RSA ASSIGNMENT-3 ON ARDUINO

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/apj7XCOypWS-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/2UQelJ8qC6Q-2-smart-distance-counterr

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 7-segment display and hold the value for 5 seconds before clearing.

   https://www.tinkercad.com/things/akfbpia1jd6-3-touch-activated-range-finder-partial

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/lIXfA2q88Yp-4countdown-timer-with-obstacle-activated-reset

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/g3EIrYUCmFz-5digital-stopwatch

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/fZHzMUl8I7R-6motion-activated-alarm

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/fzSeWxrY5ml-7temperature-monitoring-system

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/9f1VoiSkto5-8people-counter-with-direction-detection