**RSA ASSIGNMENT – 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/jnJZPRxe04z-copy-of-distance-measurement-display>

1. **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/9sNhK82Okmq-copy-of-smart-distance-counter>

1. **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/gxJ54NWNIuz-copy-of-touch-activated-range-finder-partial>
2. **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/8pirZHCFUfP-copy-of-4countdown-timer-with-obstacle- activated-reset](https://www.tinkercad.com/things/8pirZHCFUfP-copy-of-4countdown-timer-with-obstacle-%20%20%20%20%20%20%20%20%20activated-reset)

1. **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/3s7nlxvCI9F-copy-of-digital-stopwatch>

1. **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/hsVZ6SfSpL8-copy-of-motion-activated-alarm>

1. **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/7lJyeCjyUE8-copy-of-temperature-monitoring-system>

1. **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/8Z5Yx2QTUKI-copy-of-people-counter-with-direction-detection>