PEMBEDS

Week 10: Arduino Uno and Ultrasonic Sensor with Servo Motor

NAME: Krizza Mae S. Eguia

STUDENT NO: 2024-1038081

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SCORE	PERCENTAGE

OBJECTIVES

At the end of the lesson, the student should be able to:

1. To
2. To

EQUIPMENT AND MATERIALS:

a.Arduino Uno
b.Ultraasonic sensor
c.Servo Motor

SOFTWARE:

- Arduino IDE
- Tinkercad

DIAGRAM:

CODE:

```
#include <Servo.h>
Servo servoMain;

int TriggerPin = 6;
int EchoPin = 7;
int distance;
float duration;
float cm;

  void setup() {
  servoMain.attach(10);
  pinMode(TriggerPin, OUTPUT);
  pinMode(EchoPin, INPUT);
  }

  void loop() {
  digitalWrite(TriggerPin, LOW);
  delay(2);
  digitalWrite(TriggerPin, HIGH);
  delayMicroseconds(5);
  digitalWrite(TriggerPin, LOW);
  duration = pulseIn(EchoPin, HIGH);
  cm = (duration / 58.82);
  distance = cm;

  if (distance < 20) {
    servoMain.write(120);
    delay(2500);
  } else {
    servoMain.write(30);
    delay(2);
  }
}
```

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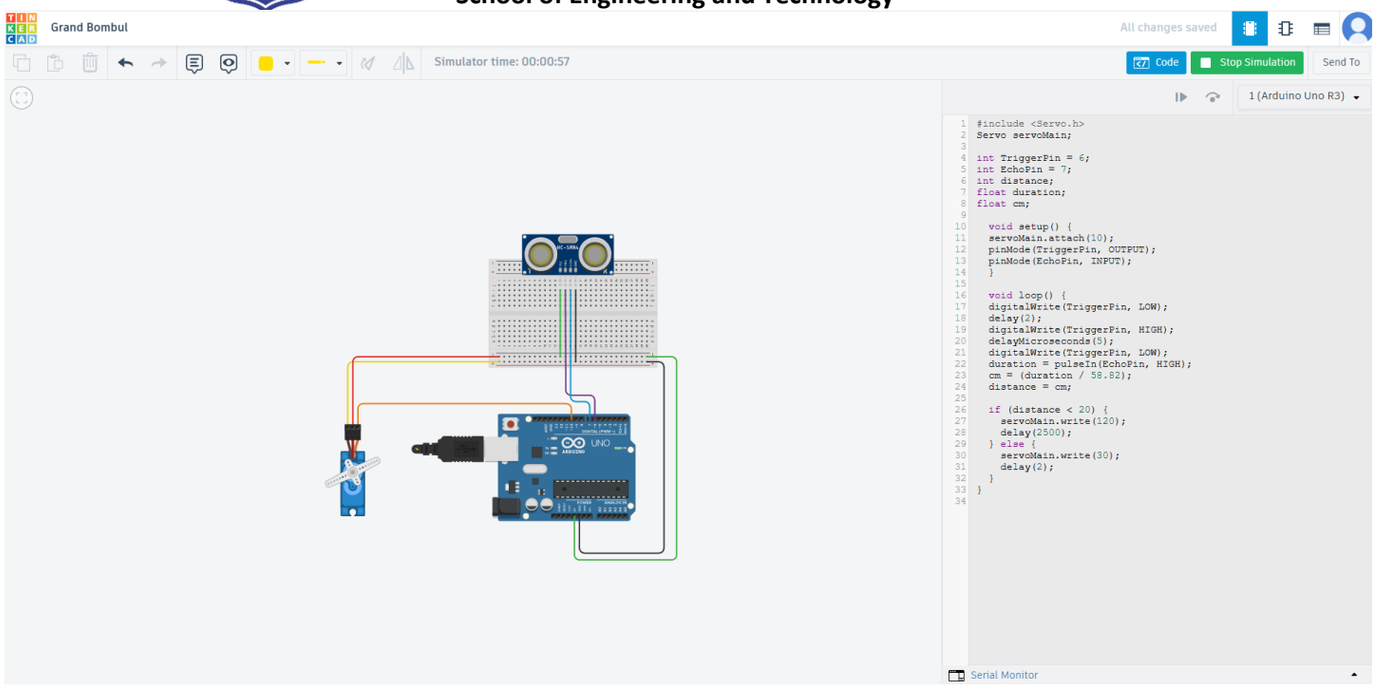

