Project 1: How to Interface an Ultrasonic Sensor with Arduino using TinkerCAD

The components used in this project are:

1. **Arduino Uno R3** – The microcontroller board that processes data and controls the ultrasonic sensor.
2. **Ultrasonic Sensor (HC-SR04)** – A sensor that measures the distance of an object using ultrasonic sound waves.
    - **VCC** – Connected to 5V power supply.
    - **GND** – Connected to ground.
    - **Trig** – Connected to Arduino pin 10 (used to send ultrasonic pulses).
    - **Echo** – Connected to Arduino pin 9 (receives the reflected pulse).
3. **Connecting Wires** – Used to connect the components.
4. **Tinkercad Simulation Software** – Used to simulate the circuit and code.

This project interfaces an **HC-SR04 ultrasonic sensor** with an **Arduino Uno** to measure the distance of an object. The **ultrasonic sensor** transmits sound waves, which reflect off an object and return to the sensor. The Arduino calculates the distance based on the time taken for the wave to travel. The measured distance is then displayed on the **serial monitor**. The project is simulated using **Tinkercad**, making it useful for learning sensor integration and Arduino programming.