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const int FLEX_PIN1 = A2; // Pin connected to voltage divider output
const int LED_PIN1 = 3;
const int FLEX_PIN2 = A0;
const int LED_PIN2 = 5;
const int FLEX_PIN3 = A3;
const int LED_PIN3 = 9;
const int FLEX_PIN4 = A5;
const int LED_PIN4 = 11;
const int LED_PIN5 = 6;
bool claw = false;
const float voltage = 4.98; // Measured voltage of Arduino 5V line
const float resistance = 82000.0; // Measured resistance of 82k resistor
const float flexStraight= 19556; // resistance when straight
const float flexBend = 39930; // resistance at 90 deg

void setup()
{
  Serial.begin(9600);
  pinMode(FLEX_PIN1, INPUT);
  pinMode(LED_PIN1, OUTPUT);
  pinMode(FLEX_PIN2, INPUT);
  pinMode(LED_PIN2, OUTPUT);
  pinMode(FLEX_PIN3, INPUT);
  pinMode(LED_PIN3, OUTPUT);
  pinMode(FLEX_PIN4, INPUT);
  pinMode(LED_PIN4, OUTPUT);
  pinMode(LED_PIN5, OUTPUT);
}

void loop()
{
  int flexADC1 = analogRead(FLEX_PIN1);
  float flexV1 = flexADC1 * voltage / 1023.0;
  float flexR1 = resistance * (voltage / flexV1 - 1.0);
  Serial.println("Flex 1 Resistance: " + String(flexR1) + " ohms");

  float angle1 = map(flexR1, flexStraight, flexBend, 0, 250.0);

  Serial.println("Flex 1 Bend: " + String(angle1) + " degrees");
  if (angle1 > 3){
    Serial.println("Bent");
    analogWrite(LED_PIN1, angle1);
  }
  if (angle1 <= 3){
    Serial.println("Unbent");
    analogWrite(LED_PIN1, 0);
  }
  delay(500);

  int flexADC2 = analogRead(FLEX_PIN2);
  float flexV2 = flexADC2 * voltage / 1023.0;
  float flexR2 = resistance * (voltage / flexV2 - 1.0);
  Serial.println("Flex 2 Resistance: " + String(flexR2) + " ohms");
  float angle2 = map(flexR2, flexStraight, flexBend, 0, 250.0);
  Serial.println("Flex 2 Bend: " + String(angle2) + " degrees");
  Serial.println();

  if (angle2 > 3){
    Serial.println("Bent");
    analogWrite(LED_PIN2, angle2);
  }
  if (angle2 <= 3){
    analogWrite(LED_PIN2, 0);
  }
  delay(500);

  if (angle1 > 3 && angle2 > 3){
    claw = true;
    analogWrite(LED_PIN5, angle2);
  }
  while (claw){
    digitalWrite(LED_PIN1, LOW);
    digitalWrite(LED_PIN2, LOW);
  }
  if (angle1 <= 3 && angle2 <= 3){
    analogWrite(LED_PIN5, 0);
  }
  int flexADC3 = analogRead(FLEX_PIN3);
  float flexV3 = flexADC3 * voltage / 1023.0;
  float flexR3 = resistance * (voltage / flexV3 - 1.0);
  Serial.println("Flex 3 Resistance: " + String(flexR3) + " ohms");

  float angle3 = map(flexR3, flexStraight, flexBend, 0, 250.0);
  Serial.println("Flex 3 Bend: " + String(angle3) + " degrees");

  if (angle3 > 3){
    Serial.println("Bent");
    analogWrite(LED_PIN3, angle3);
  }
  if (angle3 <= 3){
    Serial.println("Unbent");
    analogWrite(LED_PIN3, 0);
  }
  delay(500);

  int flexADC4 = analogRead(FLEX_PIN4);
  float flexV4 = flexADC4 * voltage / 1023.0;
  float flexR4 = resistance * (voltage / flexV4 - 1.0);
  Serial.println("Flex 4 Resistance: " + String(flexR4) + " ohms");

  float angle4 = map(flexR4, flexStraight, flexBend, 0, 250.0);
  Serial.println("Flex 4 Bend: " + String(angle4) + " degrees");

  if (angle4 > 3){
    Serial.println("Bent");
    analogWrite(LED_PIN4, angle4);
  }
  if (angle4 <= 3){
    Serial.println("Unbent");
    analogWrite(LED_PIN4, 0);
  }
  delay(500);
}

```