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Automatic room light and fan controller with bidirectional visitor counter

abhilasha (/users/abhilasha/profile) , **pratiksha** (/users/pratiksha/profile)
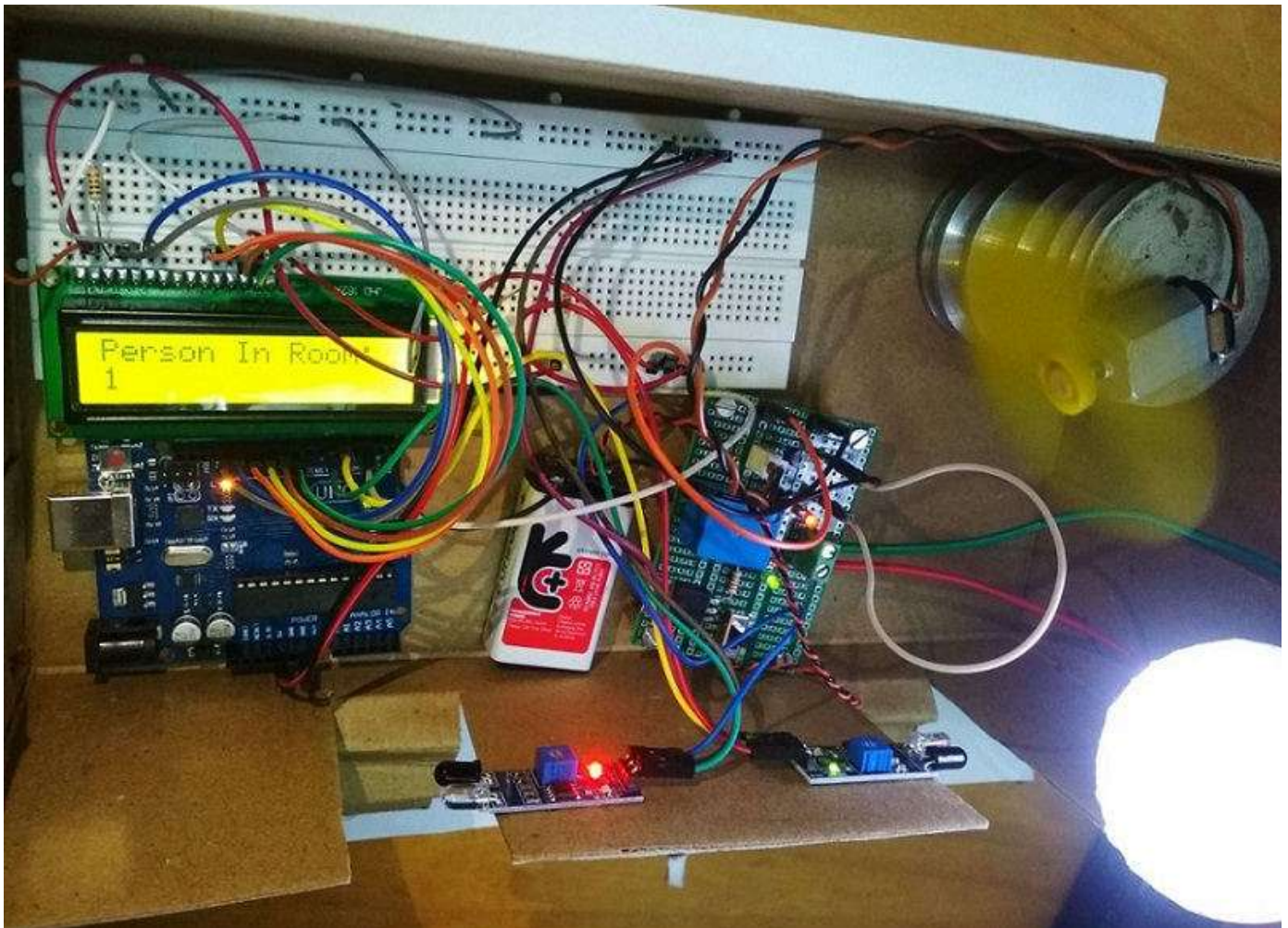
Published On : 2018-09-25 22:13:03

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arduino   (/search?query=arduino)

Automatically turn the room lights and fan ON when at least one person is present in the room.

Project Description

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Introduction

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We built an IoT based system which can automatically switch ON room lights and fan when at least one person is present in the room. If room is empty, the lights and fan will automatically get switch off. It also displays count of persons present in the room.