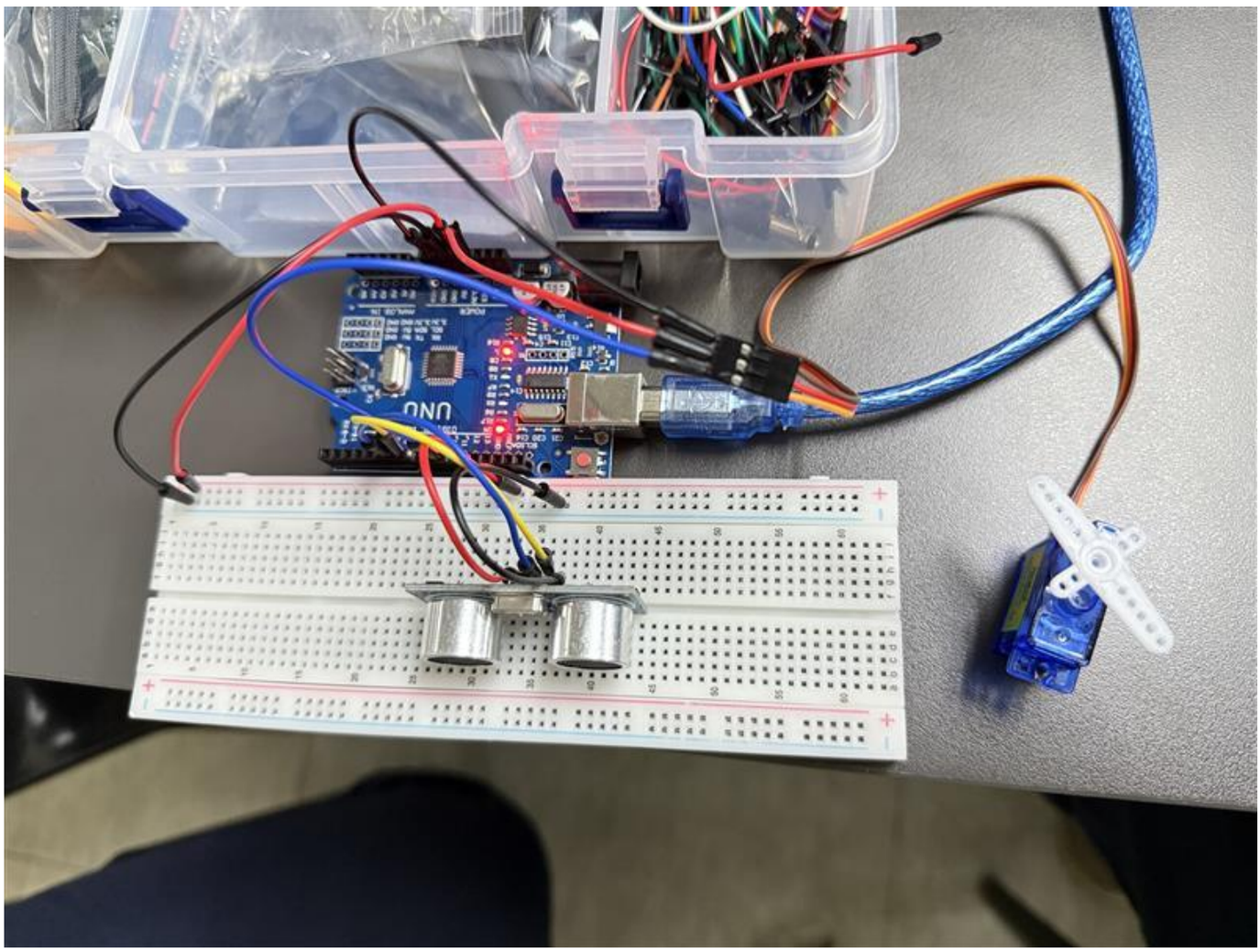

PROCEDURE:

1. Construct the circuit.
2.
3.

CONCLUSION:

In this exercise, we created a system that responds to distance using an Arduino Uno, an ultrasonic sensor, and a servo motor. The servo motor moves in response to the ultrasonic sensor's measurement of an object's distance. We discovered how the components interact by constructing and coding the circuit ourselves. In addition to teaching us the fundamentals of Arduino programming, this exercise demonstrated how this configuration can be applied to straightforward real-world projects like automated doors or barriers.