



PRACTICAL REPORT

For IoT Practical



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❖ 6.04 - Getting Input from Sensors

Measure the distance to something, such as a wall or someone walking toward the Arduino.

Arduino Code:

```
const int pingPin = 5;
const int ledPin = 13;

void setup()
{
    Serial.begin(9600);
    pinMode(ledPin, OUTPUT);
}

void loop()
{
    int cm = ping(pingPin) ;

    Serial.println(cm);

    digitalWrite(ledPin, HIGH);

    delay(cm * 10 );

    digitalWrite(ledPin, LOW);

    delay( cm * 10);
}

int ping(int pingPin)
{
    long duration, cm;

    pinMode(pingPin, OUTPUT);
    digitalWrite(pingPin, LOW);

    delayMicroseconds(2);
    digitalWrite(pingPin, HIGH);

    delayMicroseconds(5);
    digitalWrite(pingPin, LOW);

    pinMode(pingPin, INPUT);
```

```

    duration = pulseIn(pingPin, HIGH);

    cm = microsecondsToCentimeters(duration);
}

long microsecondsToCentimeters(long microseconds)
{
    return microseconds / 29 / 2;
}

```

Circuit Diagram / Output:

The screenshot displays the Tinkercad web interface for a project titled "Circuit design 6.04 | Tinkercad". The circuit consists of an Arduino Uno R3 connected to an Ultrasonic Distance Sensor. The sensor's display shows a reading of "106.01m / 269.2cm". The code editor on the right contains the following C++ code:

```

32 digitalWrite(pingPin, LOW);
33
34 delayMicroseconds(2);
35 digitalWrite(pingPin, HIGH);
36
37 delayMicroseconds(5);
38 digitalWrite(pingPin, LOW);
39
40 pinMode(pingPin, INPUT);
41
42 duration = pulseIn(pingPin, HIGH);
43
44 cm = microsecondsToCentimeters(duration);
45
46
47
48
49
50 long microsecondsToCentimeters(long microseconds)
51 {
52     return microseconds / 29 / 2;
53 }
54 // 6.05
55

```

The Serial Monitor at the bottom shows the output "6.05". A signature box for "DARSHAN RAMJIYANI" is also visible.