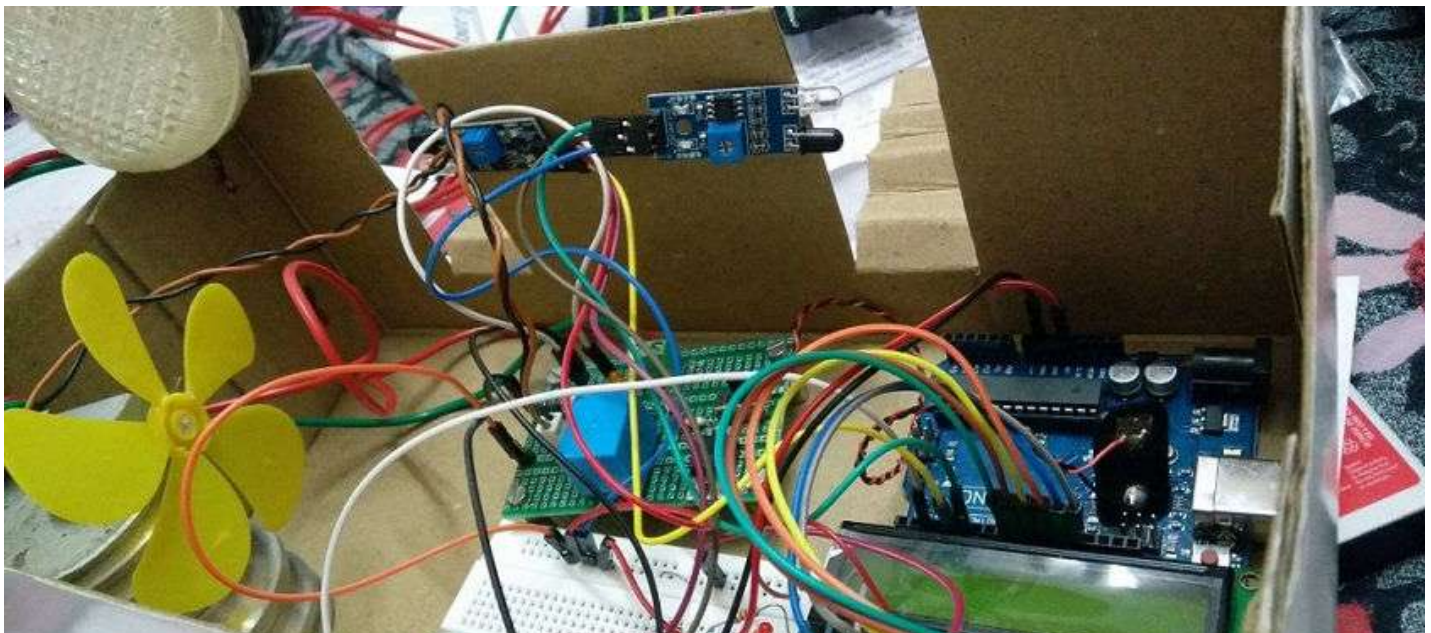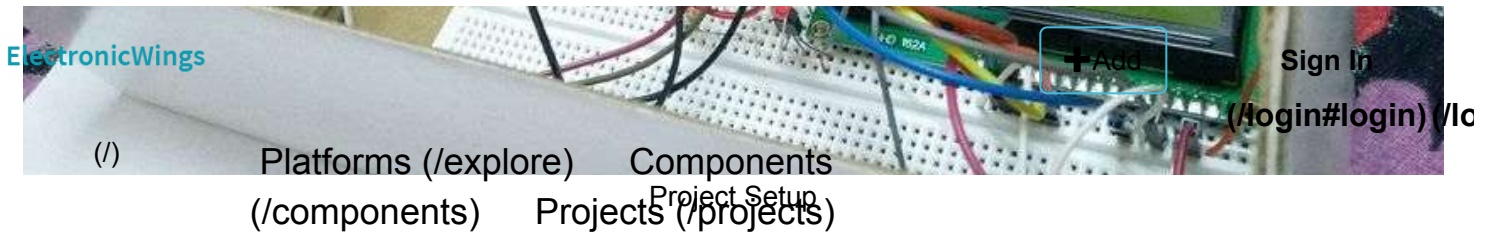We build this system using Arduino and IR sensor module.

