Practical No.21: Interface arduino with relay

I Practical Significance

Arduino is a prototype platform (open-source) based on an easy-to-use hardware and software. It consists of a circuit board, which can be programed (referred to as a microcontroller) and a ready-made software called Arduino IDE (Integrated Development Environment), which is used to write and upload the computer code to the physical board.. Almost all applications and projects are being developed with this platform. These arduino based practical will be useful for development of skills and building need based applications

II Practical Outcome/s

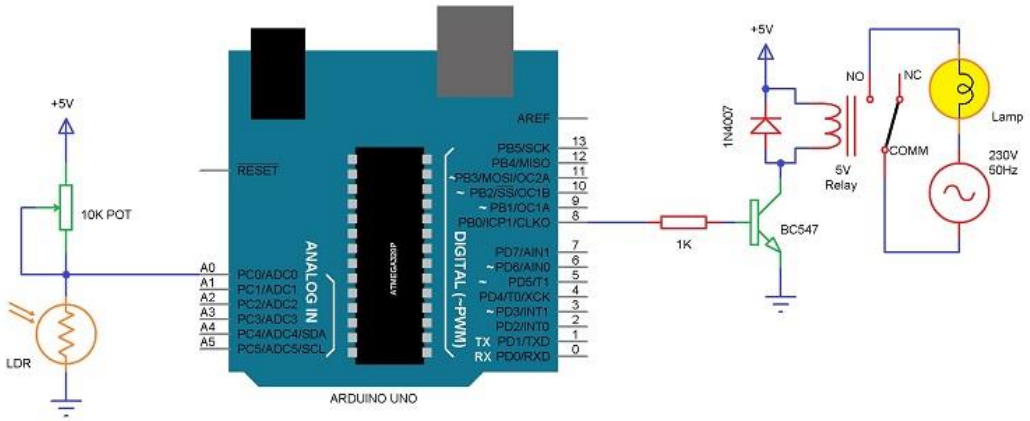
Interface relay with Ardunio UNO and write program to turn bulb on and off with LDR

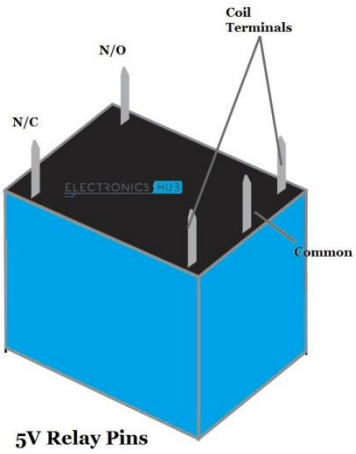
III Relevant Affective domain related Outcome(s)

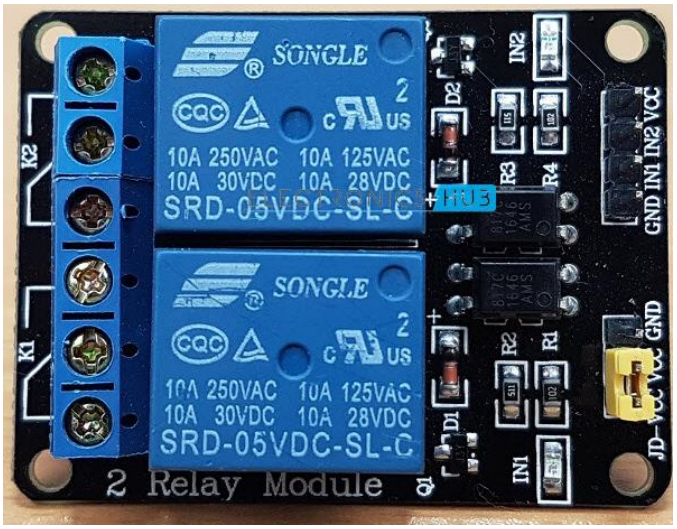
- Handle IC and equipment carefully.
- Follow safe practices.

