

Solar Panel Sun Tracker Source Code

```
// Motor A pins (Horizontal)
const int in1 = 5;
const int in2 = 4;

// Motor B pins (Vertical)
const int in3 = 3;
const int in4 = 2;

// LDR inputs
const int ldrTopLeft = A0;
const int ldrTopRight = A1;
const int ldrBottomLeft = A2;
const int ldrBottomRight = A3;

int threshold = 10; // Sensitivity threshold

void setup()
{
  pinMode(in1, OUTPUT);
  pinMode(in2, OUTPUT);
  pinMode(in3, OUTPUT);
  pinMode(in4, OUTPUT);
}

void loop() {
  int TL = analogRead(ldrTopLeft);
  int TR = analogRead(ldrTopRight);
  int BL = analogRead(ldrBottomLeft);
  int BR = analogRead(ldrBottomRight);

  int avgTop    = (TL + TR) / 2;
  int avgBottom = (BL + BR) / 2;
  int avgLeft   = (TL + BL) / 2;
  int avgRight  = (TR + BR) / 2;

  int verticalDiff = avgTop - avgBottom;
  int horizontalDiff = avgLeft - avgRight;

  // Horizontal motor (Motor A)
  if (abs(horizontalDiff) > threshold)
  {
    if (horizontalDiff > 0)
    {
      rotateHorizontal("left");
    }
    else
    {
      rotateHorizontal("right");
    }
  }
}
```

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    }
    else
    {
        stopHorizontal();
    }

    // Vertical motor (Motor B)
    if (abs(verticalDiff) > threshold)
    {
        if (verticalDiff > 0)
        {
            rotateVertical("up");
        }
        else
        {
            rotateVertical("down");
        }
    }
    else
    {
        stopVertical();
    }

    delay(200);
}

void rotateHorizontal(String dir)
{
    digitalWrite(in1, dir == "left");
    digitalWrite(in2, dir == "right");
}

void stopHorizontal()
{
    digitalWrite(in1, LOW);
    digitalWrite(in2, LOW);
}

void rotateVertical(String dir)
{
    digitalWrite(in3, dir == "up");
    digitalWrite(in4, dir == "down");
}

void stopVertical()
{
    digitalWrite(in3, LOW);
    digitalWrite(in4, LOW);
}

```