



PRACTICAL REPORT

FOR IOT PRACTICAL



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6.10 – Getting Inputs From Sensor

Measure and display the rotation of something to track its speed and/or Direction.

❖ Arduino Code:

```
const int encoderPinA = 4;
const int encoderPinB = 2;
const int encoderStepsPerRevolution = 16;
int angle = 0;
int val;
int encoderPos = 0;
boolean encoderALast = LOW; // remembers the previous pin state
void setup()
{
    pinMode(encoderPinA, INPUT);
    pinMode(encoderPinB, INPUT);
    digitalWrite(encoderPinA, HIGH);
    digitalWrite(encoderPinB, HIGH);
    Serial.begin(9600);
}
void loop()
{
    boolean encoderA = digitalRead(encoderPinA);
    if ((encoderALast == HIGH) && (encoderA == LOW))
    {
        if (digitalRead(encoderPinB) == LOW)
        {
            encoderPos--;
        }
        else
        {
            encoderPos++;
        }
    }
    angle = (encoderPos % encoderStepsPerRevolution) * 360 / encoderStepsPerRevolution;
    Serial.print(encoderPos);
    Serial.print(" ");
    Serial.println(angle);
}
```

```

encoderALast = encoderA;
}

```

❖ Output / Circuit Diagram:

The screenshot shows the Wokwi web-based simulator interface. The left pane contains the following C++ code for an Arduino Uno:

```

1  const int encoderPinA = 4;
2  const int encoderPinB = 2;
3  const int encoderStepsPerRevolution = 16;
4  int angle = 0;
5  int val;
6  int encoderPos = 0;
7  boolean encoderALast = LOW; // remembers the previous pin state
8  void setup()
9  {
10     pinMode(encoderPinA, INPUT);
11     pinMode(encoderPinB, INPUT);
12     digitalWrite(encoderPinA, HIGH);
13     digitalWrite(encoderPinB, HIGH);
14     Serial.begin(9600);
15 }
16 void loop()
17 {
18     boolean encoderA = digitalRead(encoderPinA);
19     if ((encoderALast == HIGH) && (encoderA == LOW))
20     {
21         if (digitalRead(encoderPinB) == LOW)
22         {
23             encoderPos--;
24         }
25         else
26         {
27             encoderPos++;
28         }
29         angle = (encoderPos % encoderStepsPerRevolution) * 360 / encoderStepsPerRevolution;
30         Serial.print(encoderPos);
31         Serial.print(" ");

```

The right pane shows a 3D simulation of the hardware. An Arduino Uno is connected to a rotary encoder. The encoder's pins are connected to the Arduino's digital pins 4 and 2. A breadboard is also visible, connected to the encoder. A text box with the name "Darshan Ramjiyani" is overlaid on the simulation area. The bottom of the right pane shows a serial monitor output:

```

1 22
2 45
1 22
0 0
1 22
2 45

```