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Solar tracking System

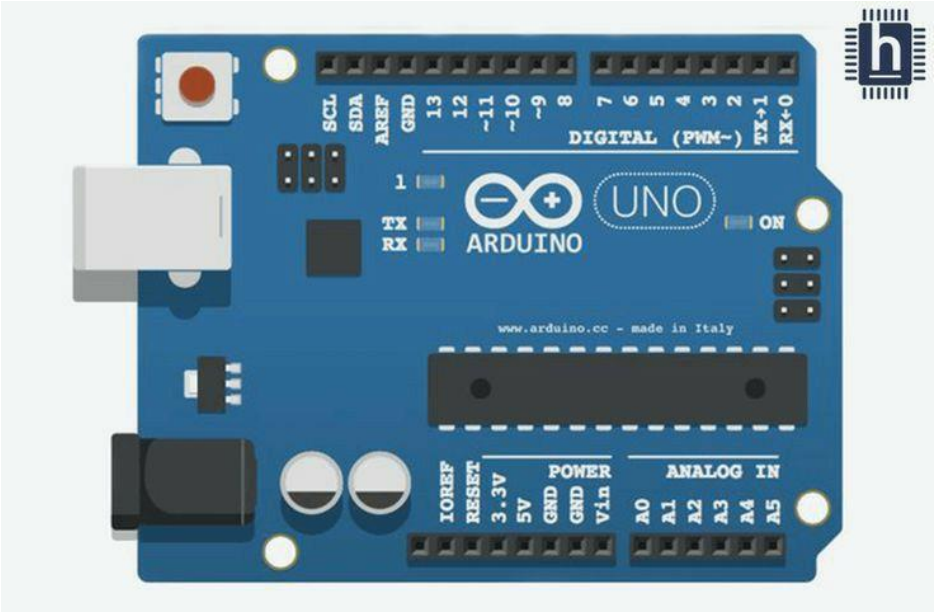
Prepared by Batoul Tamim Darrh

Introduction:

The Solar tracking system can tracking the sun from sunrise to sunset so, we can store as much energy as possible.

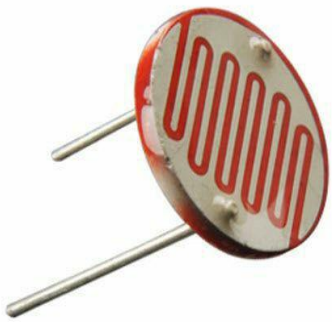
Parts used:

1)Arduino UNO, Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino is able to get inputs, compare values and to output values in order to control an output device. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. We write the instructions using Arduino Programming Language on the IDE software.



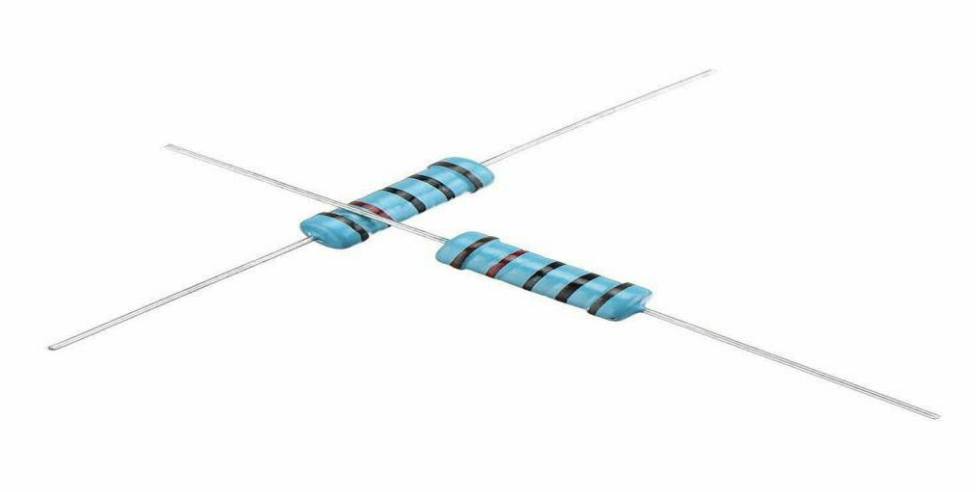
2) A micro servomotor (or servo motor) is a rotary or linear actuator that allows for precise control of angular or linear position and of velocity or acceleration. It consists of a suitable motor coupled to a sensor for position feedback. It also requires a relatively sophisticated controller, usually a dedicated module designed specifically for the use with servomotors.

3)LDR sensor module is used to detect the intensity of light. When there is light, the resistance of LDR will become low according to the intensity of light. The greater the intensity of light, the lower the resistance of LDR.