Hardware used

- Two IR Sensors
- Arduino UNO
- Relay module
- Dc motor with propeller
- Bulb
- LCD display
- Breadboard
- Battery (9 V)
- Jumper wires

Project Overview

For building this application we have used arduino along with IR sensors and relay module.
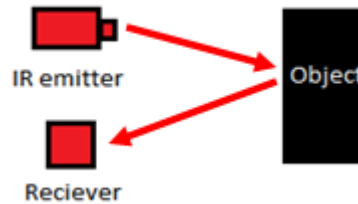
- We have used two IR sensors one for detecting person entering into the room and other for detecting person leaving (exit) the room.
- Also these IR sensors are also used to count the person entering and leaving the room. This person counting will help to automate the room's fan and light. That means when the room is empty, the room's light and fan will remain off. But if someone enters the room then the room's light and fan will get turned ON automatically with person count displayed on LCD.

Working of IR sensor

The basic concept of IR sensor is to transmit an infrared signal, this signal bounces back from the surface of an object and signal is received at the infrared receiver.

IR Sensor Working Principle

Project Implementation

When person enters the room infrared signal bounces back and get received by infrared receiver which is considered as entry.

Therefore count is incremented.

```
if (digitalRead(In) == LOW)
    {
    count++;
    }
```

 Similarly for person leaving the room, count is decremented on detection.

```
else if (digitalRead(Out) == LOW)
  {
    count--;
  }
```

