SUN TRACKING SOLAR PANEL

TEAM VISION
TABLE 10

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COMPONENTS REQUIRED

- ARDUINO UNO
- SOLAR PANEL
- SG90 SERVO MOTOR
- LDR SENSORS (X 2)
- 10 K RESISTORS (X 2)
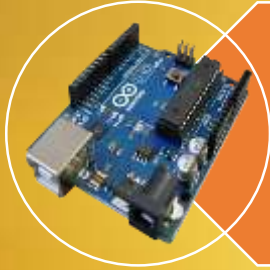- JUMPER WIRES
- THERMOCOAL AND CARDBOARD

WHAT IS SUN TRACKING SOLAR PANEL?

The two main functions are:

❖ **Detects position of sunlight or any light source**

❖ **The solar panel turns towards the light source**

HOW IS IT USEFUL?

❖**Increases amount of solar energy received by the solar energy collector**

❖**Improves the energy output of the heat/electricity generated**

ARDUINO UNO is used to measure the intensity of light falling on **LDRs** and compare the intensity of light falling on both LDRs

LDR (Light Dependent Resistors) sensors are used to sense the light.

Solar Panel is placed on top and bends in the direction of light

SG90 SERVO MOTOR is used to rotate the solar panel. Our Servo Motor operates with 5V. It controls position of solar panels and cover whole path of sun.

WORKING

❖ **LDR's are placed on the edges of the solar panel.**

❖ **Using the LDR's, we measure and compare intensity.**

❖ **Based on how the intensity falls, we use Arduino to give signals to the servo motors to move.**

❖ **When intensity of light falling on the right LDR is more, panel moves right and if intensity on left LDR is more then panel moves towards the left side.**

