**Controlling LEDs using Joystick Sensor with Arduino**

* Components Needed:
* Arduino Board (e.g., Uno)
* Joystick Sensor
* Jumper Wires
* 4 Leds
* USB Cable (for connecting the Arduino to a computer)
* Breadboard
* 220ohms resister
* **Joystick Connections:**

1. **X-Axis Output (A0):**
   * Connect the joystick's X-axis pin to **A0** on the Arduino.
2. **Y-Axis Output (A1):**
   * Connect the joystick's Y-axis pin to **A1** on the Arduino.
3. **Power and Ground:**
   * Connect the joystick's **VCC** pin to the Arduino's **5V**.
   * Connect the joystick's **GND** pin to the Arduino's **GND**.

* **Wiring the Circuit:**

**LEDs:**

1. **LED 1** (Forward Control):
   * **Anode (long leg)** of LED 1 goes to **Pin 4** on the Arduino.
   * **Cathode (short leg)** of LED 1 connects to **GND** through a **220Ω resistor**.
2. **LED 2** (Backward Control):
   * **Anode (long leg)** of LED 2 goes to **Pin 5** on the Arduino.
   * **Cathode (short leg)** of LED 2 connects to **GND** through a **220Ω resistor**.
3. **LED 3** (Left Control):
   * **Anode (long leg)** of LED 3 goes to **Pin 6** on the Arduino.
   * **Cathode (short leg)** of LED 3 connects to **GND** through a **220Ω resistor**.
4. **LED 4** (Right Control):
   * **Anode (long leg)** of LED 4 goes to **Pin 7** on the Arduino.
   * **Cathode (short leg)** of LED 4 connects to **GND** through a **220Ω resistor**.

* CODE:

int mid =10;

int z1 =0;

int z2 = 0;

void setup()

{

  pinMode(4,OUTPUT);

  pinMode(5,OUTPUT);

  pinMode(6,OUTPUT);

  pinMode(7,OUTPUT);

  pinMode(A0,INPUT);

  pinMode(A1,INPUT);

  digitalWrite(4, HIGH);

  digitalWrite(5, HIGH);

  digitalWrite(6, HIGH);

  digitalWrite(7, HIGH);

  z1 = analogRead(A0);

  z2 = analogRead(A1);

}

void loop()

{

  int xAxis = analogRead(A0);

  int yAxis = analogRead(A1);

if (yAxis < z2 - mid)

  {

 digitalWrite(4, HIGH);

  }

else

  {

digitalWrite(4, LOW);

  }

if (yAxis > z2 + mid)

  {

digitalWrite(5, HIGH);

  }

else

  {

digitalWrite(5, LOW);

  }

if (xAxis < z1 - mid)

  {

digitalWrite(6, HIGH);

  }

else

  {

digitalWrite(6, LOW);

  }

if (xAxis > z1 + mid)

  {

digitalWrite(7, HIGH);

  }

else

  {

digitalWrite(7, LOW);

  }

}

* DIAGRAM:

