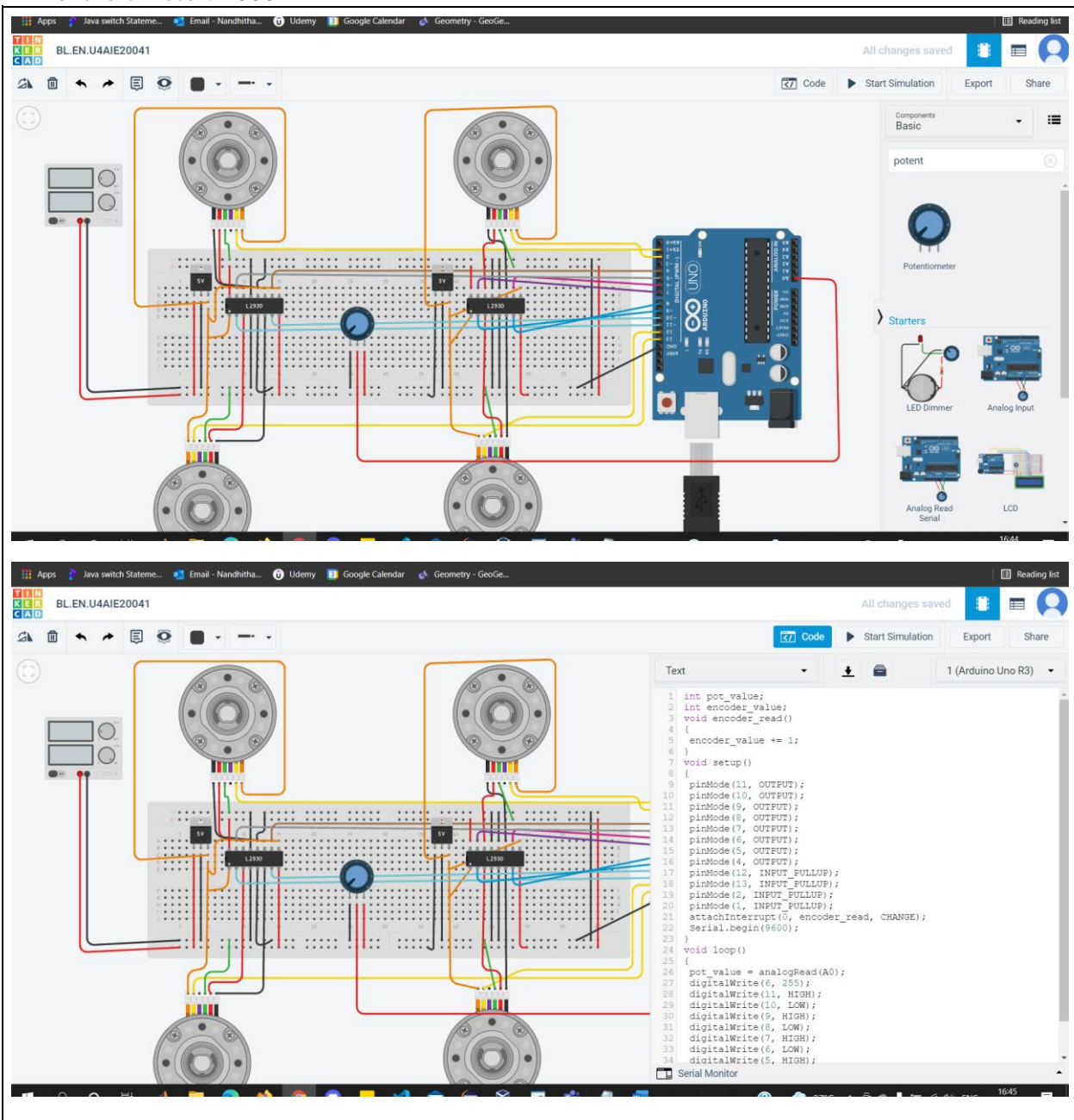


## 19AIE102 – Introduction to Drones

### Lab Submission

1. Design a Arduino based circuit with four DC motors with wheel encoder that resembles a quadcopter motor configuration. Write an Arduino code to actuate the motors to simulate rotating left (Yaw) motion of the drone. Display the encoder pulse count of the front left motor in serial monitor of the Arduino. Use the below display formatting,

Front left motor: 1000



The image displays two screenshots of the Arduino IDE interface. The top screenshot shows a circuit diagram of an Arduino Uno R3 connected to four DC motors and two L298N motor drivers. The bottom screenshot shows the same circuit diagram with the Arduino code editor open, displaying the code for controlling the motors and reading the encoder pulse count of the front left motor.

