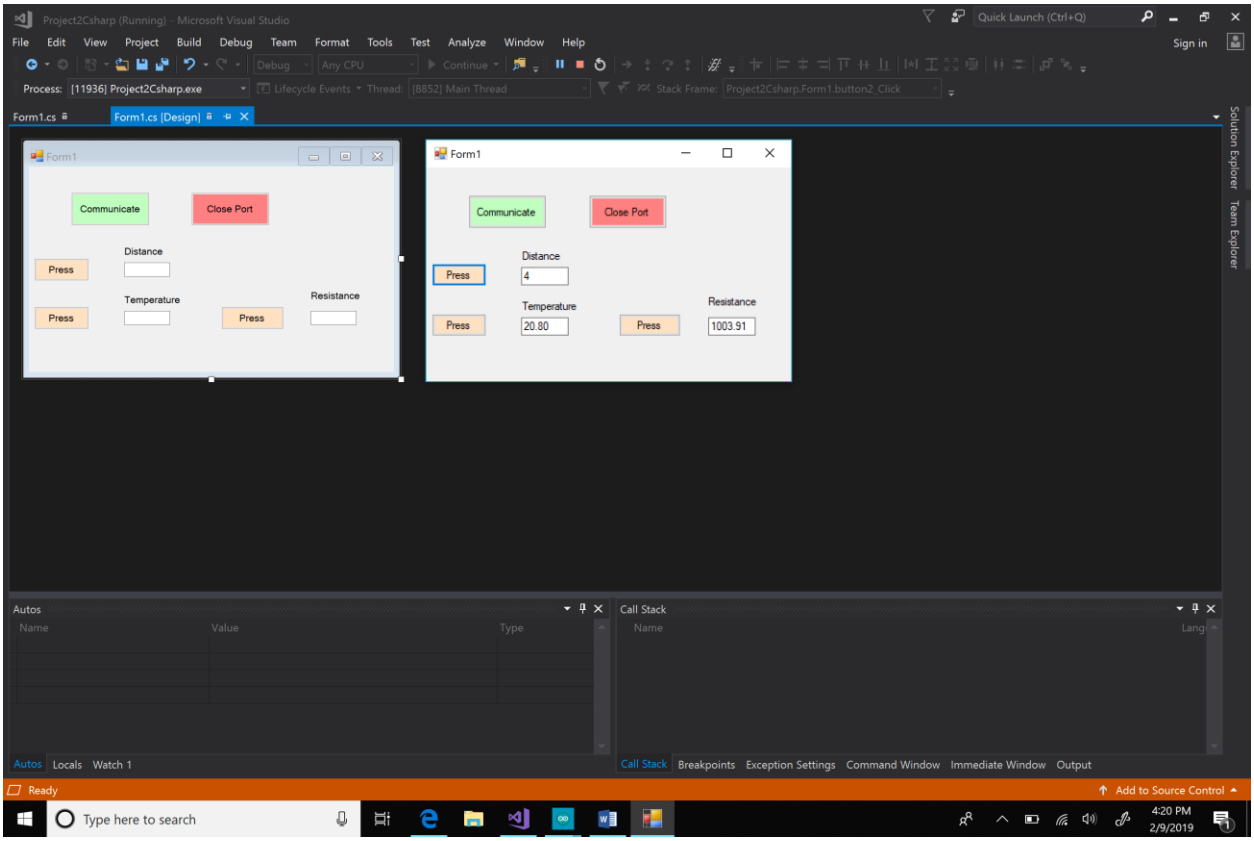
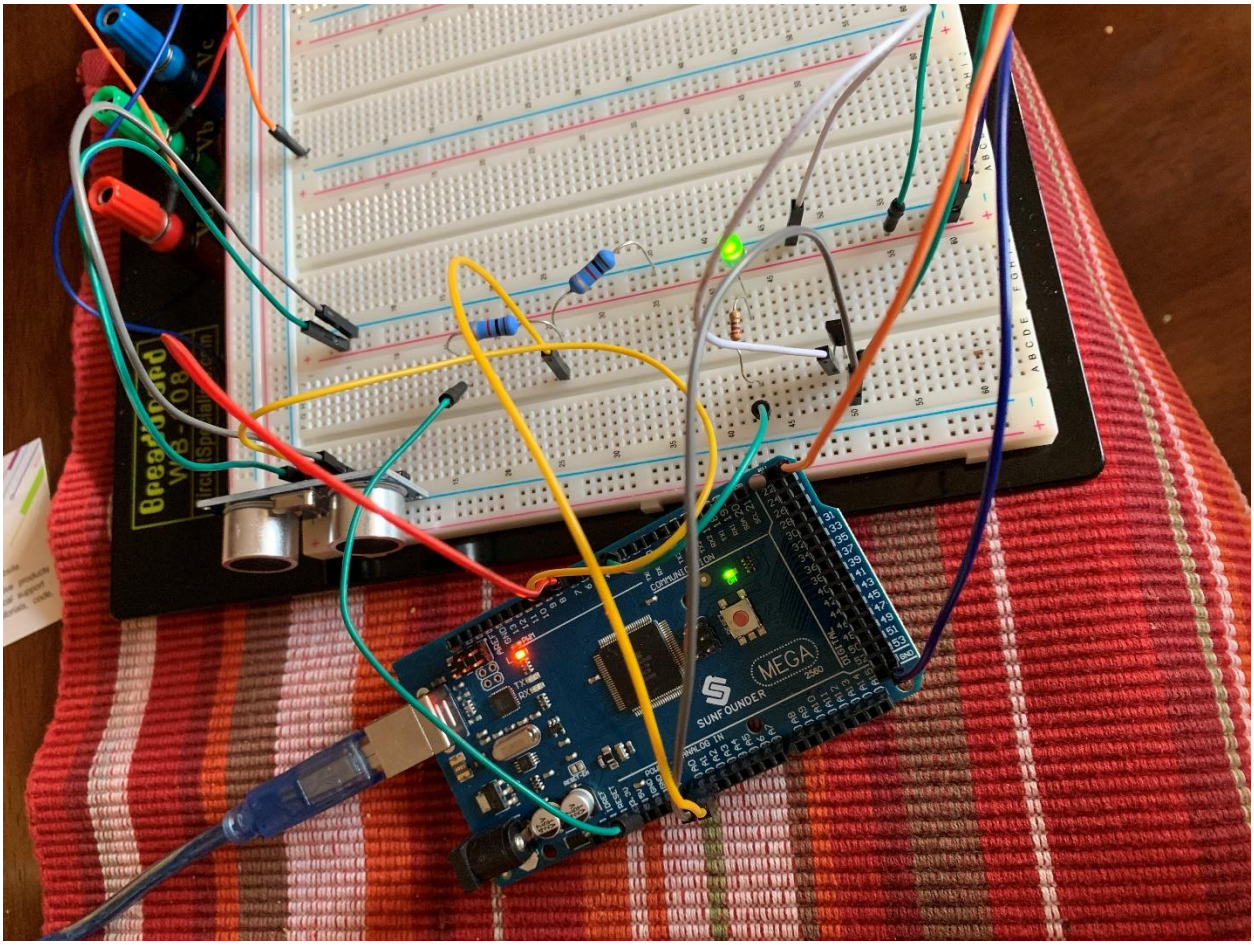
EEL4990 Project 2

Benjamin Linam



```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using System.IO.Ports;

namespace Project2Csharp
{
    public partial class Form1 : Form
    {

        SerialPort dataTx = new SerialPort();

        public Form1()
        {
            InitializeComponent();

            dataTx.BaudRate = 9600;
            dataTx.PortName = "COM5";
        }

        private void button1_Click(object sender, EventArgs e)
        {
            dataTx.Open();      //open communication
            dataTx.Write("o");  //turn on LED
        }

        private void button2_Click(object sender, EventArgs e)
        {
            dataTx.Write("x");  //turn off LED
            dataTx.Close();     //close communication
        }

        private void button3_Click(object sender, EventArgs e)
        {
            dataTx.Write("d");  //request distance
            textBox1.Text = dataTx.ReadLine();
        }

        private void button4_Click(object sender, EventArgs e)
        {
            dataTx.Write("t");  //request temperature
            textBox2.Text = dataTx.ReadLine();
        }

        /*private void button5_Click(object sender, EventArgs e)
        {
            dataTx.Write("v");  //request voltage
            textBox3.Text = dataTx.ReadLine();
        }*/
```

```
        private void button6_Click(object sender, EventArgs e)
        {
            dataTx.Write("r");  //request resistance
            textBox4.Text = dataTx.ReadLine();
        }
    }
}
