wSensor HTTP API

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Summary

0. You should have a basic knowledge of Web protocols.

1. All normal response string has "!" mark, you can use it (or space+"!")

2. An unexpected operation can be performed when an input error occurs.

CGI Description

Time Sync	
example	ry.cgi?dt=20170102235959
cgi	ry.cgi
argument	dt
value	yyyyMMddhhmmss

Schedule Setting (rd.cgi)	
example	rd.cgi?u=1&t=1
argument 1	u
value	use: 1, unused: 0
argument 2	t
value	1, 2, 3 (x 10 seconds)

Soft AP Setting (ra.cgi)	
example	ra.cgi?s=wSensorTH&k=00000000
argument 1	s (SSID)
value(*)	ssid string
argument 2	k (KEY)
value(*)	key string

(*) refer to URL Encoding

Station Setting (rs.cgi)	
example	rs.cgi?s=ssid&k=key&d=1 rs.cgi?s=ssid&k=key&d=0&i=192.168.0.8&m=255.255.255.0&g=192.168.0.1
argument 1	s (SSID)
value(*)	ssid string
argument 2	k (KEY)
value(*)	key string
argument 3	d (DHCP)
value	use: 1, unused: 0
argument 4	i (IP address)
value	IP string
argument 5	m (Net Mask)
value	Net Mast String
argument 6	g (Gateway)
value	Gateway String

(*) refer to URL Encoding

Security Setting (rc.cgi)	
example	rc.cgi?l=0&a=0 rc.cgi?l=1&1=192.168.0.2&2=192.168.0.3&a=1&i=admin&p=00000000
argument 1	l (Access List)
value	use: 1, unused: 0
argument 2	1 (First IP)
value	IP string (First IP)
argument 3	2 (Secondary IP)
value	IP string (Secondary IP)
argument 4	a (Authentication)
value	use: 1, unused: 0
argument 5	i (ID)
value(*)	ID string
argument 6	p (Password)
value(*)	Password string

(*) refer to URL Encoding

Get Values (ss.cgi)	
Example	ss.cgi
Return string	2017-01-02 23:59:59,5.6, 33.58,23.43,!
Separator	“,”
Values 1	Date Time
Detail	Date Time 19 Character Year(4),”-“,Mon(2),”-“,Day(2),” “,Hour(2),Min(2),Sec(2)
Values 2	Battery Value
Detail	3 Character Voltage Value Under 4.8V: Low Battery 4.8~5.8V: Normal Over 6V: Over Voltage
Values 3	Sensor 1 value
Detail	refer to Sensor value strings
Values 4	Sensor 2 value
Detail	refer to Sensor value strings

Sensor Value Strings

Sensors	Description
Temperature	6 Character space(plus) or minus, X(deca), X, ".", X(deci), X(centi)
Relative Humidity	5 Character X(deca), X, ".", X(deci), X(centi)

Appendix 1- URL Encoding

URL Encoding (%+ASCII code)			
space	%20 or “+”	;	%3B
!	%21	<	%3C
“	%22	=	%3D
#	%23	>	%3E
$	%24	?	%3F
%	%25	@	%40
&	%26	[	%5B
‘	%27	₩	%5C
(	%28	]	%5D
)	%29	^	%5E
*	%2A	_	%5F
+	%2B	`	%60
,	%2C	{	%7B
-	%2D	|	%7C
.	%2E	}	%7D
/	%2F	~	%7E
:	%3A		

Appendix 2- Code Samples

In C#> VS2005

```
System.Net.WebClient wwwClient=new System.Net.WebClient();
//-> create new web client object

wwwClient.Credentials = new System.Net.NetworkCredential(id_string, password_string);
//-> if you use the authentication feature

string ReturnStr = wwwClient.DownloadString( "wSensor_URL/ss.cgi");
//-> downloading string to RetrunStr

string[] StrArr=System.Text.RegularExpressions.Regex.Split(ReturnStr,",");
//-> split into elements

DateTime senDT = DateTime.Parse(StrArr[0]);
//-> insert datetime from string
double BatVal = Convert.ToDouble(StrArr[1]);
//-> get Battery value from string
double TempVal = Convert.ToDouble(StrArr[2]);
//-> get Sensor1 value from string
double HumiVal = Convert.ToDouble(StrArr[3]);
//-> get Sensor2 value from string
MessageBox.Show(StrArr[0] + "," + StrArr[1] + "," + StrArr[2] + "," + StrArr[3]);
//-> debug message
```

