STATE UNIVERSITY OF BANGLADESH (SUB)

Course No: CSE-0406

Course Name: Computer Peripherals and Interfacing Lab

Semester: Summer-2021 (11th)

Submitted to:

Sifat Munim

Lecturer,

Department of CSE, SUB

Submitted By:

Name: Sheikh Afrin

ID: UG02-47-18-040

Batch: 47

Email: sheikhafrin2016@gmail.com

Assignment: Simple Calculator With LCD

Code:

```
#include <LiquidCrystal.h>
#include <Keypad.h>

const byte ROWS = 4; // Four rows
const byte COLS = 4; // Four columns

char keys[ROWS][COLS] = {

 {'7','8','9','D'},

 {'4','5','6','C'},

 {'1','2','3','B'},

 {'*','0','#','A'}

};

byte rowPins[ROWS] = { 7, 6, 5, 4 };// Connect keypad ROW0, ROW1, ROW2 and ROW3 to these Arduino pins.
```

```
byte colPins[COLS] = { 3, 2, 1, 0 }; // Connect keypad COL0, COL1
COL2 and COL3 to these Arduino pins.


Keypad kpd = Keypad( makeKeymap(keys), rowPins, colPins, ROWS,
COLS ); //  Create the Keypad


const int rs = 13, en = 12, d4 = 11, d5 = 10, d6 = 9, d7 = 8; //Pins to
which LCD is connected
LiquidCrystal lcd(rs, en, d4, d5, d6, d7);


 long Num1,Num2,Number;
 char key,action;
 boolean result = false;


void setup() {
  lcd.begin(16, 2);
  lcd.print("Afrin's Calc!");
  lcd.setCursor(0, 1);
  lcd.print("Start!");
   delay(2000); //Wait for display to show info
    lcd.clear(); //Then clean it
}


void loop() {
```

```
key = kpd.getKey(); //storing pressed key value in a char

if (key!=NO_KEY)
DetectButtons();

if (result==true)
CalculateResult();

DisplayResult();
}

void DetectButtons()
{
    lcd.clear();
   if (key=='*')
   {Serial.println ("Button Cancel"); Number=Num1=Num2=0;
result=false;}

    if (key == '1') //If Button 1 is pressed
   {Serial.println ("Button 1");
   if (Number==0)
   Number=1;
```

```
else
Number = (Number*10) + 1; //Pressed twice
}

 if (key == '4') //If Button 4 is pressed
{Serial.println ("Button 4");
if (Number==0)
Number=4;
else
Number = (Number*10) + 4; //Pressed twice
}

 if (key == '7') //If Button 7 is pressed
{Serial.println ("Button 7");
if (Number==0)
Number=7;
else
Number = (Number*10) + 7; //Pressed twice
}

if (key == '0')
{Serial.println ("Button 0"); //Button 0 is Pressed
if (Number==0)
```

```
Number=0;
else
Number = (Number*10) + 0; //Pressed twice
}

 if (key == '2') //Button 2 is Pressed
{Serial.println ("Button 2");
 if (Number==0)
Number=2;
else
Number = (Number*10) + 2; //Pressed twice
}

 if (key == '5')
{Serial.println ("Button 5");
 if (Number==0)
Number=5;
else
Number = (Number*10) + 5; //Pressed twice
}

 if (key == '8')
{Serial.println ("Button 8");
```

```
 if (Number==0)
Number=8;
else
Number = (Number*10) + 8; //Pressed twice
}


if (key == '#')
{Serial.println ("Button Equal");
Num2=Number;
result = true;
}

 if (key == '3')
{Serial.println ("Button 3");
 if (Number==0)
Number=3;
else
Number = (Number*10) + 3; //Pressed twice
}
 if (key == '6')
{Serial.println ("Button 6");
if (Number==0)
```

```
 Number=6;
 else
 Number = (Number*10) + 6; //Pressed twice
 }

  if (key == '9')
 {Serial.println ("Button 9");
 if (Number==0)
 Number=9;
 else
 Number = (Number*10) + 9; //Pressed twice
 }

   if (key == 'A' || key == 'B' || key == 'C' || key == 'D')
{
 Num1 = Number;
 Number =0;
 if (key == 'A')
 {Serial.println ("Addition"); action = '+';}
  if (key == 'B')
 {Serial.println ("Subtraction"); action = '-'; }
  if (key == 'C')
 {Serial.println ("Multiplication"); action = '*';}
```

```
    if (key == 'D')
   {Serial.println ("Devesion"); action = '/';}

   delay(100);
  }
}
void CalculateResult()
{
  if (action=='+')
    Number = Num1+Num2;

  if (action=='-')
    Number = Num1-Num2;

  if (action=='*')
    Number = Num1*Num2;

  if (action=='/')
    Number = Num1/Num2;
}

void DisplayResult()
{
```

```
  lcd.setCursor(0, 0);
  lcd.print(Num1); lcd.print(action); lcd.print(Num2);

  if (result==true)
  {lcd.print(" ="); lcd.print(Number);}

  lcd.setCursor(0, 1);
  lcd.print(Number);
}
```

