

OUTPUT : (LESS THAN 100CM) - LED GLOWS

The screenshot shows the Arduino IDE interface with the following code in `hc-sr04.ino`:

```
1
2 const int TRIG_PIN = 7;
3 const int ECHO_PIN = 8;
4
5 const unsigned int MAX_DIST = 5000;
6
7 void setup() {
8   pinMode(TRIG_PIN, OUTPUT);
9   digitalWrite(TRIG_PIN, LOW);
10  pinMode(ECHO_PIN, INPUT);
11  Serial.begin(9600);
12 }
13
14
15 void loop() {
16   unsigned long t1;
17   unsigned long t2;
18   unsigned long pulse_width;
19   float cm;
20   float inches;
21   digitalWrite(TRIG_PIN, HIGH);
22   delayMicroseconds(10);
23   digitalWrite(TRIG_PIN, LOW);
24
25   while ( digitalRead(ECHO_PIN) == 0 );
26
27   t1 = micros();
28   while ( digitalRead(ECHO_PIN) == 1);
29   t2 = micros();
30 }
```

The simulation window shows the hardware setup with an HC-SR04 sensor and an LED. The distance is 62cm, and the LED is glowing. The console output shows "Out of range" repeated seven times.

OUTPUT : (MORE THAN 100CM) - LED DOESN'T GLOW

The screenshot shows the same Arduino IDE interface, but the distance is now 104cm. The LED is not glowing. The console output shows the following data:

Distance (cm)	Distance (in)
105.52	41.35
105.45	41.32
105.45	41.32
105.52	41.35
105.52	41.35
105.52	41.35
105.52	41.35

CODE:

```
const int TRIG_PIN = 7;
const int ECHO_PIN = 8;

const unsigned int MAX_DIST = 5800;

void setup() {

    pinMode(TRIG_PIN, OUTPUT);
    digitalWrite(TRIG_PIN, LOW);
    pinMode(ECHO_PIN, INPUT);
    Serial.begin(9600);
}

void loop() {

    unsigned long t1;
    unsigned long t2;
    unsigned long pulse_width;
    float cm;
    float inches;
    digitalWrite(TRIG_PIN, HIGH);
    delayMicroseconds(10);
    digitalWrite(TRIG_PIN, LOW);

    while ( digitalRead(ECHO_PIN) == 0 );

    t1 = micros();
    while ( digitalRead(ECHO_PIN) == 1);
    t2 = micros();
    pulse_width = t2 - t1;
    cm = pulse_width / 58.0;
    inches = pulse_width / 148.0;

    if ( pulse_width < MAX_DIST ) {
        Serial.println("Out of range");
        setup1();
        loop1();
    }
}
```

```
    } else {  
        Serial.print(cm);  
        Serial.print(" cm \t");  
        Serial.print(inches);  
        Serial.println(" in");  
    }  
  
    delay(60);  
}  
  
void setup1() {  
    pinMode(10, OUTPUT); }  
void loop1() {  
    digitalWrite(10, HIGH);    delay(500);  
    digitalWrite(10, LOW);  
    delay(500);  
}
```