When count is more than zero,Relay gets high therefore room lights and fan turn on
and for count less than or equal to zero relay gets low, so light and fan will get turn off.

```
else if (count > 0)
 {
   digitalWrite(relay, HIGH);
 }

 else if(count <= 0){
   digitalWrite(relay, LOW);
 }
```
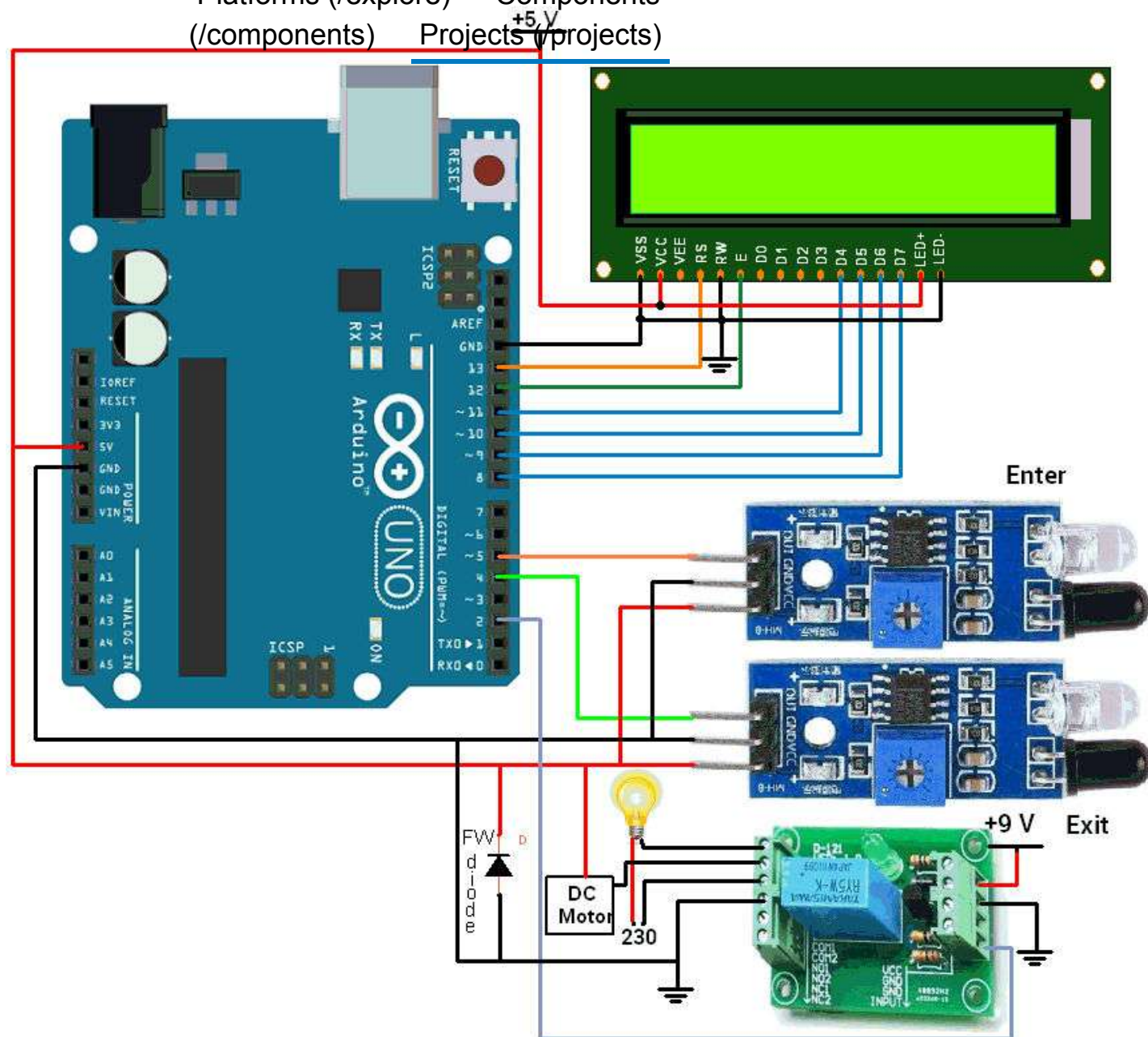
Connection Diagram
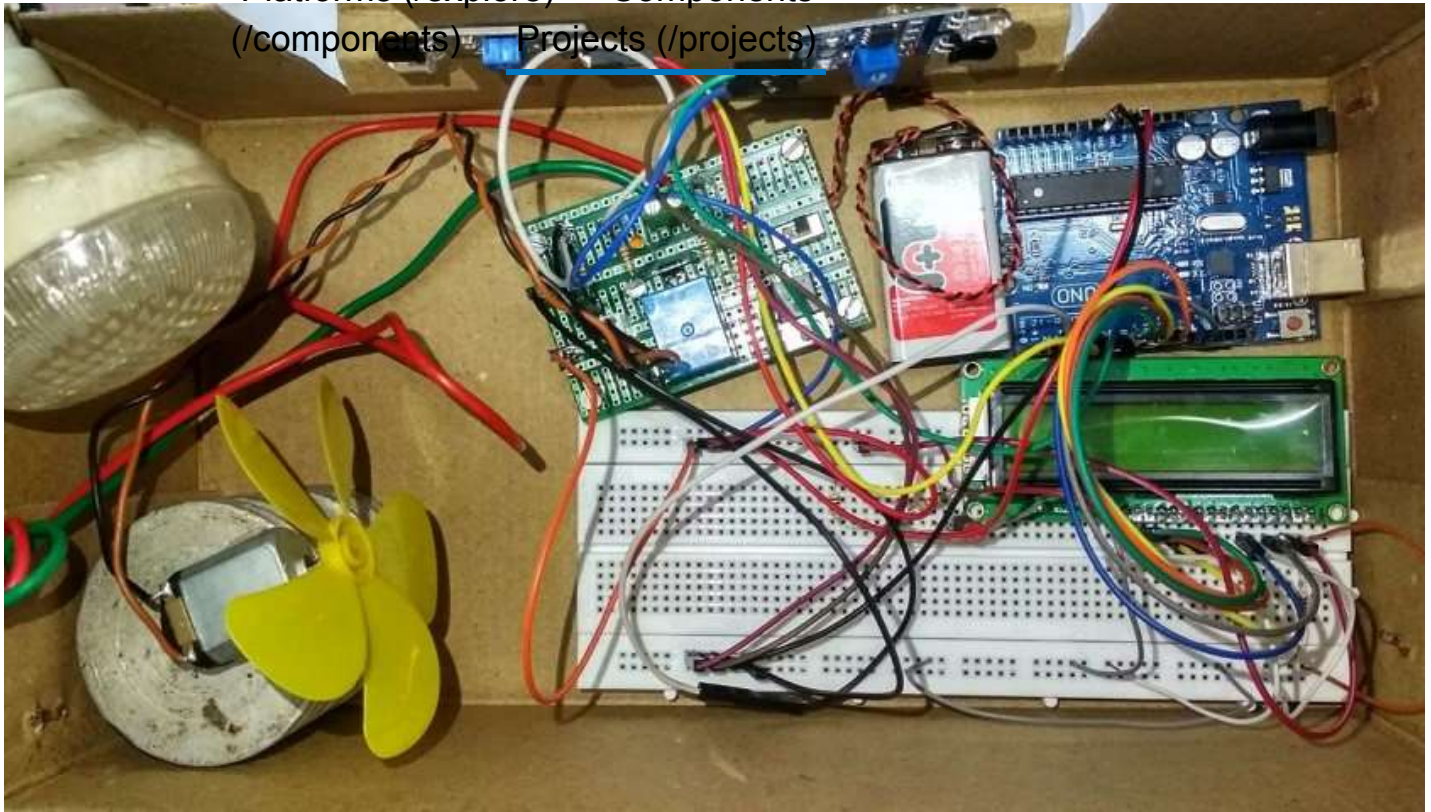
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Design Steps

- Now to design this circuit we have to interface 16x2 LCD with Arduino UNO as shown in diagram.
- Two IR sensors are connected to digital input pin 4 and 5 of Arduino UNO. (Pin 4 is for entry and pin 5 is for exit.)
- Relay module is connected to GPIO pin of Arduino UNO.
- Bulb and DC motor with propeller are connected in series with relay.

