

EXPERIMENT – 2.3

NAME:
SEMESTER:
D.O.P:

UID:
CLASS/GROUP:
SUBJECT CODE – 21ELH-101

Aim: To design simple DC motor control circuit.

Apparatus: ARDUINO UNO, DC motor, L293D, connecting wires.potentiometer.

Circuit Diagram:

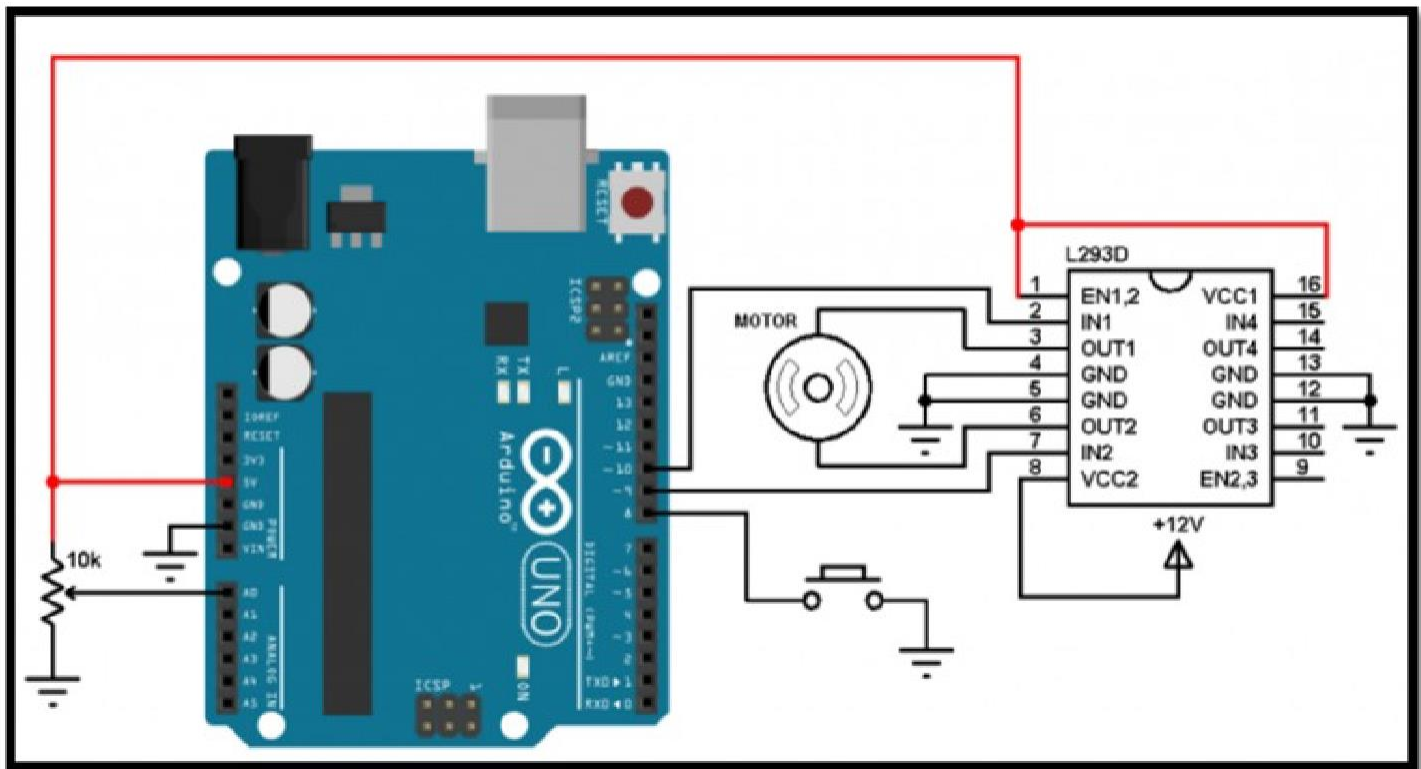


Fig.1
DC Motor Circuit

Program:

```
#define button 8
```

```
#define pot 0
```

```
#define pwm1 9
```

```
#define pwm2 10
```

```
boolean motor_dir = 0; int motor_speed;
```

```
void setup() {
```