SCREENSHOTS:

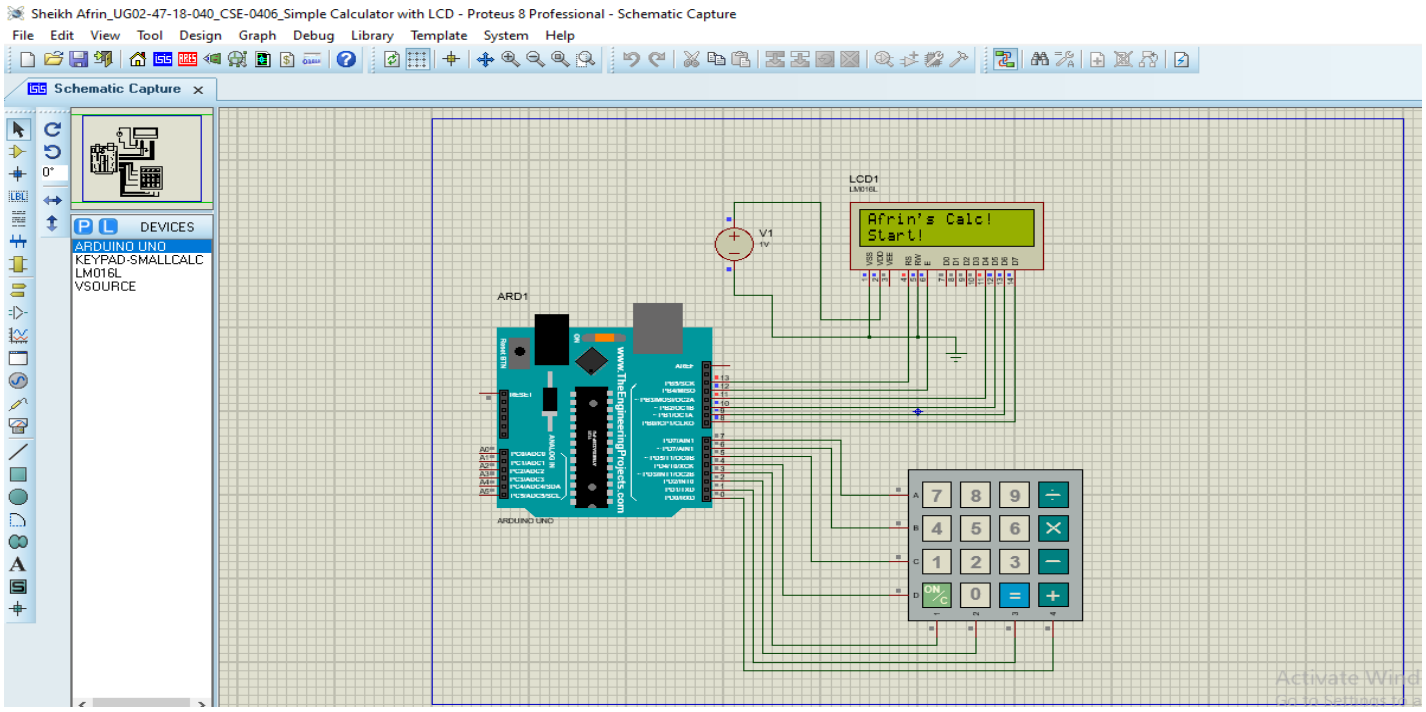

Fig: Simple Calculator with LCD

