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/dVqg2giuZ2M-exp1usa?sharecode=EpZwQir8pyc33IBVrDynaDBvUxOu2kKhk9-Ik2Tju30

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/aWiTkTCyW15-exp2sdc?sharecode=Yxb4RZVotzEDeZksNPuQ80N6FgWZ3hpJ-b-rxoVrKAY

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/cOAGN0rU4Bf-exp3tsu?sharecode=7yjPnwxPgdu8cNDD75e0gqSYZfIS48YjshuCD4jgvXc

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/b6vaaPN54LP-exp4sua?sharecode=UW2yRyAIcoIgQmNQVHAEC9Mp52z-I9dj982Ecp5RsSQ

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/f2I6nrQeQTd-exp5lcd?sharecode=NlAiH77Q2BrAAgemnU-HmsfQcx-nkqT_QFM5XZfwBVU

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/8kaViT0Ejib-exp6pba?sharecode=bpsiXZwQvv50SPrry_U53R6fjUhy4nXhkELk2kw48BU

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/3OPFN7fyLsa-exp7dht?sharecode=nruFG4xdjROJhs4Olz810fOFpnH24-yM11eM4YS2Xww

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/53jrsrHRK3R-exp8uia?sharecode=M9mk7HzG_dQsnLivca2LShdxW7kiJdCfYAIbWFbLPO8