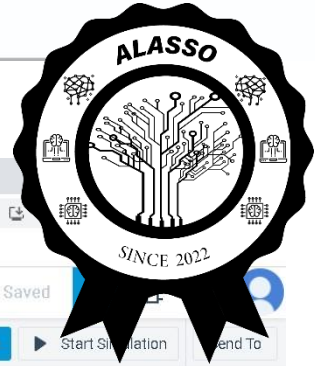
```
pinMode(button, INPUT_PULLUP); pinMode(pwm1, OUTPUT); pinMode(pwm2, OUTPUT);  
}
```

```
void loop() {
```

```
motor_speed = analogRead(pot) / 4; if(motor_dir)  
analogWrite(pwm1, motor_speed); else  
analogWrite(pwm2, motor_speed);
```

```
if(!digitalRead(button)){ // If direction button is pressed while(!digitalRead(button));  
    // Wait until direction button released motor_dir = !motor_dir; // Toggle direction  
variable if(motor_dir)  
digitalWrite(pwm2, 0); else digitalWrite(pwm1, 0);  
}  
}
```





Tinker Cad Result:

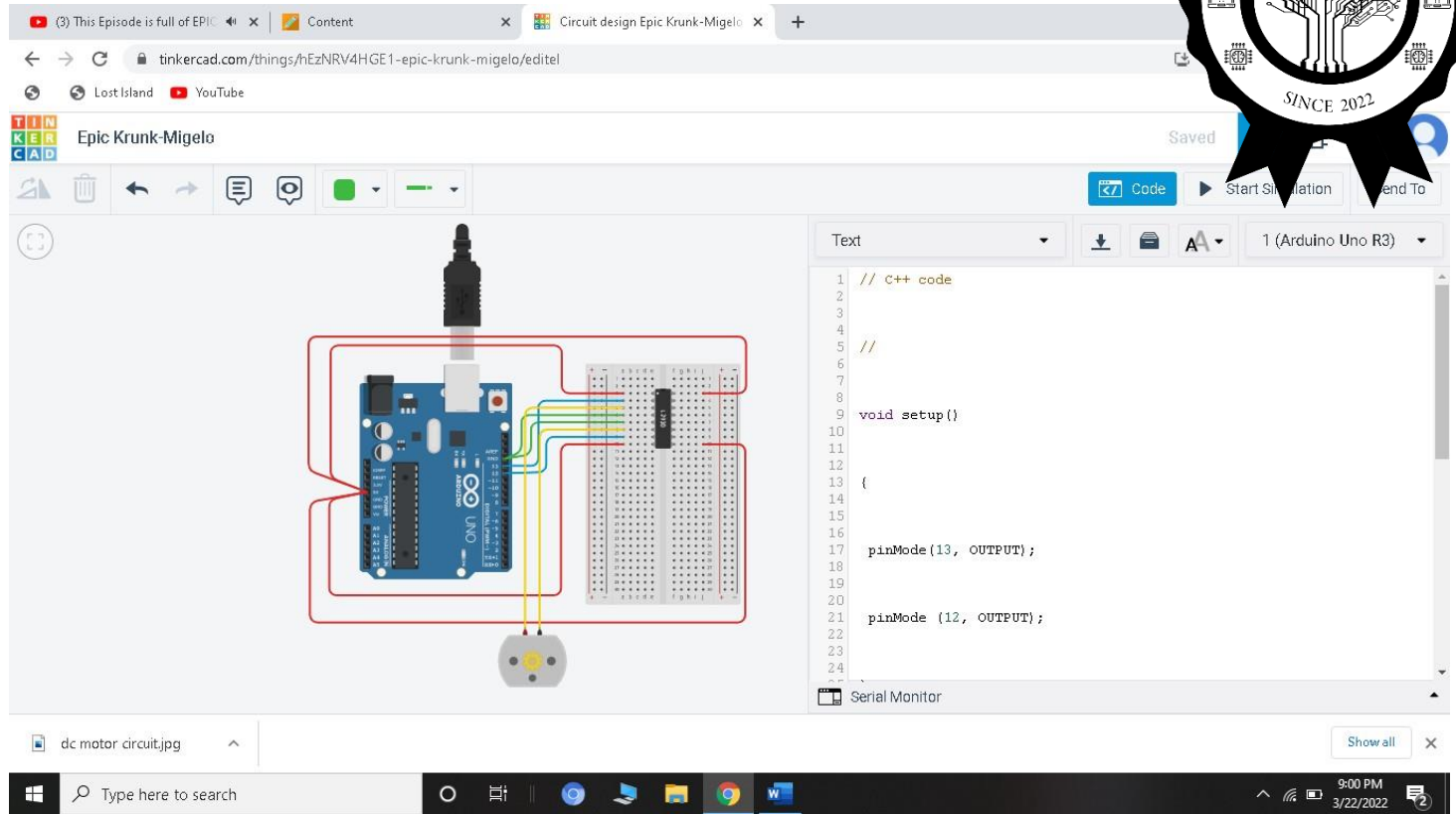
Browser tabs: (3) This Episode is full of EPIC, Content, Circuit design Epic Krunk-Migelo