CIRCUIT DIAGRAM

LDR 1

LDR 2

Servo motor

Arduino UNO board
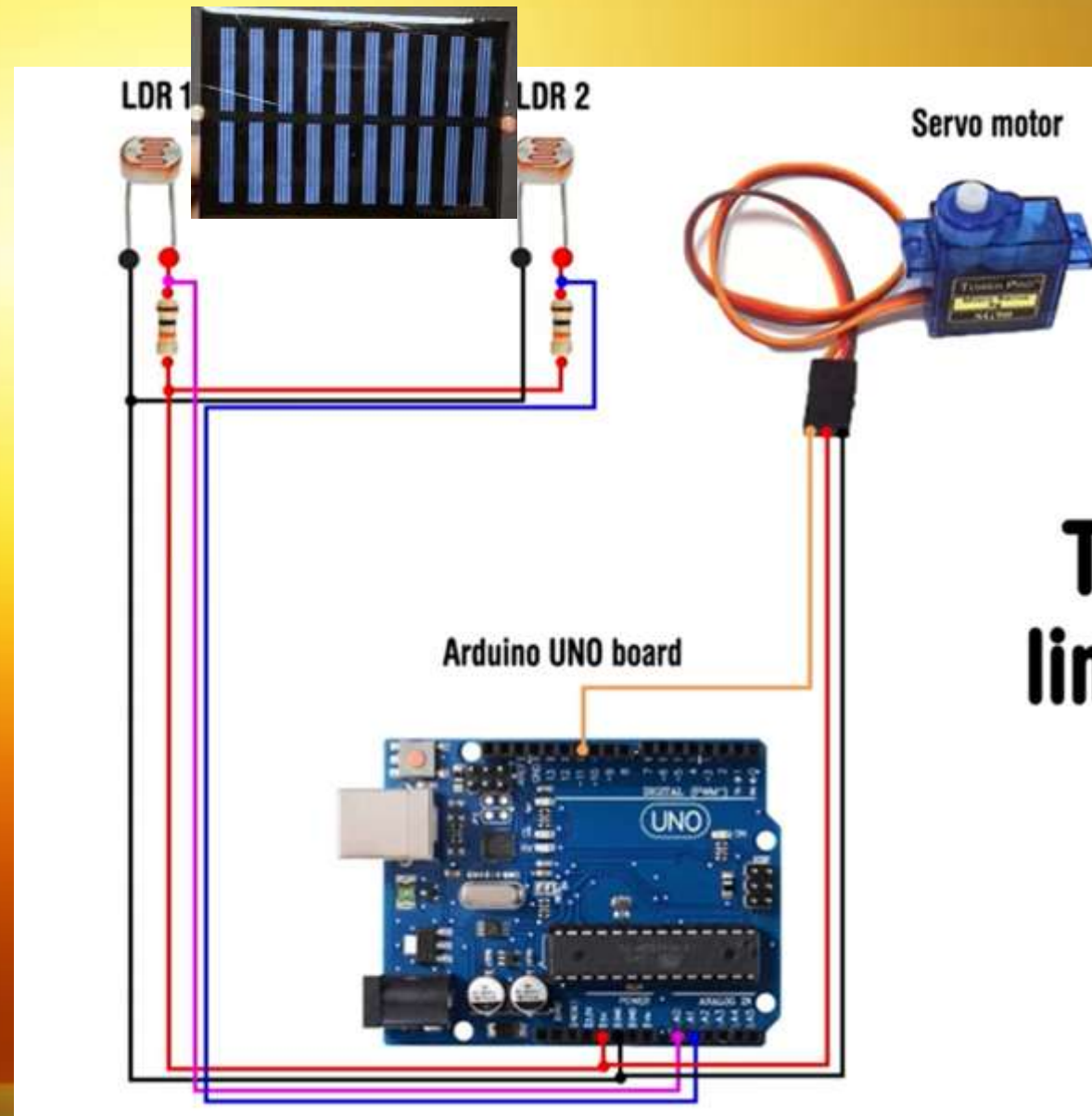
COMPLETED MODEL
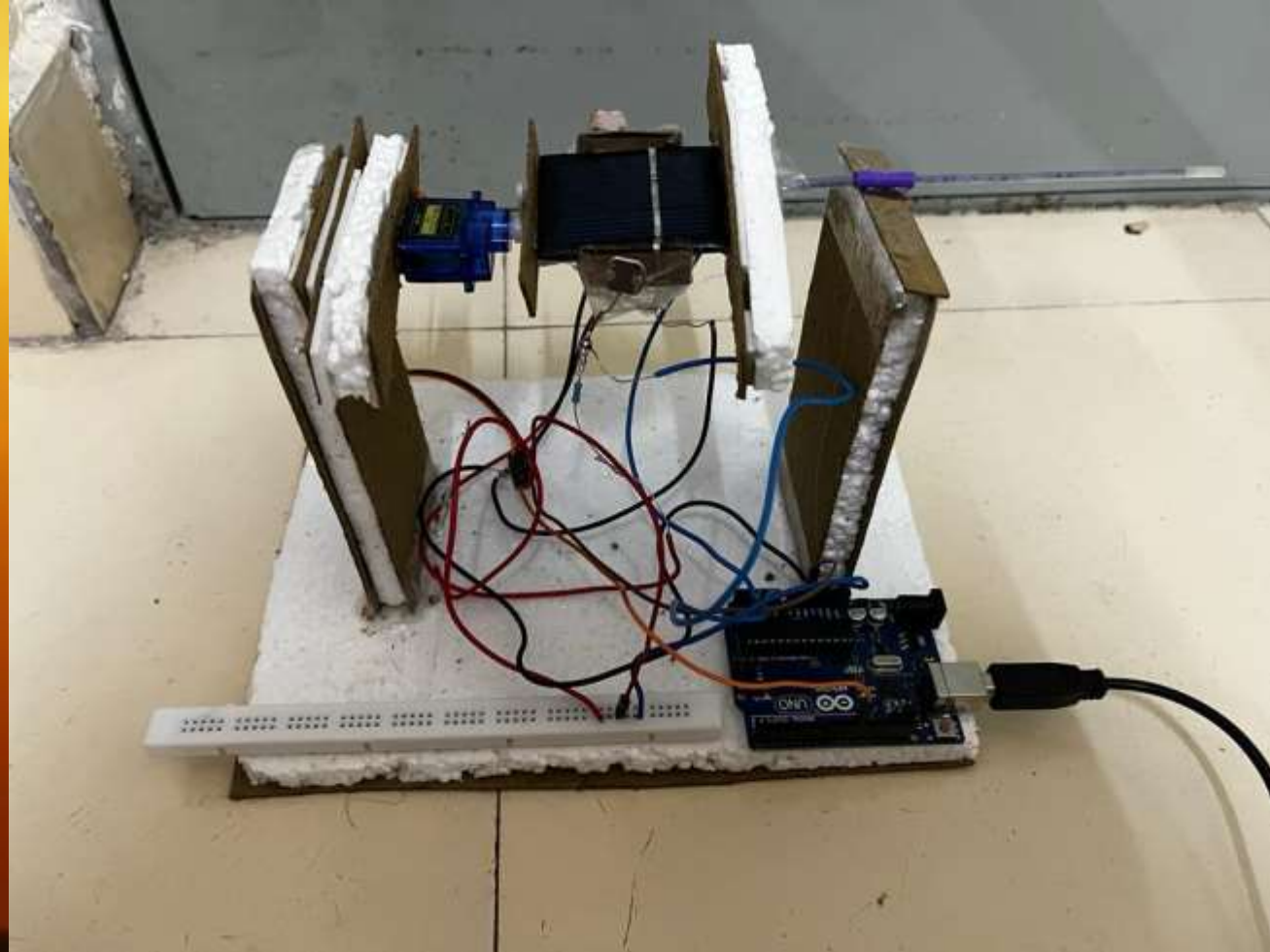
```cpp
#include <Servo.h>
#define LDR1 A0
#define LDR2 A1
#define error 10int
Spoint =  90;

Servo servo;

void setup() {
 Serial. begin(9600);
 servo.attach(11);
 servo.write(Spoint);
 delay(1000);}

void loop() {
int ldr1 = analogRead(LDR1);
int ldr2 = analogRead(LDR2);
int value1 = abs(ldr1 - ldr2);
