



PRACTICAL REPORT

For IoT Practical



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DARSHAN RAMJIYANI (DSP)

DOCS, KSKV Kachchh University

4.9 Serial Communication - Sending the Value of Multiple Arduino Pins

Send groups of binary bytes, integers, or long values from Arduino. For example, you may want to send the values of the digital and analogue pins to Processing.

Arduino Code:

```
const char HEADER = 'H';
const int baudRate = 9600;
void setup()
{
    /* Established Serial Communication. */
    Serial.begin(baudRate);

    /* Wait until Serial Communication not established. */
    while (!Serial)
    {
    }
    for (int i = 2; i <= 13; i++)
    {
        pinMode(i, INPUT);
        digitalWrite(i, HIGH);
    }
}
void loop()
{
    Serial.write(HEADER);
    int values = 0;
    int bit = 0;
    for (int i = 2; i <= 13; i++)
    {
        bitWrite(values, bit, digitalRead(i));
```

```

        bit = bit + 1;
    }
    sendBinary(values);
    for (int i = 0; i < 6; i++)
    {
        values = analogRead(i);
        sendBinary(values);
    }
    delay(1000);
}

void sendBinary(int value)
{
    Serial.write(lowByte(value));
    Serial.write(highByte(value));
}

```

Processing Code:

```

import processing.serial.*;

Serial myPort;
char HEADER = 'H';

void setup()
{
    size(200, 200);
    String portName = "COM9";
    println(" Connecting to -> " + portName);
    myPort = new Serial(this, portName, 9600);
}

void draw()
{
    int val;

```

```

if ( myPort.available() >= 15)
{
    if( myPort.read() == HEADER)
    {
        println("Message received:");
        val = readArduinoInt();
        for(int pin=2, bit=1; pin <= 13; pin++)
        {
            print("digital pin " + pin + " = " );
            int isSet = (val & bit);
            if( isSet == 0)
                println("0");
            else
                println("1");
            bit = bit * 2;
        }
    }
    println();

    for(int i=0; i < 6; i ++)
    {
        val = readArduinoInt();
        println("analog port " + i + "= " + val);
    }
    println("----");
}

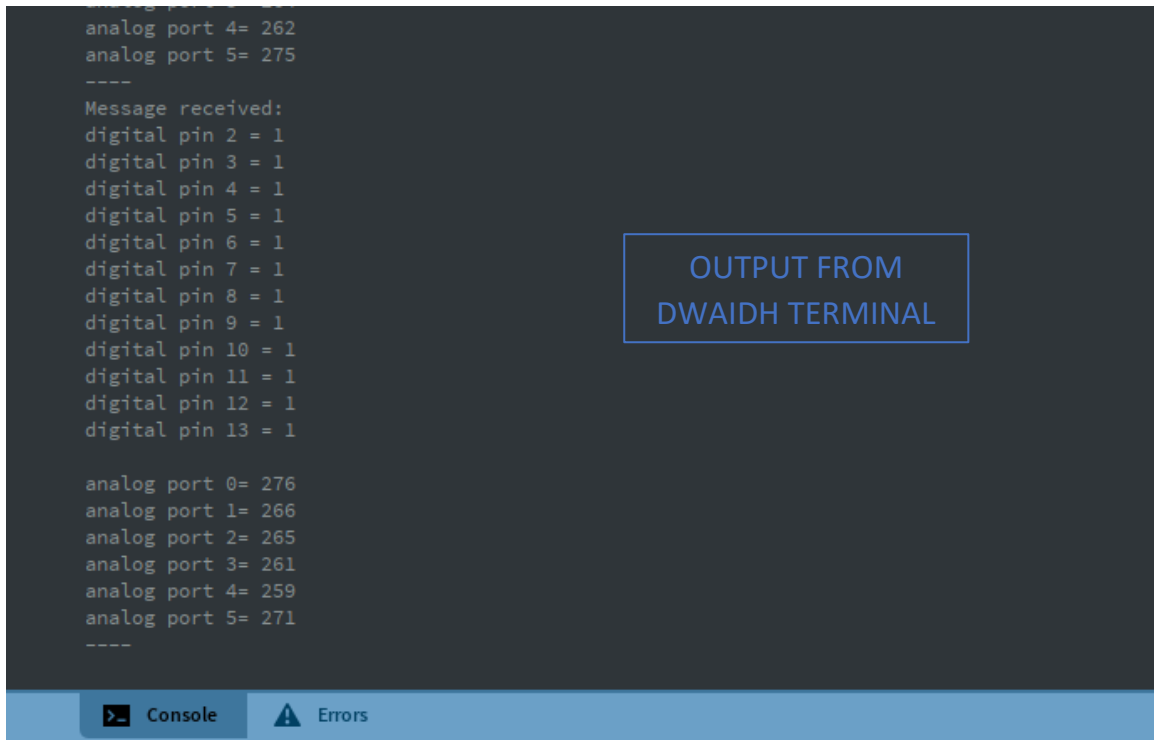
}

int readArduinoInt()
{
    int val;
    val = myPort.read();
}

```

```
    val = myPort.read() * 256 + val;  
    return val;  
}
```

Output:



```
analog port 4= 262  
analog port 5= 275  
----  
Message received:  
digital pin 2 = 1  
digital pin 3 = 1  
digital pin 4 = 1  
digital pin 5 = 1  
digital pin 6 = 1  
digital pin 7 = 1  
digital pin 8 = 1  
digital pin 9 = 1  
digital pin 10 = 1  
digital pin 11 = 1  
digital pin 12 = 1  
digital pin 13 = 1  
  
analog port 0= 276  
analog port 1= 266  
analog port 2= 265  
analog port 3= 261  
analog port 4= 259  
analog port 5= 271  
----
```

OUTPUT FROM
DWAIDH TERMINAL

Console Errors