ASSIGNMENT ON ARDUINO 30-10-24

1. **Distance Measurement Display:**

   Connect an ultrasonic sensor and a 7-segment display to the Arduino. Program it to measure the distance to an object in front of the ultrasonic sensor and display the result on the 7-segment display.
   https://www.tinkercad.com/things/2CTBB2pyDnY-1distance-measurement-display

2. **Smart Distance Counter:**

   Connect both an ultrasonic sensor and a touch sensor to the Arduino. Display a counter on the 7-segment display that increments every time an object (such as a hand) crosses a specified distance threshold (detected by the ultrasonic sensor). Use the touch sensor to reset the counter.
   https://www.tinkercad.com/things/bGAWgOaymQ1-2smart-distance-counter/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard

3. **Touch-Activated Range Finder:**

   Program the Arduino to take a distance reading from the ultrasonic sensor only when the touch sensor is activated. Display the measured distance on the 7segment display and hold the value for 5 seconds before clearing.
   https://www.tinkercad.com/things/bMcgFcDqkNj-3touch-activated-range-finder/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits

4. **Countdown Timer with Obstacle-Activated Reset:**

   Use the touch sensor to start a countdown on the 7-segment display. If the ultrasonic sensor detects an obstacle (within a specified range) during the countdown, reset the timer. Display "E" on the display if the countdown completes without interruption.
   https://www.tinkercad.com/things/4aPdFEvX5Ba/editel?returnTo=%2Fdashboard%2Fdesigns%2Fcircuits

5. **Digital Stopwatch:**
   Create a simple stopwatch using an LCD display and two buttons. Use one button to start/stop the stopwatch and the other to reset it.
   https://www.tinkercad.com/things/5TSo4pTtQve/editel?returnTo=%2Fdashboard%2Fdesigns%2Fcircuits

6. **Motion-Activated Alarm:**
   Connect a PIR motion sensor to the Arduino and write code to sound a buzzer when movement is detected. Add a feature to log the timestamp of each detected movement in the Serial Monitor.
   https://www.tinkercad.com/things/h1KTsjmkrro-6motion-activated-alarm/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits

7. **Temperature Monitoring System:**

   Using a DHT11 or LM35 temperature sensor, create a temperature monitoring system that reads temperature data and displays it on the Serial Monitor. Adjust the code to send a warning message if the temperature exceeds a certain threshold.
   https://www.tinkercad.com/things/aemW10AiPv7-7temperature-monitoring-system/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits

8. **People Counter with Direction Detection:**

   Place an IR sensor on either side of a doorway to count the number of people entering and exiting. Display the count on a 7-segment display. Use the ultrasonic sensor to confirm direction by measuring the time an object passes between the two IR sensors.
   https://www.tinkercad.com/things/8hqjdx523ur-8people-counter-with-direction-detection/editel?returnTo=https%3A%2F%2Fwww.tinkercad.com%2Fdashboard%2Fdesigns%2Fcircuits

NOTE: TO Demonstrate use Tinckercad application(online)