int value2 = abs(ldr2 - ldr1);
if ((value1 <= error) || (value2 <=
error)) {}   else {
if (ldr1 > ldr2) {
 if(Spoint<0){
 Spoint=0;      }
  else{      Spoint = --Spoint;
}         }
 if (ldr1 < ldr2) {
 if(Spoint>180){
 Spoint=180;     }
 else{      Spoint = ++Spoint;     }
} }

servo.write(Spoint);
delay(50);
Serial.println("ldr1");
Serial.println(ldr1);
Serial.println("ldr2");
Serial.println(ldr2);  }
```
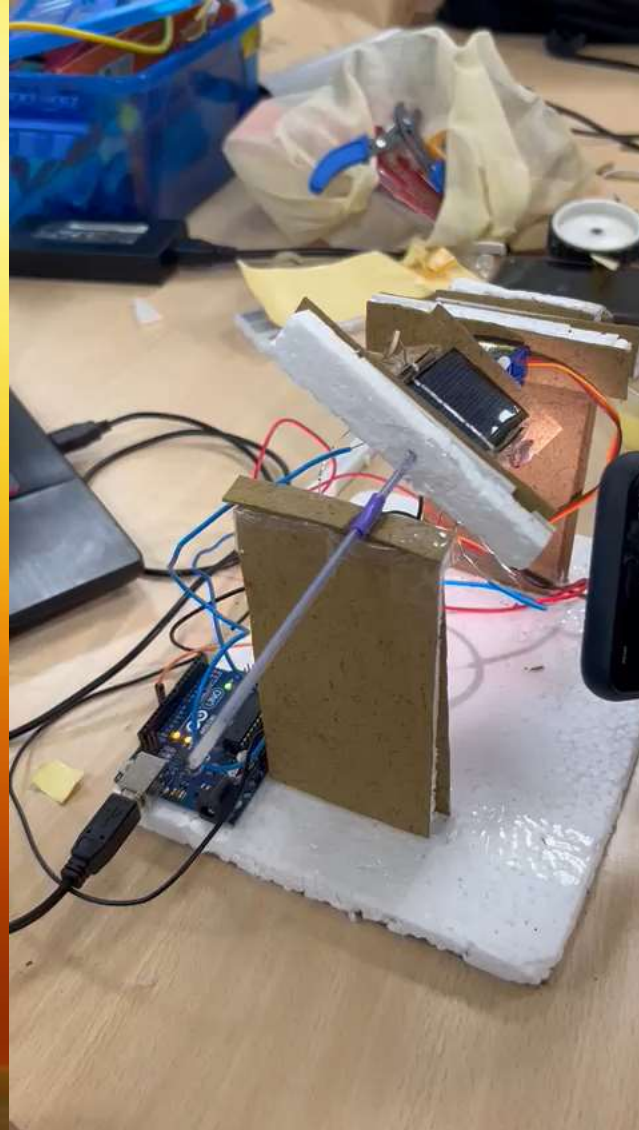
WORKING MODEL

THANK YOU!