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/iexLgKNeCOq-1distance-measurement-display?sharecode=c-r38HqTJt4Jzo7SttfXMwLd4FxV8i5yQMlZC8PlMtY

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/jwmq62gh1tq-2smart-distance-counter?sharecode=Rr5-VrozBy0doh9LxT-82uvpnqoUuTFm3Lz-_YIdPnw

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/0urnnLRFhAh-3touch-activated-range-finder?sharecode=e9V_964GV7HJ_fkedbKoWqIgiEGIYoS-e5BLB_Qs6w

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/h0K5npOe0aA-4countdown-timer-with-obstacle-activated-reset?sharecode=G6CMQ1yXiHUUBFtY7shxp0KUDIrLo2-GiknLIgWFFBw

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/ffbAkblDpt0-5digital-stopwatch?sharecode=TpQin9nEjmTCQ7xLzDiUciryE7JcI9sIbXyCXk3a2b0

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/jVMLxOv483E-6motion-activated-alarm?sharecode=FhO_Nf2zosp1dd9j2ZtOZArAp7P3CRboPKj-Tdijtw0

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/iAFkj6aaH4n-7temperature-monitoring-system?sharecode=8SLJXPcfl0xFBgr4dZ48Mb9Bw5qmjHB57Jc5sV1SZiA

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/jexpRo0p466-8people-counter-with-direction-detection?sharecode=O0bUaP24YVtv8qfJtUt0V-OdKFC9TtgPEGyllidSOjE