**WAP in python/C++ language to turn ON/OFF buzzer.**

// Define the buzzer pin

const int buzzerPin = 9; // Connect the piezo buzzer to pin 9

// Define the frequency for the "tick" sound (in Hz)

const int tickFrequency = 1000; // Frequency of the tick sound (1000 Hz)

// Define the duration for the "tick" sound

const int tickDuration =200; // Duration of each tick sound (in milliseconds)

void setup() {

// Set the buzzer pin as an output

pinMode(buzzerPin, OUTPUT);

}

OR

const int buzzerPin = 9; // Connect the positive pin of the buzzer to pin

9 void setup() { pinMode(buzzerPin, OUTPUT);

} void loop() { tone(buzzerPin, 1000); // Play a 1 kHz tone delay(100); // Duration of the tick noTone(buzzerPin); // Stop the tone delay(900); // Wait before the next tick

}

**WAP in python/C++ language to blink LED.**

void setup() {

// initialize digital pin LED\_BUILTIN as an output.

pinMode(LED\_BUILTIN, OUTPUT);

}

// the loop function runs over and over again forever void loop() {

digitalWrite(LED\_BUILTIN, HIGH); // turn the LED on (HIGH is the voltage level) delay(1000); // wait for a second

digitalWrite(LED\_BUILTIN, LOW); // turn the LED off by making the voltage LOW delay(1000); // wait for a second }

**WAP in python/C++ language to toggle two LED’s.**

/ Define the LED pins const int led1 = 13; // Built-in LED (usually on pin 13) const int led2 = 2; // External LED connected to pin 2

void setup() {

// Initialize both pins as output pinMode(led1, OUTPUT); pinMode(led2, OUTPUT);

}

void loop() {

// Turn on LED1 and turn off LED2 digitalWrite(led1, HIGH); digitalWrite(led2, LOW); delay(1000); // Wait for 1 second

// Turn off LED1 and turn on LED2 digitalWrite(led1, LOW); digitalWrite(led2, HIGH); delay(1000); // Wait for 1 second

}

**Observations:**

1. Input: Any obstacle that comes in the range of the sensor is detected. IR sensors actually measure the heat being emitted from the object. So the heat is the actual input for the sensors. The IR sensor gets its input from GPIO 21.
2. Output: The output is shown by the LED’s and the buzzer. When an obstacle is detected, the Green LED glows

**Conclusion**: We have successfully implemented the connection of IR sensor with Arduino for obstacle detection. The output is shown by a glowing buzzer.