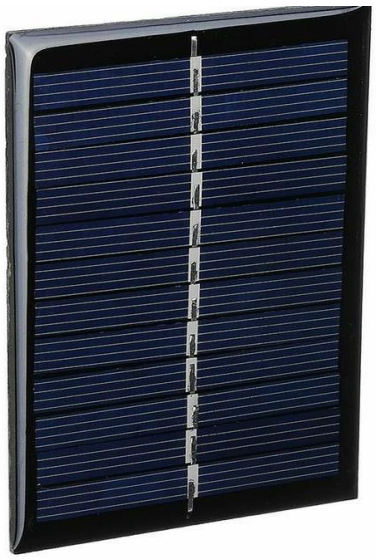


4)1000K-ohm resistor :

A resistor is a passive two-terminal electrical component that implements electrical resistance as a circuit element. In electronic circuits, resistors are used to reduce the current flow, adjust signal levels, divide voltages, bias active elements and terminate the transmission lines.



5) Solar panels are those devices, which are used to absorb the sun's rays and convert them into electricity or heat.



Procedure*:*

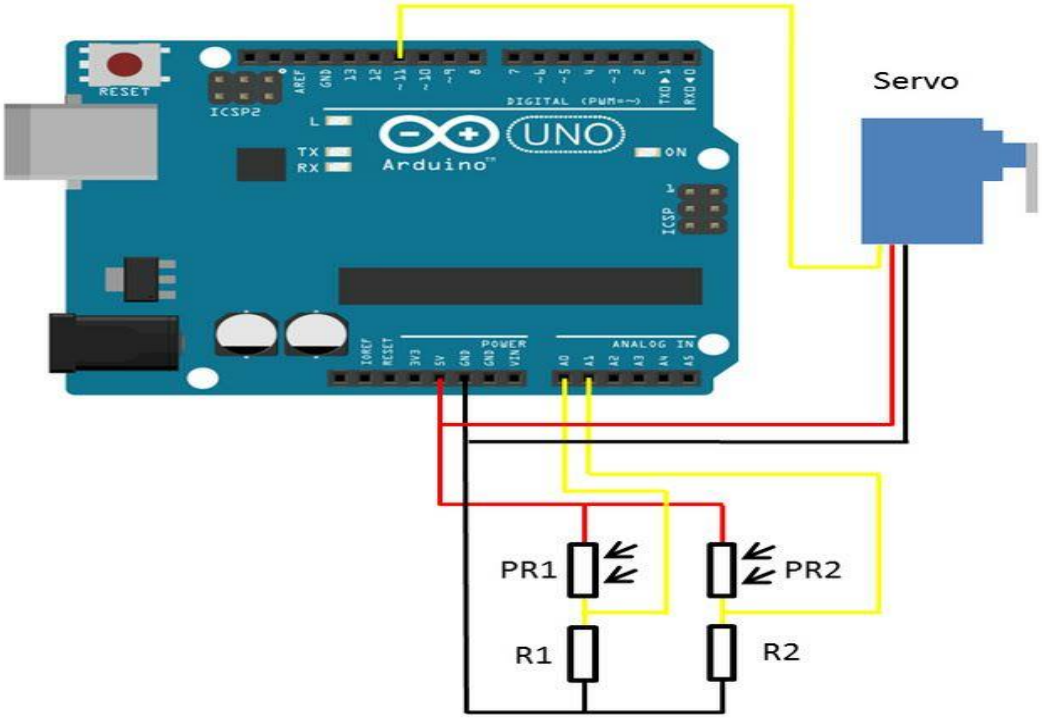
At first, we connect the first side of both LDR sensor to 5v pin ,and the other side to resistor.

Then, the other side of both resistor to GND pin.

