Theremin "The sound creation"

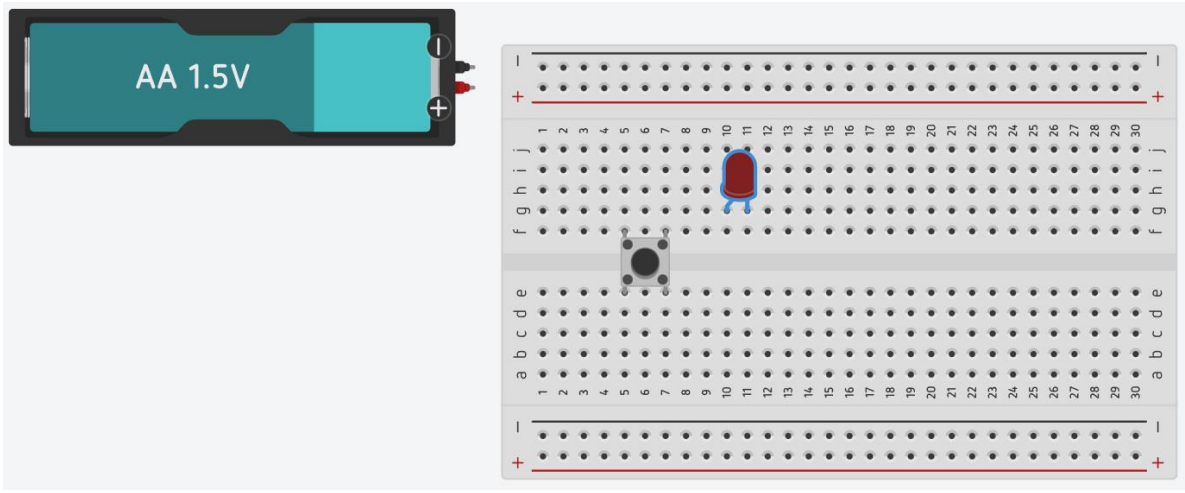
Worksheet for students

Names of team members: ……..

PART A – Reflection upon the Theremin

Why is the Theremin considered a unique musical instrument of its kind and different from the others? Try to search and report some information about its origin and its use.

Connect the led diode to the battery and to the button using the breadboard



In which part of the program could you change the colours of the RGB LED as the frequency varies?

PART B –Exercise with ultrasonic sensor (HC-SR04)

After reading the Arduino code part (wiring) for the HC-SR04 sensor, complete it with the missing parts.

```
/*
 *
 *
 * Complete Guide for Ultrasonic Sensor HC-SR04
 *
    Ultrasonic sensor Pins:
        VCC: +5VDC
        Trig : Trigger (INPUT) - Pin11
        Echo: Echo (OUTPUT) - Pin 12
        GND: GND
 */

int trigPin = 11;    //Trig - green Jumper
int echoPin = 12;    //Echo - yellow Jumper
long duration;       // duration is in microsec
float distance;      // distance is in cm

void setup() {
  //Serial Port begin
  Serial.begin (9600);
  //Define inputs and outputs
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
}
void loop()
{
  // The sensor is triggered by a HIGH pulse of 10 or more microseconds.
  // Give a short LOW pulse beforehand to ensure a clean HIGH pulse:
```

```
  // Read the signal from the sensor: a HIGH pulse whose
  // duration is the time (in microseconds) from the sending
  // of the ping to the reception of its echo off of an object.
  duration = pulseIn(echoPin, HIGH);

  // convert the time into a distance
  distance = (duration/2.0 * 0.0343; // or, which is the same, /29.15

  Serial.print(distance);
  Serial.print("cm");
  Serial.println();

  delay(250);
}
```

PART C

Describe how do you conducted the test phase of the complete system.

In case of LED malfunction, how would you intervene to correct it?

What would you do if the volume sensor didn't work?