URL: tinkercad.com/things/hEzNRV4HGE1-epic-krunk-migelo/editel

Lost Island, YouTube

TINKER CAD Epic Krunk-Migelo

dc motor circuit.jpg



```

1 // C++ code
2
3
4
5 //
6
7
8
9 void setup()
10
11
12
13 {
14
15
16
17 pinMode(13, OUTPUT);
18
19
20
21 pinMode (12, OUTPUT);
22
23
24

```

Serial Monitor

Windows taskbar: Type here to search, 9:00 PM 3/22/2022

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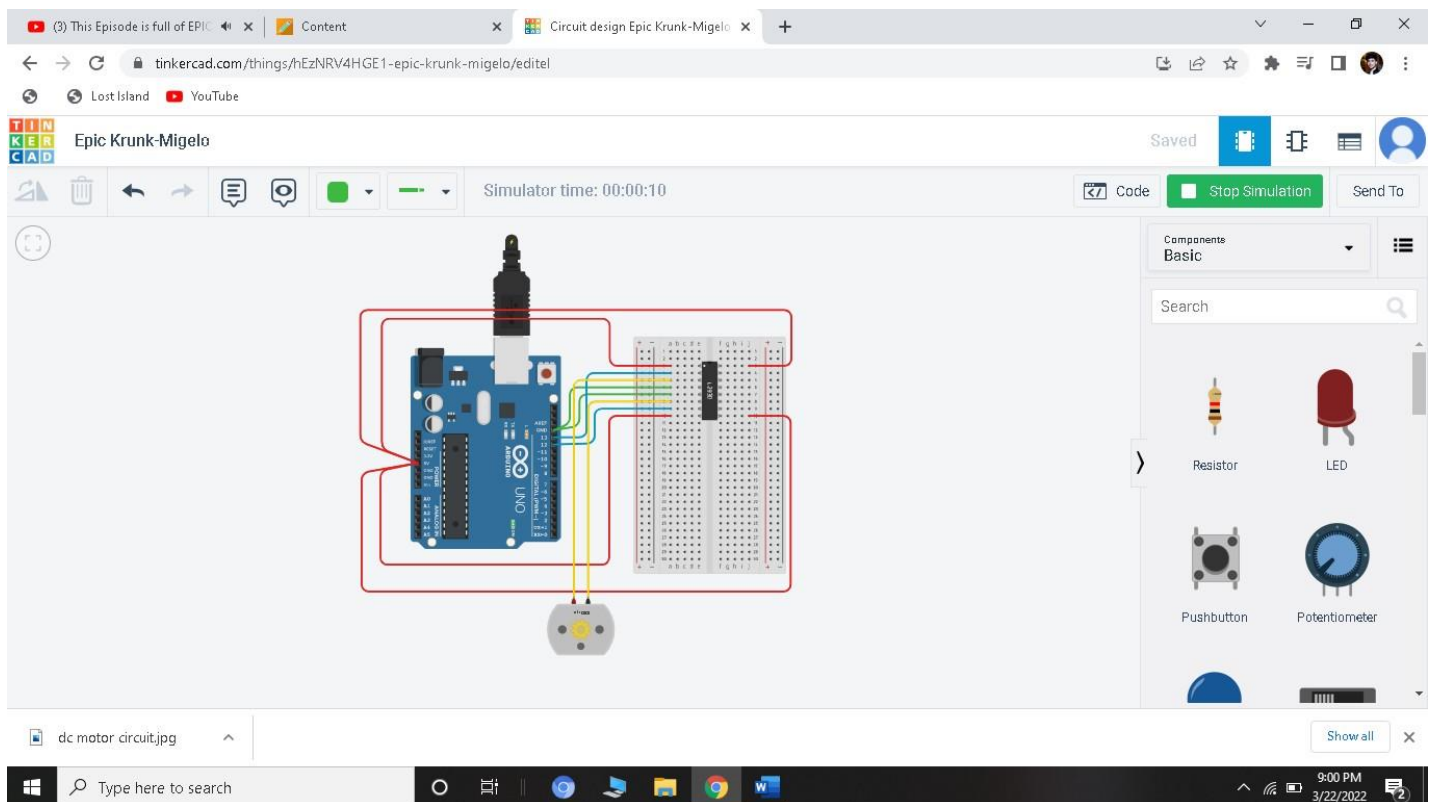
URL: tinkercad.com/things/hEzNRV4HGE1-epic-krunk-migelo/editel