```



```
//input signal from comp
char input = ' ';
int green = 2; //led used to show connection
//variables used for temp calculation
int voltage1;
float temp;
//variables used for distance calculation
int echo = 6;
int trig = 8;
long duration = 0;
int distance = 0;
//variables used for voltage and resistance calculation
int cat = 0;
float voltage2 = 0;
float resistance = 0;
int r = 1000;

void setup() {
  // put your setup code here, to run once:
  Serial.begin(9600);
  pinMode(green, OUTPUT);
  pinMode(trig, OUTPUT);
  pinMode(echo, INPUT);
  digitalWrite(green, LOW);
}

void loop() {
  // put your main code here, to run repeatedly:
```

```
if(Serial.available() > 0){
 input = Serial.read();
 if(input == 'o'){          //communication opened
  digitalWrite(green, HIGH);
 }
 else if(input == 'x'){     //communication closed
  digitalWrite(green, LOW);
 }
 else if(input == 'd'){     //calculate distance
  digitalWrite(trig, LOW);
  delayMicroseconds(2);
  digitalWrite(trig, HIGH);
  delayMicroseconds(10);
  digitalWrite(trig, LOW);
  duration = pulseIn(echo, HIGH);
  distance = (duration * 0.034)/2;
  Serial.println(distance);   //send distance to comp
 }
 else if(input == 't'){     //calculate temperature
  voltage1 = analogRead(A0);
  temp = (float)voltage1 / 1024;
  temp = (temp * 5 - 0.5) * 100; //temp in centigrade
  Serial.println(temp);      //send temp to comp
 }
 else if(input == 'r'){     //calculate resistance
  cat = analogRead(A1);
  voltage2 = cat * (5/1024.0);
  resistance = r * (5 / voltage2 - 1);
  Serial.println(resistance);
```

```
    }
  }
}
```