

# IT407: Technologies for Internet of Things

## Lab Assignment 2

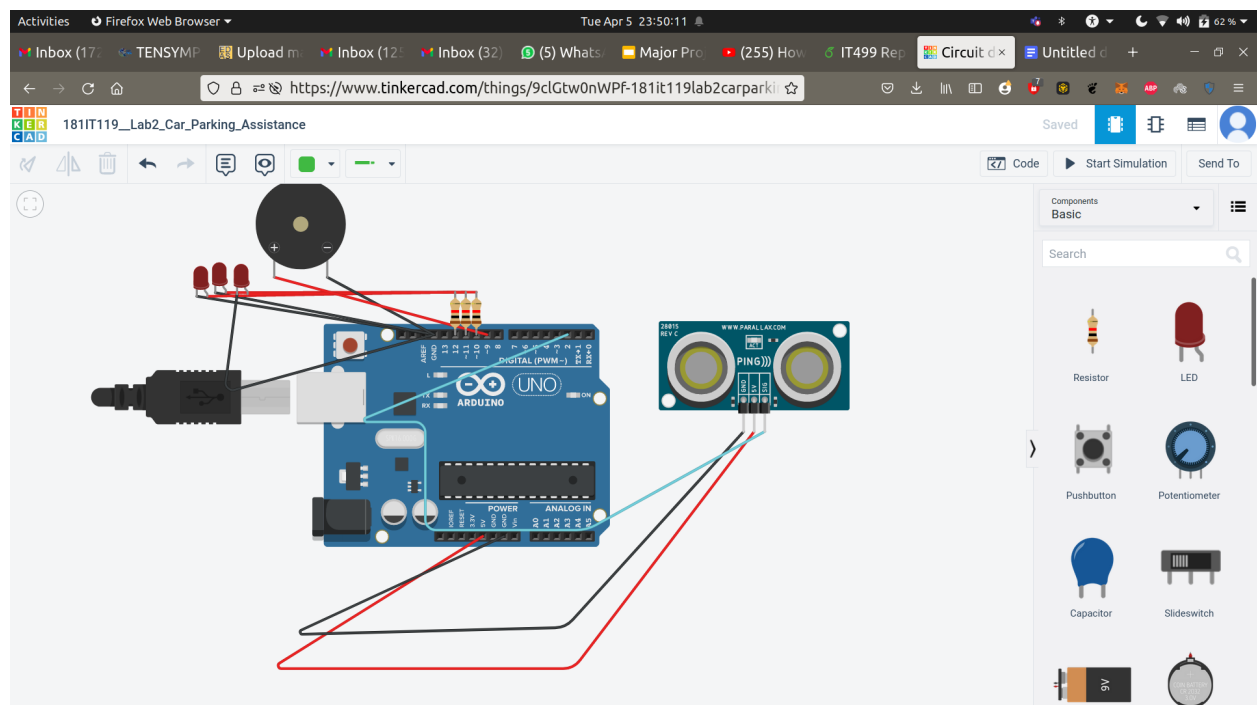
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### 1) Distance-based Car parking assistance using Ultrasonic sensor, buzzer and Arduino.

Link to circuit: <https://www.tinkercad.com/things/9clGtw0nWPf>



**CODE:**

```
// C++ code
//
int dist = 0; long readUltrasonicDistance(int triggerPin, int echoPin)
{
  pinMode(triggerPin, OUTPUT);
  digitalWrite(triggerPin, LOW);
  delayMicroseconds(2);
  digitalWrite(triggerPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(triggerPin, LOW);
  pinMode(echoPin, INPUT);
  return pulseIn(echoPin, HIGH);
}

void setup()
{
  pinMode(9, OUTPUT);
  pinMode(10, OUTPUT);
  pinMode(11, OUTPUT);
  pinMode(12, OUTPUT);
}

void loop()
{
  dist = 0.01723 * readUltrasonicDistance(2, 2);
  if (dist > 200) {
    digitalWrite(9, LOW);
    digitalWrite(10, LOW);
    digitalWrite(11, LOW);
    digitalWrite(12, HIGH);
  } else {
    if (dist > 150 && dist <= 200) {
      digitalWrite(9, LOW);
      digitalWrite(10, LOW);
    } else {
      if (dist > 100 && dist >= 150) {
```

