarm using Arduino uno. It can detect the motion of an intruder with help of a PIR Sensor. It is based on infrared motion sensing that is every body emits heat energy in the form of infrared rays which are invisible to human naked eye but can be detected using electronic motion sensor. The main objective is that it focuses on detection of motion without any external touch. The applications are as a automatic door bell circuit, in defence applications and other electronic devices. The passive infrared sensor detects the IR radiations emitted from humans within its range and it sends the signal to Arduino uno then the led glows and then it triggers buzzer, hence motion is detected. 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.

Keywords: Arduino Uno, PIR sensor, Bread Board, Resistor, Jumper wire

I. INTRODUCTION

Our project is based on the idea that everybody generates heat energy in the form of infrared rays which are not visible to human naked eye, but can be detected using PIR Sensor. The project focuses on detection of motion of an intruder without any external touch. The electronic motion sensor detects the motion within its range that is around five metres of an unusual motion. With the guide of an Arduino uno, PIR Sensor and some provided code, developments inside the field. The whole project is based on Arduino uno, which is an open source microcontroller.

II. COMPONENTS USED

Arduino uno



PIR Sensor



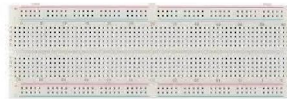
Led



Buzzer



Bread Board



Resistor



Jumper Wires

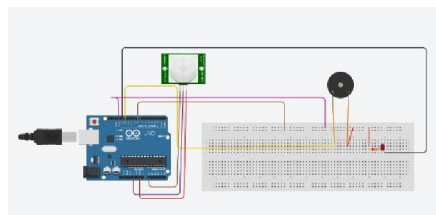


Fig 1: circuit connectivity

III. HARDWARE IMPLEMENTATION

Connect GND pin of PIR sensor to GND of the Arduino
Connect "VCC" pin of PIR to 5v of Arduino and output pin of PIR to analog (A0) of Arduino
Connect LED and BUZZER breadboard ,
Connect +VE pin of LED to 13D pin of Arduino ,
Connect -VE to one leg of resistor and other leg of resistor to GND of breadboard
Connect BUZZER +VE pin to 12D pin of Arduino, -VE to GND of breadboard
Connect GND of Arduino to -VE of Breadboard
Connect +VE pin of Breadboard to 8D pin, (or) any digital pin or analog pin of Arduino for power

IV. SOFTWARE IMPLEMENTATION

Arduino IDE :

The Arduino Integrated Development Environment - or Arduino Software (IDE) - contains a text editor for writing code, a message area, a text console, a toolbar with buttons for common functions and a series of menus. It connects to the Arduino hardware to upload programs and communicate with them.



Fig-2 : code implementation

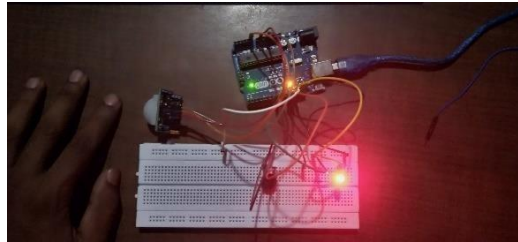


Fig-3 : working project

V. FUTURE SCOPE

It can connect to the smart phones so alarm message can be send to it
We can operate remotely on and off system
We can add camera to it so that it can capture the intruders and send to mobiles

VI. CONCLUSION

Thus, we have designed a home security alarm system using Arduino and PIR motion sensor, which is handy, portable, cost-effective and highly effective as well.

Such alarm systems are hugely in demand for security purposes, and thus the given system can be proved useful and effective in view of the above features . There are many methods to make these project. I myself intentionally used the PIR sensor for these project. However, I have got the desired output for this project

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