RSA 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/0D4kH0dQV8T-copy-of-1distance-measurement-display?sharecode=ryIa3mSzuGTuOzchrVl5Ra164sUJyoSHkGkhgM5rT9w

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/aZ9rPTGZf9F-2smart-distance-counter?sharecode=PhwsqbqDb8G2GYsnU_g96GarbhIfiebiFNhLx5Ln3s8

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/isMEo3r2eb1-3touch-activated-range-finder?sharecode=0fb4_nB2l0WMNSXVI1x-XJONYpMwarm6vra673HtgVs

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/hDMIZqYAFO0-4countdown-timer-with-obstacle-activated-reset?sharecode=6VZfRd3Mj5CL2z-4ZyyA3kGuN7BgF4k_TUIdKRJX1hE

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/esYtrzuSIUU-5-digital-stopwatch?sharecode=UWtMTPCyjJUJmEETAF4hK_P7oGnDlVfJhTGIMOBdOu8

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/8YtLvVjrYmP-6motion-activated-alarm?sharecode=cXQMlnehjOH5PECrrn5we8t6paJI8qp_BwrmJNydFy4

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/09iVAOJ1E8Q-temperature-monitoring-system?sharecode=kUtfKIL5G4AfEKprnKiFBnOJ1TdPRAsz_g_LM5bt7vU

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/k57gYKTibyP-8people-counter-with-direction-detection?sharecode=XnIKgZzlg6YCqiusL11vuRqyOvIdObtZMsaeOtMSfhs

NOTE: TO Demonstrate use Tincker cad application(online)