# AUTOMATIC DOOR OPENING SYSTEM

BATCH NUMBER:190239


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# AGENDA

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*TIMELINE CHART

*REFERENCES

- ABSTRACT


- In this project Automatic Door Open/Close System Using Arduino Uno and Passive Infrared (PIR) Motion Sensor is designed..
- It uses a motion-detecting sensor (PIR sensor) to open or close the door which detects the infrared energy omitted from humans body

- INTRODUCTION

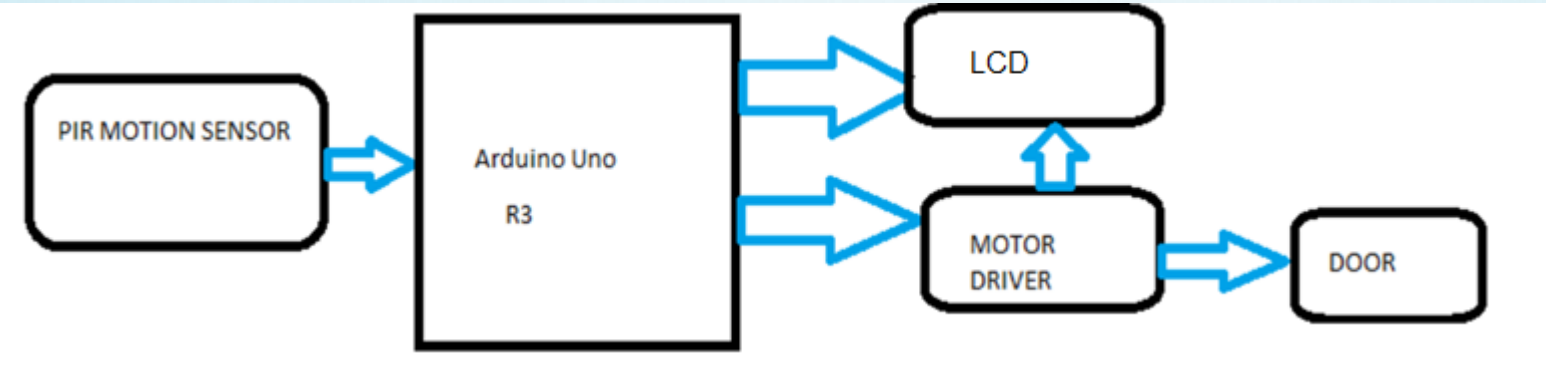
You must have seen automatic door openers in shopping malls and other commercial buildings. They open the door when someone comes near the entrance and close it after some time. Open/close of door has always been a tiresome work especially for blind, disabled and aged people in their home, shopping malls, etc... This automatic sliding door system can be useful for blind, old and maimed people. This system saves lot of energy which can be used for air conditioning, because the door remains open only when a person is sensed and remains closed at other times in the absence of person. . A number of technologies are available to make such kinds of systems like PIR sensors, Radar sensors, Laser sensors, Infrared sensors, etc. In this Arduino based project, we have tried to replicate the same system by using a PIR sensor