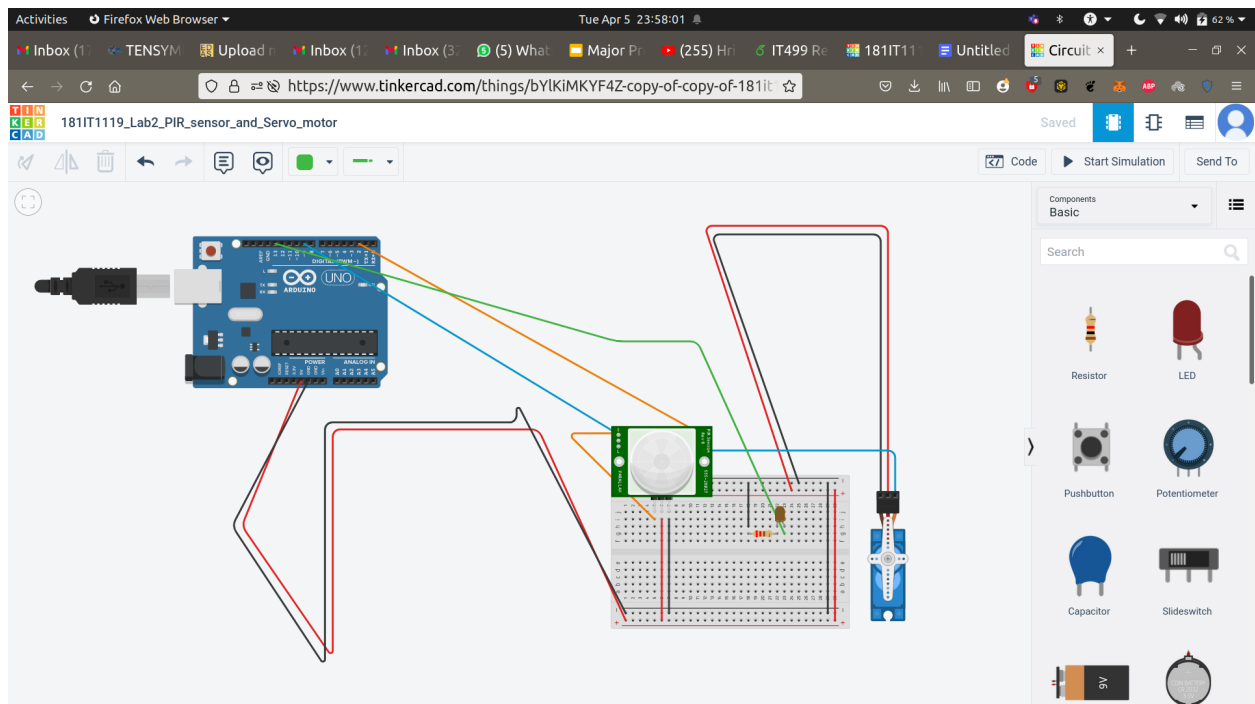
```

digitalWrite(9, LOW);
digitalWrite(10, HIGH);
digitalWrite(11, HIGH);
digitalWrite(12, HIGH);
} else {
digitalWrite(9, HIGH);
digitalWrite(10, HIGH);
digitalWrite(11, HIGH);
digitalWrite(12, HIGH);}
}
}
delay(10); // Delay a little bit to improve simulation performance
}

```

## 2) PIR sensor and servo motor for simulation of motion-based opening and closing of Door.

Link: <https://www.tinkercad.com/things/bYIKiMKYF4Z>



**CODE:**

```
#include <Servo.h>
Servo myservo;
int ledPin = 13;
int pirPin = 2;
int pirStat = 0;
int pos = 0; void setup() {
  pinMode(ledPin, OUTPUT);
  pinMode(pirPin, INPUT);
  myservo.attach(9);
  Serial.begin(9600);
}
void loop(){
  pirStat = digitalRead(pirPin);
  if (pirStat == HIGH) {
    digitalWrite(ledPin, HIGH);
    Serial.println("Hey I got you!!!");
    for (pos = 0; pos <= 180; pos += 1) {
      myservo.write(pos);
      delay(15);
    }
    digitalWrite(ledPin, LOW);
    for (pos = 180; pos >= 0; pos -= 1) {
      myservo.write(pos);
      delay(15);
    }
  }
  else {
  }
}
```