In Vb.net> VS2005

```
Dim wwwClient As New System.Net.WebClient
' -> create new web client object

wwwClient.Credentials = New System.Net.NetworkCredential(id_string, password_string)
' -> if you use the authentication feature

Dim ReturnStr = wwwClient.DownloadString( "wSensor_URL/ss.cgi")
' -> downloading string to RetrunStr

Dim StrArr() As String = ReturnStr.Split(",")
' -> split into elements

Dim senDT As DateTime = DateTime.Parse(StrArr(0))
' -> insert datetime from string
Dim BatVal As Double = Val(StrArr(1))
' -> get Battery value from string
Dim TempVal As Double = Val(StrArr(2))
' -> get Sensor1 value from string
Dim HumiVal As Double = Val(StrArr(3))
' -> get Sensor2 value from string

MessageBox.Show(StrArr(0) & "," & StrArr(1) & "," & StrArr(2) & "," & StrArr(3))
' -> debug message
```

In Java> Android Studio (Android 2.2 or later)

Basic Condition
<uses-permission android:name="android.permission.INTERNET"></uses-permission>
import android.widget.Toast;
import android.util.Base64;
import java.io.InputStream;
import java.io.OutputStream;
import java.net.Socket;

Code Sample – custom webclient

```
    public void clickTest(View view) {
        ClientNet myClient1 = new ClientNet("192.168.0.80",80,true,"admin","00000000");
        myClient1.execute();
        //ClientNet myClient2= new ClientNet("192.168.0.81",80,true,"admin","00000000");
        //myClient2.execute();
    }

    public class ClientNet extends AsyncTask<Void, Void, Void> {
        String Hstr = "GET /ss.cgi HTTP/1.1₩n Accept: text/html, application/xhtml+xml, */*₩n User-Agent:
wSensor/1.0 (tiny Agent)₩n";
        String RxStr;
        String ipAddr;
        int portNo;
        boolean authOn;
        String idStr;
        String pwStr;
        byte[] TxBuf = new byte[1024];
        byte[] RxBuf = new byte[1024];

        ClientNet(String dstAddress, int dstPort, boolean AuthOn, String IDstr, String PWstr) {
            ipAddr = dstAddress;
            portNo = dstPort;
            authOn = AuthOn;
            idStr = IDstr;
            pwStr = PWstr;
        }

        @Override
        protected Void doInBackground(Void... arg0) {
            if (authOn == true) {
```

```
                String AuthStr = idStr + ":" + pwStr;
                Hstr = Hstr + "Authorization: Basic " + Base64.encodeToString(AuthStr.getBytes(), 0) + "₩n";
            }
            Hstr = Hstr + "₩n₩n";
            Socket socket;
            try {
                socket = new Socket(ipAddr, portNo);
                OutputStream outputStream = socket.getOutputStream();
                TxBuf=Hstr.getBytes();
                outputStream.write(TxBuf,0,TxBuf.length);
                outputStream.flush();
                InputStream inputStream = socket.getInputStream();
                inputStream.read(RxBuf);
                RxStr= new String(RxBuf,"UTF-8");
                socket.close();
            }
            catch (Exception e) {
                RxStr = e.toString();
                //RxStr = "Error";
            }
            return null;
        }

        @Override
        protected void onPostExecute(Void result) {
            super.onPostExecute(result);
            String ResultStr;
            if(RxStr.contains("200 OK"))
            {
                String[] separated = RxStr.split("₩n");
                ResultStr=separated[5];
            }
            else if(RxStr.contains("401 Un"))
            {ResultStr="Auth Fail";}
            else
            {ResultStr="Error";}
            Toast.makeText(getApplicationContext(), ResultStr, Toast.LENGTH_SHORT).show();
        }
    }
```

Linux

command: curl
base example>curl http://192.168.0.80/ss.cgi
authentication feature>curl –u id_string:password_string http://192.168.0.80/ss.cgi
silent option>curl –s http://192.168.0.80/ss.cgi
append text>curl -s http://192.168.0.80/ss.cgi >> data.txt && echo "" >> data.txt

data logging script
script position: /usr/bin/logging.sh user name: user data directory: data

DSTR=`/bin/date '+%d'`
FNAME=$YSTR$MSTR$DSTR$TSTR".txt"
SDIR="/home/user/data"
YSTR=`/bin/date '+%Y'`
MSTR=`/bin/date '+%m'`
DSTR=`/bin/date '+%d'`
FNAME=$SDIR"/"$YSTR"/"$MSTR"/"$DSTR".txt"
if [! -d $SDIR"/"$YSTR]; then
        /bin/mkdir $SDIR"/"$YSTR
fi
if [! -d $SDIR"/"$YSTR"/"$MSTR]; then
        /bin/mkdir $SDIR"/"$YSTR"/"$MSTR
fi
curl -s http://192.168.0.80/ss.cgi >> $FNAME && echo "" >> $FNAME
# && echo "" >> $FNAME -> for New Line 	

crontab (1 min interval logging)
* * * * * /usr/bin/logging.sh

in gcc (Partial excerpt)
FILE *fp;
char getStr[1024]={0,};
fp = popen("curl -s http://192.168.0.80/ss.cgi","r");
fgets(getStr,sizeof(getStr)-1,fp);