Lost Island, YouTube

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Simulator time: 00:00:10

dc motor circuit.jpg

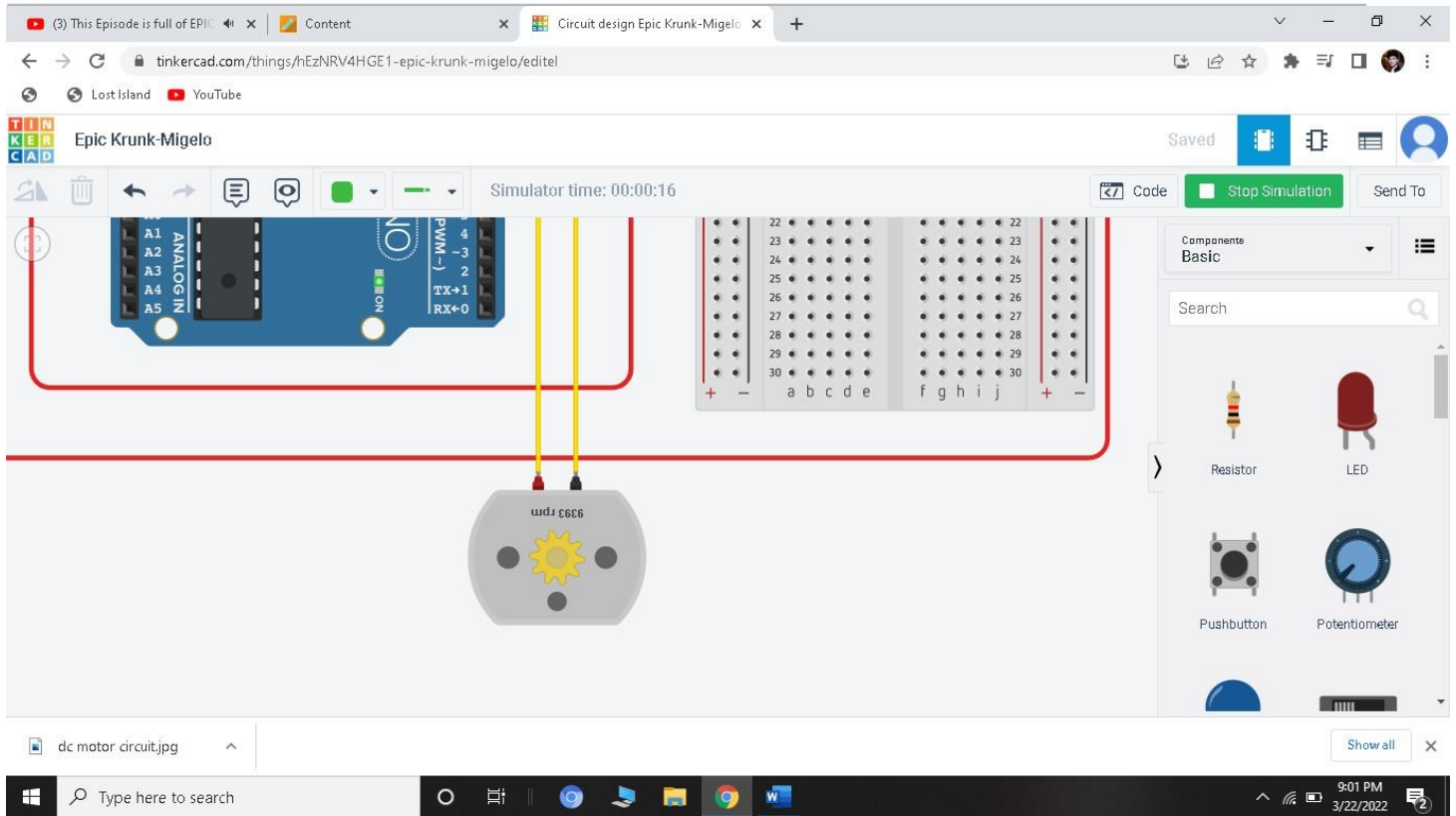


Components Basic

Search

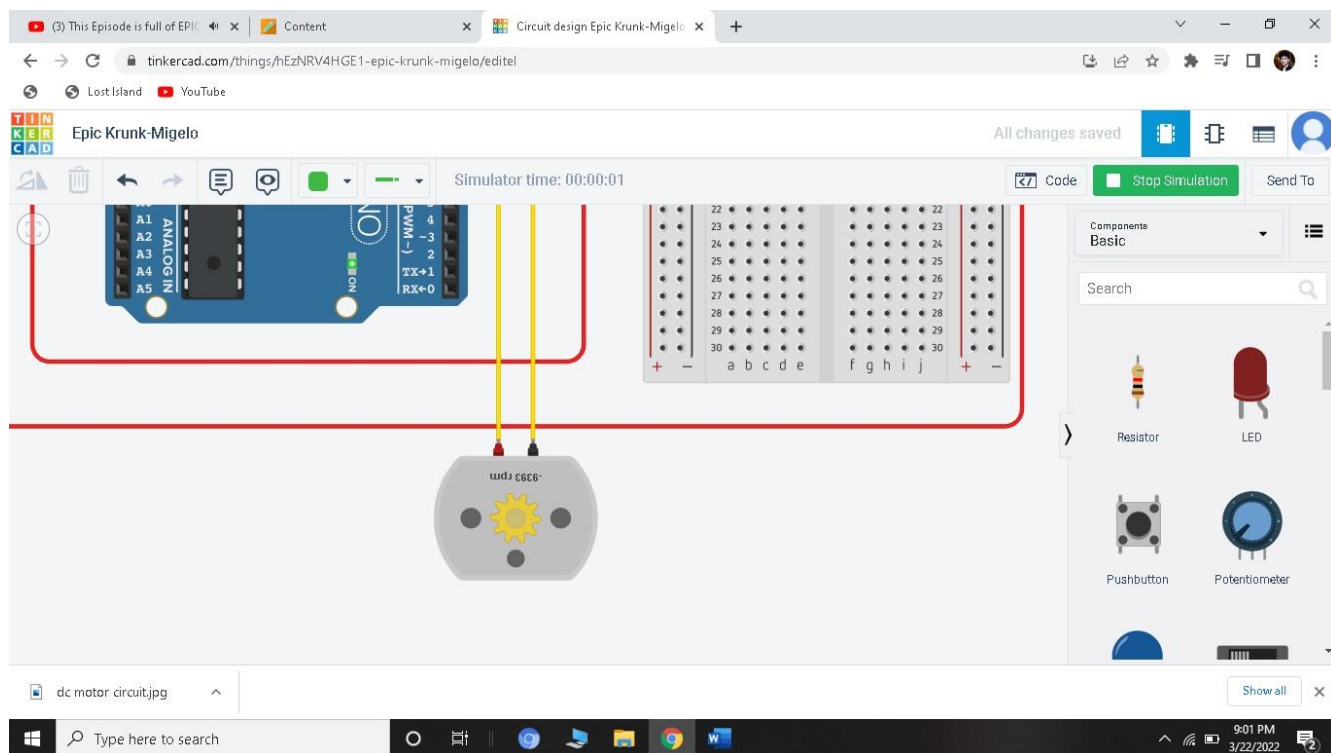
Resistor, LED, Pushbutton, Potentiometer

Windows taskbar: Type here to search, 9:00 PM 3/22/2022



When 13 is High; 12 is Low





When 12 is High; 13 is Low

Result:

Designing of simple DC motor control circuit using Arduino is verified after uploading the program.

Evaluation Grid:

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Worksheet completion including writing learning objectives/Outcomes. (To be submitted at the end of the day).		10
2.	Post Lab Quiz Result.		5
3.	Student Engagement in Simulation/Demonstration/Performance and Controls/Pre-Lab Questions.		5
	Signature of Faculty (with Date):	Total Marks Obtained:	