

## Introduction – IR Sensor

### Introduction – What is IR Sensor?

- IR stands for Infrared.
- It is a sensor that can detect if an object is near by using invisible light.
- Used in automatic doors, water taps, sanitizer machines, etc.

### Components Required

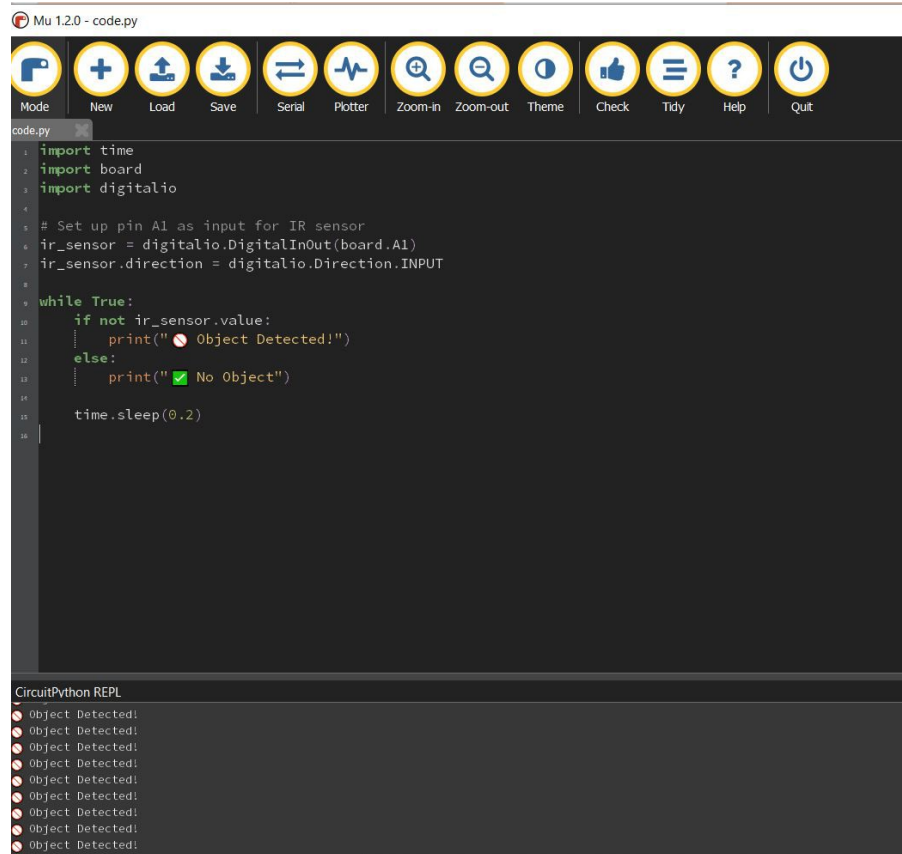
- CPX (Circuit Playground Express)
- IR Sensor Module
- Jumper Wires
- (Optional) LED or Servo for door output

### Circuit Connection

#### IR Sensor Pin CPX Pin

|     |      |
|-----|------|
| VCC | 3.3V |
| GND | GND  |
| OUT | A1   |

## Code:



The screenshot shows the Mu Python IDE interface. The top toolbar includes icons for Mode, New, Load, Save, Serial, Plotter, Zoom-in, Zoom-out, Theme, Check, Tidy, Help, and Quit. The code editor displays the following Python code:

```
1 import time
2 import board
3 import digitalio
4
5 # Set up pin A1 as input for IR sensor
6 ir_sensor = digitalio.DigitalInOut(board.A1)
7 ir_sensor.direction = digitalio.Direction.INPUT
8
9 while True:
10     if not ir_sensor.value:
11         print("❌ Object Detected!")
12     else:
13         print("✅ No Object")
14
15     time.sleep(0.2)
```

The bottom panel shows the CircuitPython REPL output, which consists of multiple lines of "Object Detected!" messages, each preceded by a red circle icon.

### Explanation of Code

#### **import time**

Import time module for delay

#### **import board:**

Import board pins

#### **import digitalio**

Library for reading digital input pins

#### **ir\_sensor = digitalio.DigitalInOut(board.A1)**

Set A1 pin as IR sensor input

#### **pwm = pwmio.PWMOut(board.Air\_sensor.direction = digitalio.Direction.INPUT 1, duty\_cycle=2 \*\* 15, frequency=50)**

Set pin direction as input

#### **while True:**

Start infinite loop

#### **if not ir\_sensor.value:**

If sensor reads LOW (object near)

```
print("? Object Detected!")
```

Print message if object detected

**else:**

Otherwise...

```
print("✓ No Object")
```

Print no object message

```
time.sleep(0.2)
```

Wait for 0.2 seconds

### **Step 6: Output and Testing**

- Run the program.
- Place hand near IR sensor → should show **Object Detected!**
- Remove hand → shows **No Object**