# 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/bXwHndmV6TP-distance-measurement-display?sharecode=86jURqbXM_jdSXbolRvJbnGXyfEv-xrcHUfjY3xEh7w>

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/jqcdTWSSVba-smart-distance-counter?sharecode=CbxG8QWgY7UheKDiqRHjayubeV5xFG5W2N5UVZa4tnY>

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 7segment display and hold the value for 5 seconds before clearing.

<https://www.tinkercad.com/things/gSwbXfpBPuE-touch-activated-range-finder-partial?sharecode=98YZwOvgjMcvRqb4KKRGge8sA_9h78NNBe6kUzs-yWw>

1. **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/aTzpEnFMKHk-countdown-timer-with-obstacle-activated-reset?sharecode=GnmYJI-Iolnwsmn8NZrOBahHkpYWNWZshUgRuUuZmII

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/1dtwG3tHNqB-digital-stopwatch?sharecode=wyu\_kI4cS2d5XXull4MOcjdSRW\_pHhUvheWCGO-jlto

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/3G2Y8cfPjOO-motion-activated-alarm?sharecode=pz7DfHXGDBlE4WsOs57a6fW6xZnVC8X7izOh01MyeVE

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**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/0BewzqMnHhP-temperature-monitoring-system?sharecode=MV2Z8Y56eu0QW1ZtNWPYUPdzptoAWwy5jAtq7MWmoPQ

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/7AS4X1cYody-people-counter-with-direction-detection?sharecode=7dCwD0UBLb92UkcuBejvlR-CicT3LmdGr5BkV-HmEKU

## NOTE: TO Demonstrate use Tincker cad application(online )