IV Minimum Theoretical Background

Use the manual of Arduino







5 V Relay

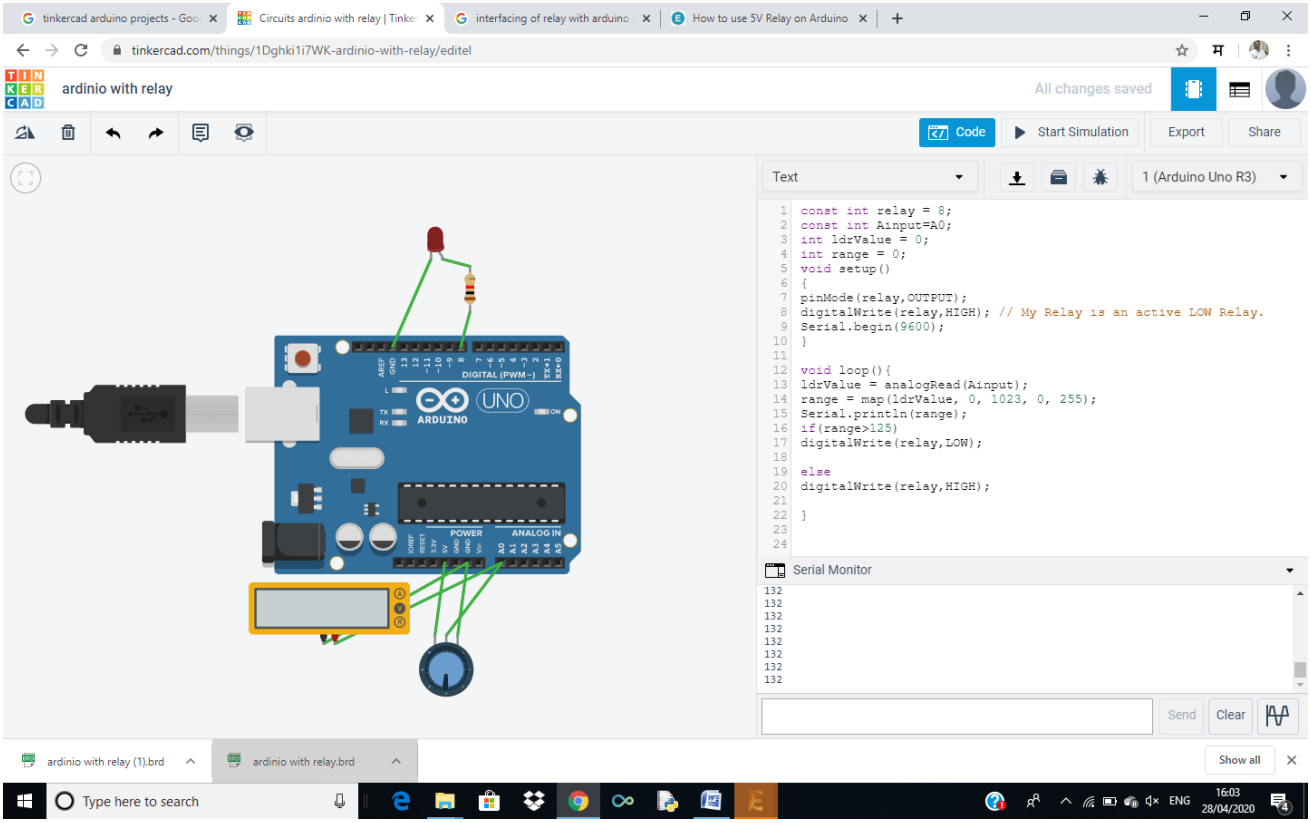
The advantage of using a 5V relay in this project is that the power supply for the relay can be directly given from the Arduino UNO board itself. Let us now see some basics of a relay. A relay is a type of a switch that acts as an interface between microcontrollers and AC Loads.

```
const int relay = 8
const int Ainput=A0;
int ldrValue = 0;
int range = 0;
void setup()
{
pinMode(relay,OUTPUT);
digitalWrite(relay,HIGH); // My Relay is an active LOW Relay.
Serial.begin(9600);
}

void loop(){
ldrValue = analogRead(Ainput);
range = map(ldrValue, 0, 1023, 0, 255);
Serial.println(range);
if(range>125)
digitalWrite(relay,LOW);

else
digitalWrite(relay,HIGH);

}
```



Simulation Diagram Instead Of LDR Used Pot and LED

DIAGRAM / flowchart/algorithm : --

V Resources Required: Arduino board , desktop pc and components

VI Precautions to be Followed: Create the separate directory with specific name.

VII Actual procedure followed:

Write the program that you have written and executed for the trainer board in lab

Use separate page

VIII Interpretation of results

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IX Conclusions

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X **Practical Related Questions**

1. State the value of resistor used in series with LED
2. Write code to increase or decreases the fading with faster rate
3. What is the map for range

[Space for answer]

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