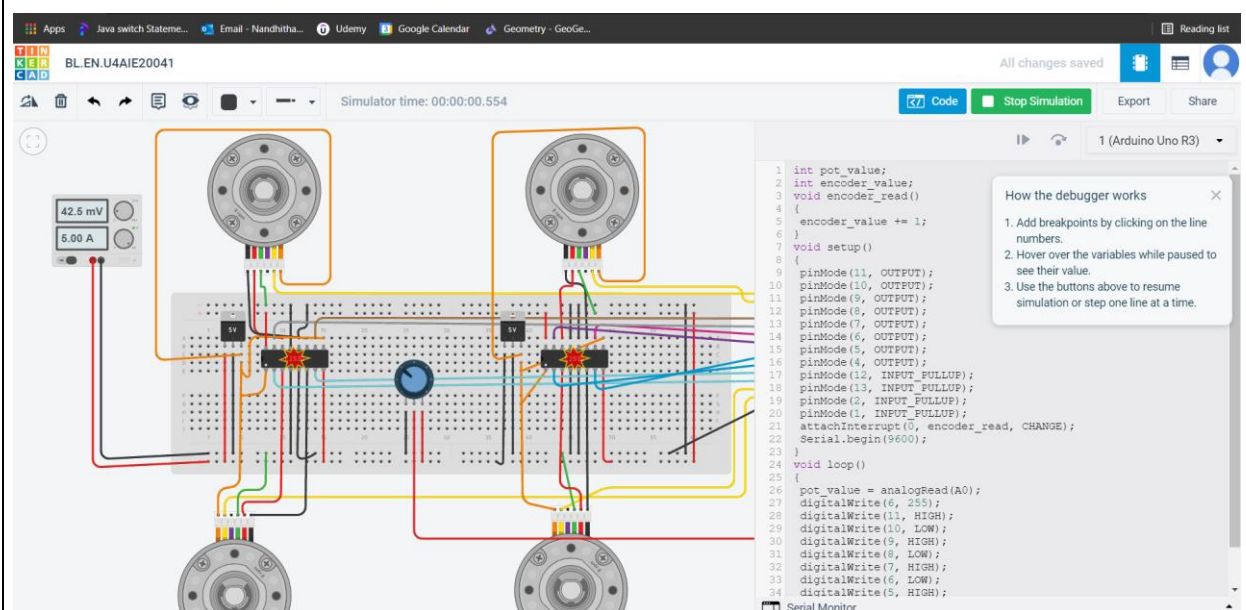
**Circuit Diagram:** The circuit diagram shows an Arduino Uno R3 connected to four DC motors and two L298N motor drivers. The motors are connected to the L298N drivers, which are powered by a 5V regulator. The Arduino is connected to the L298N drivers via digital pins. The L298N drivers are connected to the motors via motor pins.

**Code:** The code is written in C++ and is designed to control the four DC motors and read the encoder pulse count of the front left motor. The code is as follows:

```
1 int pot_value;
2 int encoder_value;
3 void encoder_read()
4 {
5   encoder_value += 1;
6 }
7
8 void setup()
9 {
10  pinMode(11, OUTPUT);
11  pinMode(10, OUTPUT);
12  pinMode(9, OUTPUT);
13  pinMode(8, OUTPUT);
14  pinMode(7, OUTPUT);
15  pinMode(6, OUTPUT);
16  pinMode(5, OUTPUT);
17  pinMode(12, INPUT_PULLUP);
18  pinMode(13, INPUT_PULLUP);
19  pinMode(2, INPUT_PULLUP);
20  pinMode(1, INPUT_PULLUP);
21  attachInterrupt(0, encoder_read, CHANGE);
22  Serial.begin(9600);
23 }
24
25 void loop()
26 {
27   pot_value = analogRead(A0);
28   digitalWrite(6, 255);
29   digitalWrite(11, HIGH);
30   digitalWrite(10, LOW);
31   digitalWrite(9, HIGH);
32   digitalWrite(8, LOW);
33   digitalWrite(7, HIGH);
34   digitalWrite(6, LOW);
35   digitalWrite(5, HIGH);
```

Reg No:

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a.

Reg No:  
Name:

Output snapshot with file name clearly visible