The common end between the resistor and ldr1 will be connected to A0 analog pin

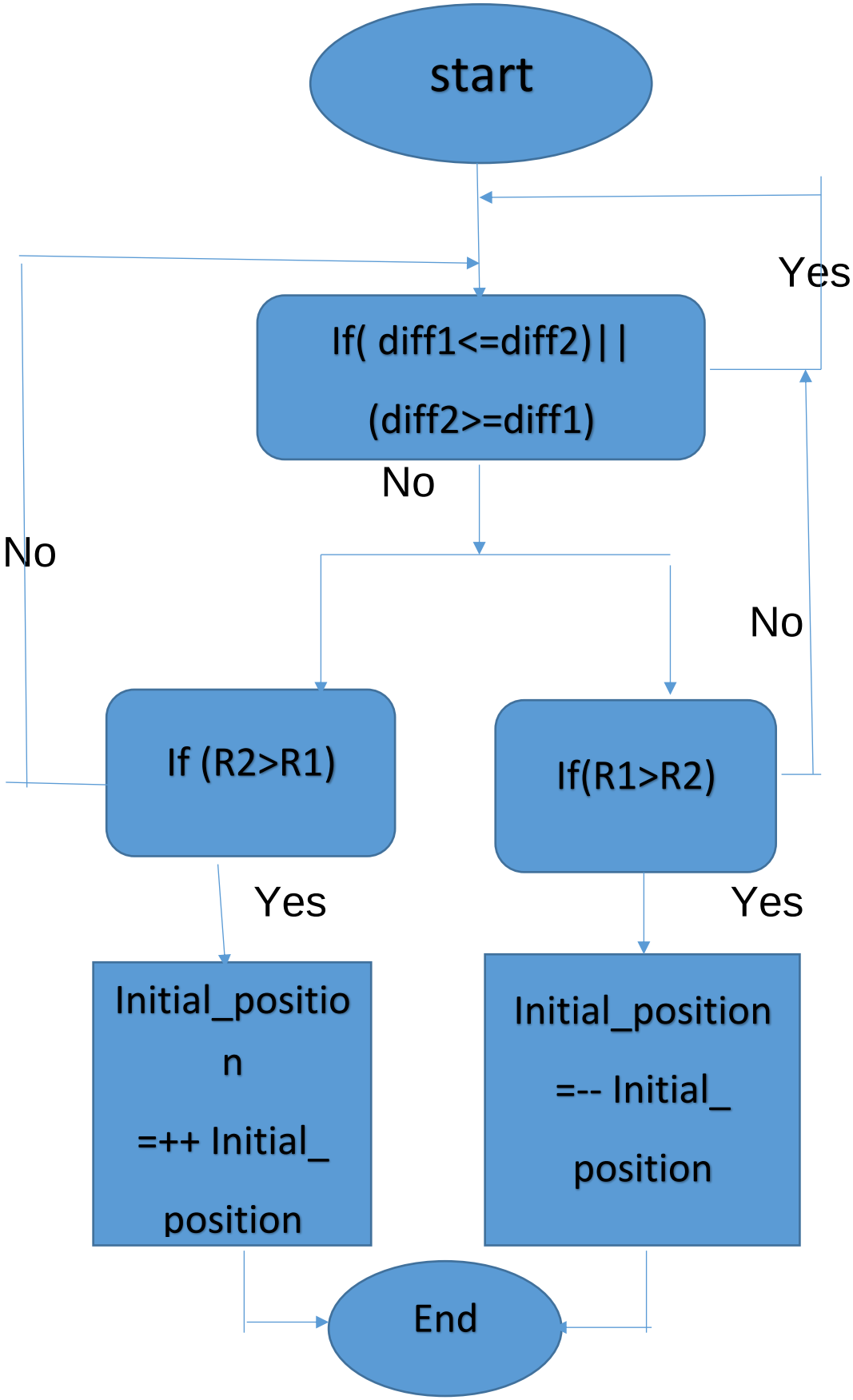
Also the common end between the resistor and ldr2 will be connected to A1 analog pin.

Finally, We are going to connect the micro servo the red wire to 5V, the brown wire to GND and the orange wire to pin number 11 of the Arduino UNO .



The code:

```
#include <Servo.h>      //including the library of servo motor
Servo myservo;
int initial_position = 0;
int LDR1 = A0;          //connect The LDR1 on Pin A0
int LDR2 = A1;          //Connect The LDR2 on pin A1
int error = 5;
int servopin=11;         //You can change servo just makesure its on arduino's PWM pi
void setup()

{
  myservo.attach(servopin);
  pinMode(LDR1, INPUT);
  pinMode(LDR2, INPUT);
  myservo.write(initial_position);   //Move servo at 0 degree
  delay(2000);
}

void loop()
{
  int R1 = analogRead(LDR1); // read  LDR 1
  int R2 = analogRead(LDR2); // read  LDR 2
  int diff1= abs(R1 - R2);
  int diff2= abs(R2 - R1);


  if((diff1 <= error) || (diff2 <= error)) {

  }
  else
  {
    if(R1>R2)
    {
      initial_position = --initial_position;
    }
    if(R1 < R2)
    {
      initial_position = ++initial_position;
    }

  }
 myservo.write(initial_position);
  delay(100);
    }
```


start
If(diff1<=diff2)||
(diff2>=diff1)
Yes
No
No
No
If (R2>R1)
If(R1>R2)
Yes
Yes
Initial_positio
n
=++ Initial_
position
Initial_position
=-- Initial_
position
End