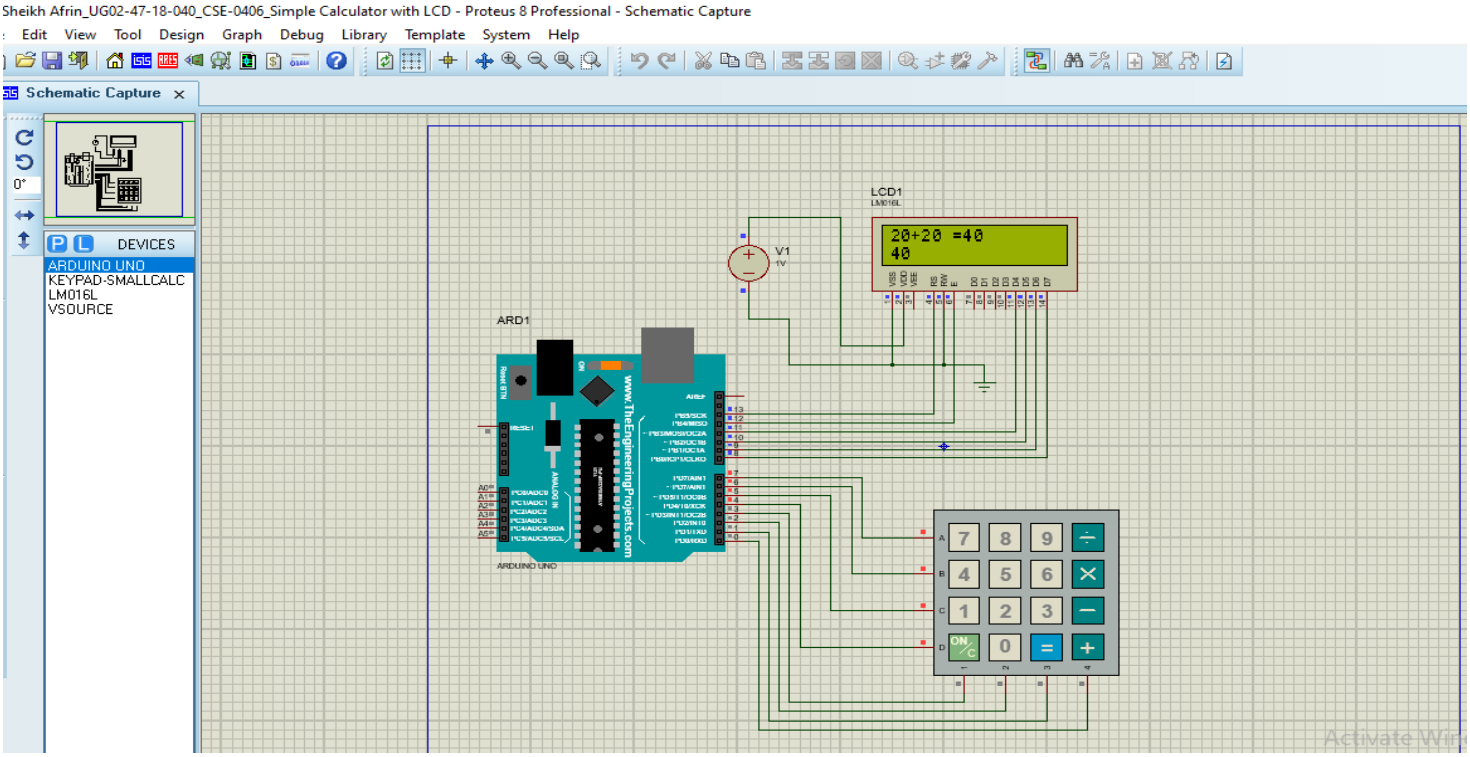

Fig: Addition

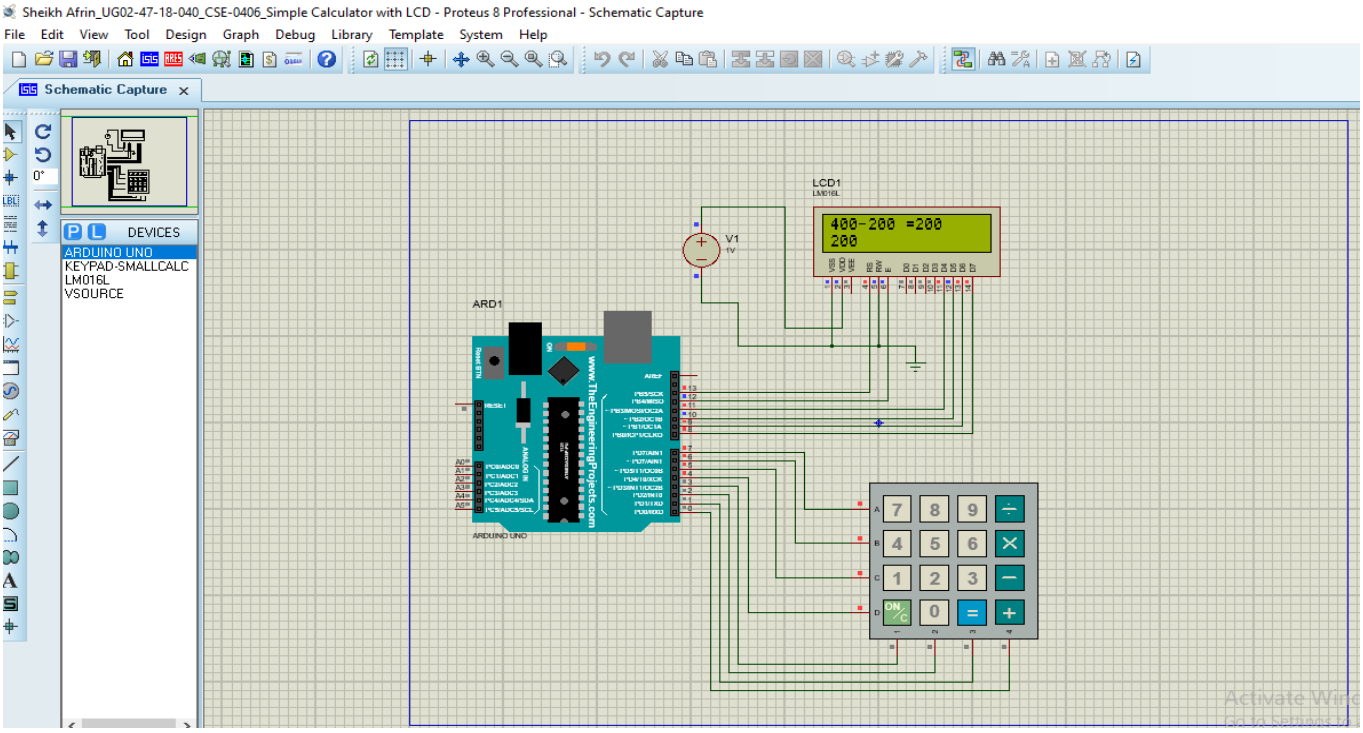

