RSAASSIGNMENT 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/gRlyBYMCRC3-1distance-measurement-display?sharecode=9WXpF_9L6pjxqGdy94wltDH3M7hdbLf30gl37h6HdA0

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/5NODaOPH4vK-2smart-distance-counter?sharecode=Jdb6KP0KRGvBnlobcfOOWR_XOmRK51k_IQkwt4OGFXQ

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/10V1OW7mdm1-3touch-activated-range-finder-?sharecode=J-U7d-CPH2nB4r9Mbm0r_7_4edfetL6wLtBU_n_xrew

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/0HVKIK6ltne-4countdown-timer-with-obstacle-activated-reset?sharecode=5SH25W0wmZXkvXxZ5wfDNiLcSSag_wWHEcLsckDdTjI

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/7viUk2SBXAp-5-digital-stopwatch?sharecode=yh-oO_DghvWK8UGsjoQdXb9dC-C84iJNTiNBulHzO50

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/8GDdaCyqWoG-6motion-activated-alarm?sharecode=booBKnPCGYFssk6s6JMTo44du9tjlJb-hz1Dp2chZVI

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/8uFEqA7dqOt-7temperature-monitoring-system?sharecode=GgeVOxLLAlJAWYJu91mJtjewUFBFH1JK2r5ML2-5wR8

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/bp233hc0mjJ-8people-counter-with-direction-detection?sharecode=ZpXyyOZVjgjCkUpSAv_7jbXgG7K5BYIuUqyELvUq1kY

NOTE: TO Demonstrate use Tincker cad application(online)