Distance Gun ⇒ Level 1 (LCD Gun)

1. **Build Gun**
    a. Laser Cutting
2. **Upload Test Code (Ultrasonic Sensor)**
    a. After uploading code place an object at a respectable difference from the sensor and check the serial monitor if the sensor is connected properly.
3. **LCD Calibration**
    a. It is necessary to adjust the contrast of the display, so it is visible.
        i. Use a small screwdriver to rotate the blue box (potentiometer) on the back of the LCD to change contrast.
    b. To communicate with the LCD, it is essential to know its address.
        i. To find the address, a special code file needs to be uploaded. If everything is connected properly, the address will be printed in the serial monitor.
4. **Download the LCD Library**

a. The library can be downloaded at ---

https://www.makerguides.com/wp-content/uploads/2019/02/LiquidCrystal_I2C-master.zip

b. To use this library go to :
Sketch → Include Library → Add .ZIP Library → (Click on the Downloaded Library)

5. Worksheet

Distance Gun ⇒ Level 2 (LCD & Ultrasonic Sensor)

1. Download the Ultrasonic Library
   a. The library can be found at - http://downloads.arduino.cc/libraries/github.com/shubhamtivedi95/UltraDistSensor-1.0.0.zip
2. Explanation on If - Else - Else If Statements
3. Explanation on Boolean Operators
4. Worksheet

Distance Gun ⇒ Level 3 (Efficient Tracking & Add Button)

1. Explanation on For Loops
2. Add Button
   a. Requires connection to breadboard
3. Test Button
   a. Upload the button test code. Open the serial monitor to see what the state the Arduino reads of the button.

    b. Either the statement “Pressed” or “Not Pressed” will be printed
    c. You will be pressing and releasing the buttons at different speeds and delays
    d. If what the Arduino detects matches the physical state of the button then the button is connected properly
    e. Check multiple times
4. **Worksheet**

Distance Gun ⇒ Level 4 (Multiple Button Modes)

1. **Explanation on Functions**
2. **Worksheet**