Fig: Subtraction

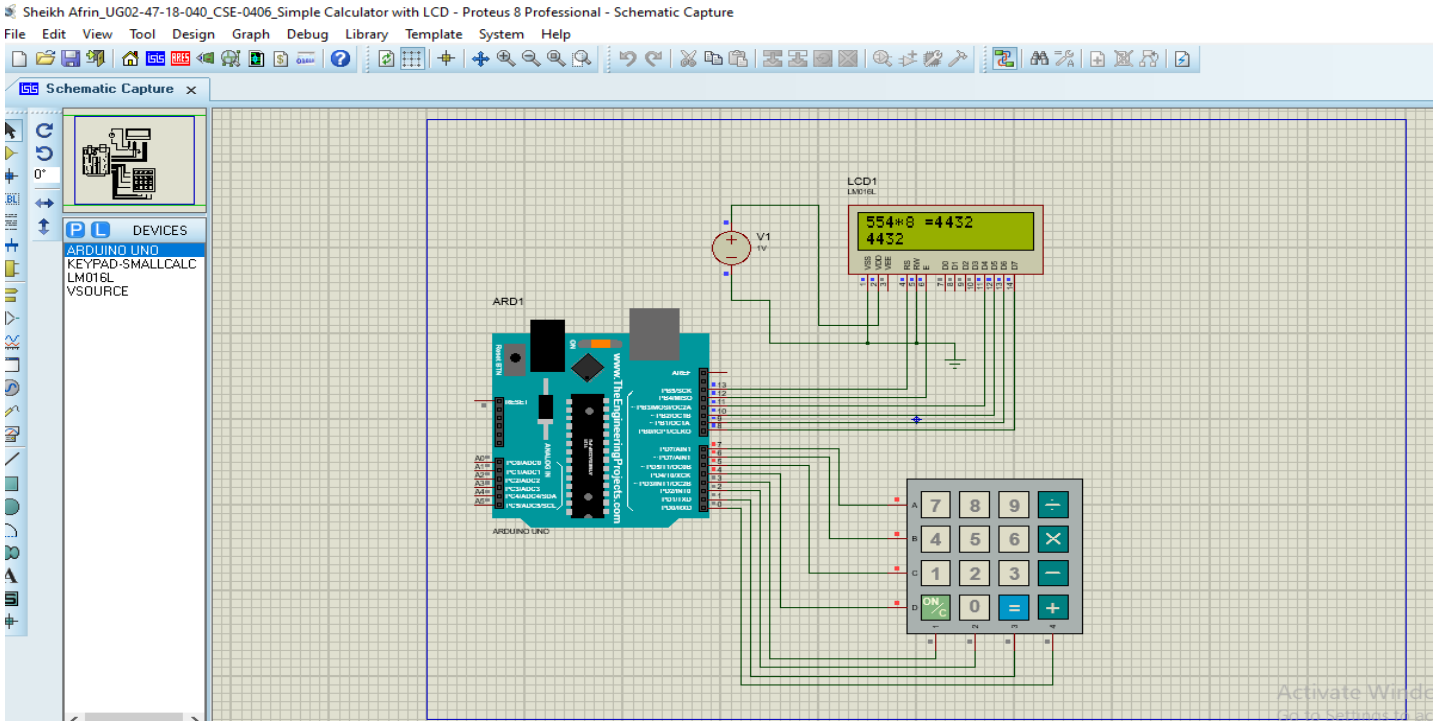

Fig: Multiplication