โปรแกรม สัปดาห์ ที่ 67

การสื่อสาร protocal

```csharp
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.Threading;

namespace week_7_protocal
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {

            serialPort1.Open();
            byte[] data = {1,0,1};
            serialPort1.Write(data,0,3);
            Thread.Sleep(100);

            int n = serialPort1.BytesToRead;
            if(n >= 3)
            {
                byte[] rx_data = new byte[n];
                serialPort1.Read(rx_data, 0, n);
                textBox1.Text = rx_data[0].ToString()

            + rx_data[1].ToString()
            + rx_data[2].ToString();
            }
            serialPort1.Close();
        }

        private void trackBar1_Scroll(object sender, EventArgs e)
        {

        }

        private void trackBar1_ValueChanged(object sender, EventArgs e)
        {
```

```csharp
            serialPort1.Open();
    byte[] data ={ 2, (byte)trackBar1.Value, (byte)(2 +trackBar1.Value) };
            serialPort1.Write(data, 0, 3);
    Thread.Sleep(100);

    int n =serialPort1.BytesToRead;
    if(n >=3)
            {
      byte[] rx_data =new byte[n];
                serialPort1.Read(rx_data, 0, n);
                textBox1.Text =rx_data[0].ToString()

      +rx_data[1].ToString()
      +rx_data[2].ToString();
            }
            serialPort1.Close();
        }
    }
}


void setup()

{

  Serial.begin(9600);

  pinMode(13,OUTPUT);

  pinMode( 2, INPUT);

}

void loop()

{

  if(Serial.available()>2)

  {

    byte fn   = Serial.read();
```

```
byte data = Serial.read();

byte sum  = Serial.read();

if(fn == 1 )

 {

  data = digitalRead(2);

  Serial.write  (1);

  Serial.write (data);

  Serial.write(1+data);

 }

if(fn == 2)

 {

  if (data == 1) digitalWrite(13,1);

  else        digitalWrite(13,0);

  Serial.write   (2);

  Serial.write  (data);

  Serial.write  (2+data);

 }

Serial.flush();

}
```

}

File Edit Sketch Tools Help

Protocal §

```
void setup()
{
  Serial.begin(9600);
  pinMode(13,OUTPUT);
  pinMode( 2, INPUT);
}
void loop()
{
  if(Serial.available()>2)
  {
    byte fn   = Serial.read();
    byte data = Serial.read();
    byte sum  = Serial.read();
    if(fn == 1 )
    {
      data = digitalRead(2);
      Serial.write  (1);
      Serial.write  (data);
      Serial.write(1+data);
    }
    if(fn == 2)
    {
      if (data == 1) digitalWrite(13,1);
      else           digitalWrite(13,0);
      Serial.write   (2);
      Serial.write  (data);
      Serial.write  (2+data);
    }
  Serial.flush();
  }
}
```
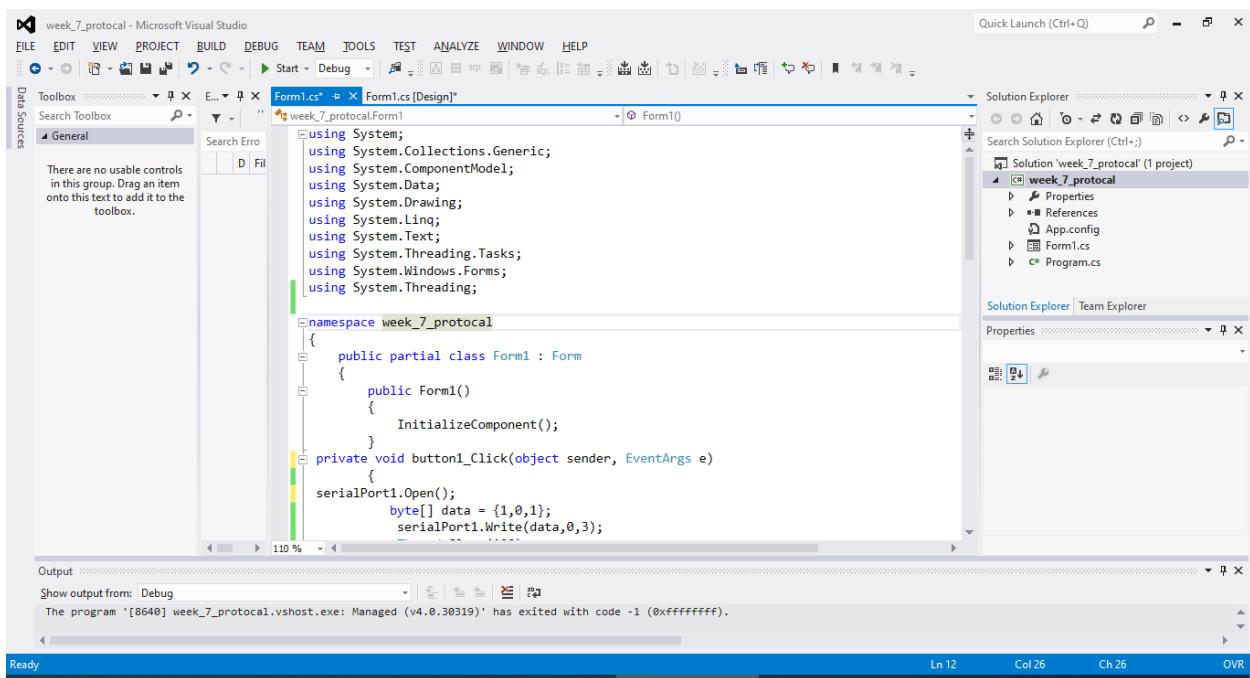
Done uploading.