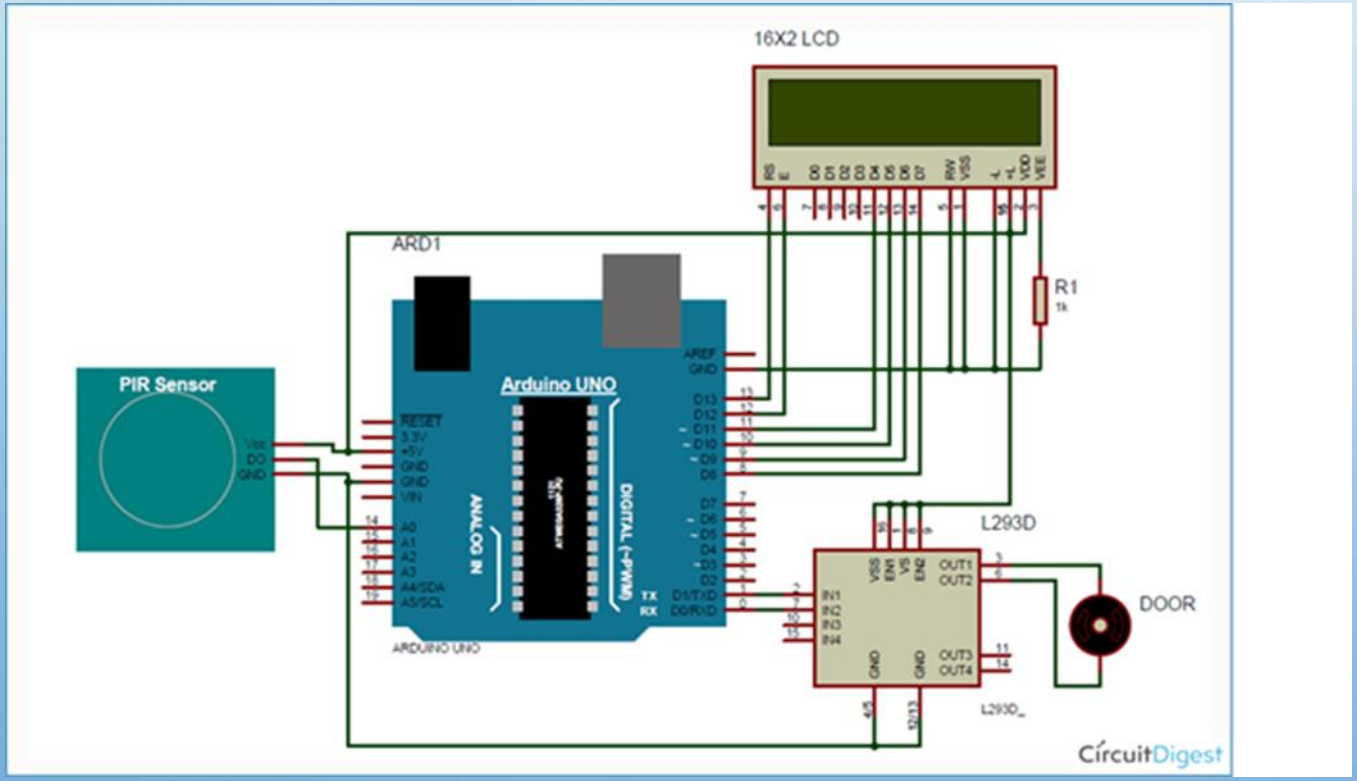
# WORKING:

Human body has tendency to emit infrared radiation, this will be sensed by PIR sensor.

.When someone comes in front of the door, the infrared energy detected by the sensor changes and it triggers the sensor to open the door whenever someone approaches the door. The signal is further sent to Arduino Uno that controls the door. Liquid Crystal Display (LCD) will glow up when movement is detected. When a person is within the operating range of the sensor, it sends a logic signal to operate the door, so the door opens and after some time when the person has moved, and he is out of range of the sensor, the door closes after some delay time.

# Architecture diagram:



# MODULE IDENTIFICATION

- >DOOR OPERATOR
- >MAINTENANCE SWITCH
- >ACTIVATION SENSOR
- >SAFETY SENSOR
- >FANLIGHT
- >TRANSOM
- >SLIDING DOOR PANEL
- >FIXED DOOR PANEL
- >LOCK

# Equipments Identified:

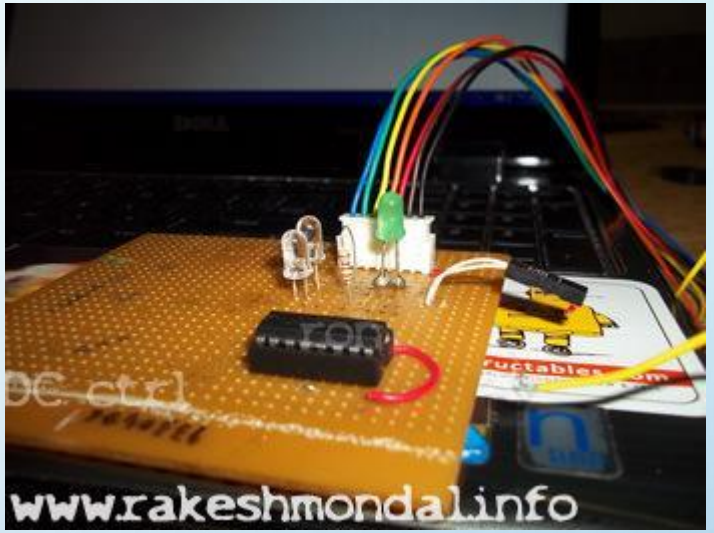
The **Arduino Uno** is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc.