Project's Hardware

- Upload the code to the Arduino UNO.

Code

abhilasha / automated_room_light_and_fan (/users/abhilasha/codes/automated_room_light_and_fan)   Project

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 arduino   (/search?query=arduino)

Last updated : 2018-09-27   1.0.0 ★ 0 ⬇ 84

Video

Automatic room light and fan controller with bidirecti...

Components Used

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LCD 16x2 Display Module (/components/lcd-16x2-display-module)

LCD16x2 has two lines with 16 character in each line. LCD16x2 is generally used for printing values and string in embedded application.

IR Sensor module

IR Sensor module

Arduino uno

Arduino uno

Relay module

Relay module

Attachments

Codes

📎 automated_room_on_visitor_entry   ⬇ 727   (/react/projects/download-attachment/50)

Comments

Please login/signup to comment and reply.

kaustubhpatil2109
(/users/kaustubhpatil2109/profile)
2019-05-11 23:16:58

I want this aurdino program

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     lokeshc
     (/users/lokeshc/profile)
     2019-05-12 09:17:41

     You can find code in attachment

     Reply   👍 Like

     kaustubhpatil2109
     (/users/kaustubhpatil2109/profile)
     2019-05-12 16:01:44

     I can't able to open the attachment file. Can you please send me that file.

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lokeshc
(/users/lokeshc/profile)

2019-05-13 12:14:45

you can download that file from below link too,
https://www.electronicwings.com/users/abhilasha/codes/automated_room_light_and_
fan

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avishok
(/users/avishok/profile)

2019-09-29 14:06:13

hey there! need a little help to build this up.

Reply   👍 Like

vikasyadav12101999
(/users/vikasyadav12101999/profile)

2019-06-04 15:36:22

Hey can you please tell me which relay module you have used in the project. (Give the link
if possible)

Reply   👍 Like

pratiksha
(/users/pratiksha/profile)

2019-06-04 22:51:11

5V Single Pole - Double Throw (SPDT) relay is used in this project as a switch

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avishok
(/users/avishok/profile)

2019-09-29 13:00:08

hi @pratiksha grateful if you could lend me a hand in this project. waiting for your
reply

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**jeevanew**
(/users/jeevanew/profile)

2019-07-05 23:30:44

Hai I done all the process step by step but led don't show any message and sensor are not
operate correct lu pls help me I several time told cost include 6000 rupees

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alole36
(/users/alole36/profile)

2019-07-24 18:23:00

https://www.startupjobsportal.com/ nice project

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D druvateja7777
(/users/druvateja7777/profile)
(/2019-08-13 16:09:54

Bro plz help me
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D druvateja7777   ⋮
(/users/druvateja7777/profile)

2019-08-13 16:10:28

Plz send detail circuit connections along with bread board because i am a beginner
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D druvateja7777   ⋮
(/users/druvateja7777/profile)

2019-08-13 16:13:20

Plz send the complete code
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abhinikalje258   ⋮
(/users/abhinikalje258/profile)

2019-08-24 11:04:42

Plz send detail circuit connections along with bread board because i am a beginner
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abhinikalje258   ⋮
(/users/abhinikalje258/profile)

2019-08-24 17:09:05

Plz send detail circuit connections along with bread board because i am a beginner
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abhinikalje258   ⋮
(/users/abhinikalje258/profile)

2019-08-24 17:10:43

Plz properly send detail circuit connections along with bread board because i am a
beginner
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avishok   ⋮
(/users/avishok/profile)

2019-09-29 12:58:13

hello there have you been able to mount it?
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avishok   ⋮
(/users/avishok/profile)

2019-09-29 12:57:37

hello can someone help me to identify the small components that have been used like

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resistors and so on.. the wirings are not clear enough also and what type of relay module has been used? grateful if you could provide me with a direct link to buy

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appooveena

(/users/appooveena/profile)

2019-10-16 14:50:33

Is this relay module single channel or double channel

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(https://www.youtube.com/channel/UCNdqkukBtk4WhaBqcTsnn3w)

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