Sketch uses 2036 bytes (6%) of program storage space. Maximum is 32256 bytes.

Global variables use 184 bytes (8%) of dynamic memory, leaving 1864 bytes for local variables. Maximum is 2048 bytes.

31 - 1   Arduino Uno on COM3

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week_7_protocal - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM TOOLS TEST ANALYZE WINDOW HELP

Start ▾ Debug ▾

Form1.cs* Form1.cs [Design]*

week_7_protocal.Form1   Form1()

```
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;
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namespace week_7_protocal
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }
        private void button1_Click(object sender, EventArgs e)
        {
        serialPort1.Open();
                byte[] data = {1,0,1};
                serialPort1.Write(data,0,3);
```

Solution Explorer

Search Solution Explorer (Ctrl+;)

Solution 'week_7_protocal' (1 project)
  week_7_protocal
    Properties
    References
    App.config
    Form1.cs
    Program.cs

Solution Explorer Team Explorer

Properties

Output

Show output from: Debug

The program '[8640] week_7_protocal.vshost.exe: Managed (v4.0.30319)' has exited with code -1 (0xffffffff).

Ready   Ln 12   Col 26   Ch 26   OVR

Form1.cs* Form1.cs [Design]*

week_7_protocal.Form1 — Form1()

```csharp
                    serialPort1.Write(data,0,3);
                    Thread.Sleep(100);

                    int n = serialPort1.BytesToRead;
                    if (n >= 3)
                    {
                        byte[] rx_data = new byte[n];
                        serialPort1.Read(rx_data, 0, n);
                        textBox1.Text = rx_data[0].ToString()

                            + rx_data[1].ToString()
                            + rx_data[2].ToString();
                    }
                    serialPort1.Close();
                }
        private void trackBar1_Scroll(object sender, EventArgs e)
        {

        }
        private void trackBar1_ValueChanged(object sender, EventArgs e)
        {
            serialPort1.Open();
            byte[] data = { 2, (byte)trackBar1.Value, (byte)(2 + trackBar1.Value) };
            serialPort1.Write(data, 0, 3);
```

Toolbox — General

There are no usable controls in this group. Drag an item onto this text to add it to the toolbox.

Solution Explorer

Solution 'week_7_protocal' (1 project)
- week_7_protocal
  - Properties
  - References
  - App.config
  - Form1.cs
  - Program.cs

Solution Explorer | Team Explorer

Properties

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Form1.cs* Form1.cs [Design]*

week_7_protocal.Form1 — Form1()

```csharp
                }
        private void trackBar1_ValueChanged(object sender, EventArgs e)
        {
            serialPort1.Open();
            byte[] data = { 2, (byte)trackBar1.Value, (byte)(2 + trackBar1.Value) };
            serialPort1.Write(data, 0, 3);
            Thread.Sleep(100);

            int n = serialPort1.BytesToRead;
            if (n >= 3)
            {
                byte[] rx_data = new byte[n];
                serialPort1.Read(rx_data, 0, n);
                textBox1.Text = rx_data[0].ToString()

                    + rx_data[1].ToString()
                    + rx_data[2].ToString();
            }
            serialPort1.Close();
        }
    }
}
```

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Ready   Ln 12   Col 26   Ch 26   OVR

Form1

Read data

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แสดงผลข้อมูล

สวิตส์

Form1

Read data

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แสดงผลข้อมูล

สวิตส์