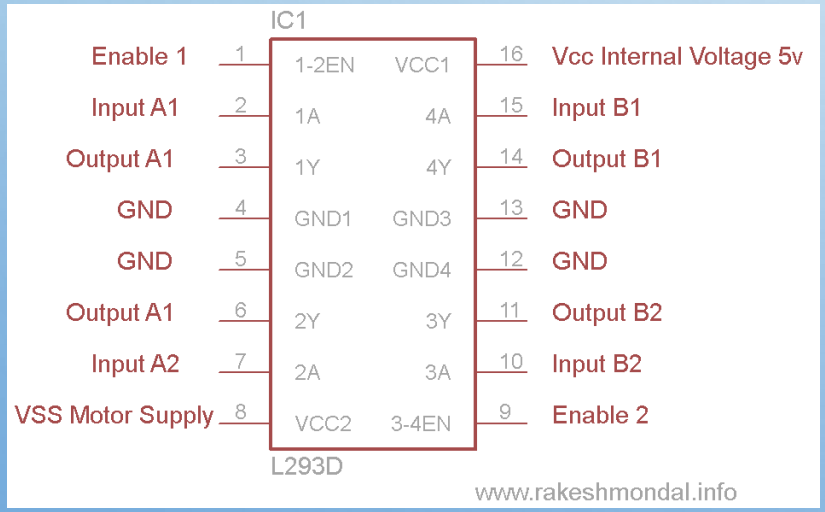
## PIR Sensor

PIR sensor detects any change in heat, and whenever it detects any change, its output PIN becomes HIGH. They are also referred as Pyroelectric or IR motion sensors. Whenever an object passes through the sensor range, it produces infrared because of the friction between air and object, and get caught by PIR. Pyroelectric sensor divide in two halves, when there is no motion, both halves remain in same state, means both senses the same level of infrared. As soon as somebody enters in first half, the infrared level of one half becomes greater than other, and this causes PIRs to react and makes the output pin high

A **16x2 LCD** means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, namely, Command and Data.

## L293D Motor Driver IC



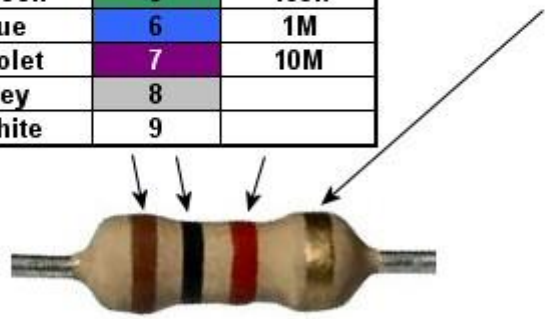




These drive circuits can be easily interfaced with the motor and their selection depends upon the type of motor being used and their ratings (current, voltage).

## Resistor Color Codes

| | Value | Multiplier |
|---|---|---|
| Black | 0 | 1 |
| Brown | 1 | 10 |
| Red | 2 | 100 |
| Orange | 3 | 1k |
| Yellow | 4 | 10k |
| Green | 5 | 100k |
| Blue | 6 | 1M |
| Violet | 7 | 10M |
| Grey | 8 | |
| White | 9 | |

| | Tolerance |
|---|---|
| Silver | 10% |
| Gold | 5% |
| Red | 2% |
| Brown | 1% |



1 0 2 = 10*100 = 1k Ohm

A **resistor** is a passive two-terminal electrical component that implements electrical resistance as a circuit element

### CONNECTING WIRES:

Connecting wires allows an electrical current to travel from one point on a circuit to another because electricity needs a medium through which it can move.

### BREADBOARD:

A breadboard is a solderless device for temporary prototype with electronics and test circuit designs. Most electronic components in electronic circuits can be interconnected by inserting their leads or terminals into the holes and then making connections through wires where appropriate.

| Delivery | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Testing | | | | | | | | | | |
| Integration with IDE | | | | | | | | | | |
| Coding – Arduino IDE | | | | | | | | | | |
| Hardware Analysis | | | | | | | | | | |
| Pbm Identified | | | | | | | | | | |
| Literature Survey | | | | | | | | | | |
| Modules | Aug 1-4 Week | Sep 1st Week | Sep 2nd Week | 3rd | 4th | Oct 1st Week | 2nd | 3rd | 4th | Nov 1st Week |

# References:

https://buddymantra.in/connecting-wires/

https://circuitdigest.com/microcontroller-projects/automatic-door-opener-project-using-arduino