NSP32_Matlab

Manual

2019/03/22

Hardware connection

NSP32_GPIO	
VDD	UART RX
GND	Reserved
Ready	Reserved
RST	UART TX

USB to TTL Serial Adapter
DTR
UART RX
UART TX
Vcc (3.3V)
CTS
GND
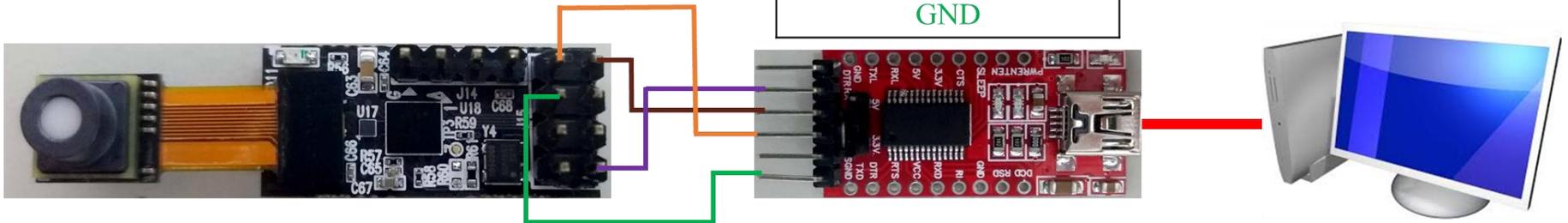
Start LabVIEW example

1. Load 'Console.m' from workspace.
2. Click 'Run'
3. Results on Command Window

Library and library usage
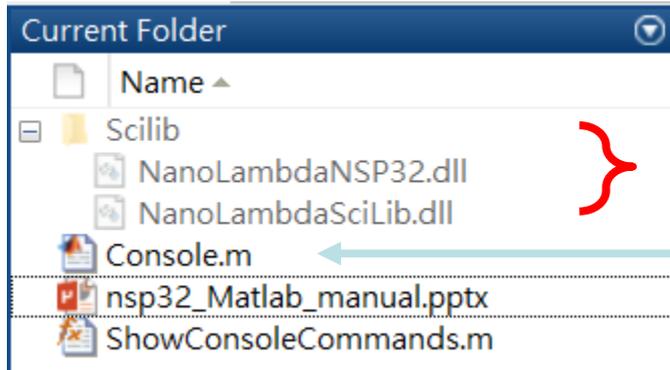
Check these library's path

Example Console program

```
1    % include lib
2 —  NET.addAssembly([cd '\Scilib\NanoLambdaSciLib.dll']);
3    % instance
4 —  nsp32 = NanoLambdaSciLib.NSP32SciWrapper();
5    % Open serial port
6 —  nsp32.Open("COM25")
```

Include Matlab library

Create a instance for using it

Change to your COM port

Details about Matlab Console Example

```matlab
1    % include lib
2 -  NET.addAssembly([cd '\Scilib\NanoLambdaSciLib.dll']);
3    % instance
4 -  nsp32 = NanoLambdaSciLib.NSP32SciWrapper();
5    % Open serial port
6 -  nsp32.Open("COM25")
```

Change to your COM port

Details about Matlab Console Example

```matlab
 7 -   while 1
 8           % show available console commands
 9 -        ShowConsoleCommands();
10 -        command=input('type an available command (case sensitive): ', 's');
11 -        switch command
12 -            case 'sensorid'
13 -                SensorId=nsp32.GetSensorId().string;
14 -                fprintf('SensorId: %s \n',SensorId);
```

```
>> Demo
***********************
1) sensorid - get sensor id string
2) wavelength - get wavelength
3) spectrum - start spectrum acquisition and get the result data
4) xyz - start XYZ acquisition and get the result data
5) exit - exit program
type an available command (case sensitive): |
```

Available Command

```
>> Demo
***********************
1) sensorid - get sensor id string
2) wavelength - get wavelength
3) spectrum - start spectrum acquisition and get the result da
4) xyz - start XYZ acquisition and get the result data
5) exit - exit program
type an available command (case sensitive): sensorid
SensorId: C9-96-74-2C-C3
```

1. Type Command

2. Get the return

Details about Matlab Console Example

```
15 —        case 'wavelength'
16 —            infoW=nsp32.GetWavelength();
17 —            fprintf('#points: %d \n',infoW.NumOfPoints);
18 —            fprintf('Wavelength: \n');
19 —            fprintf('%d, ',infoW.Wavelength.uint16);
20              %fprintf('%d, ',infoW.Wavelength.double);
21 —            fprintf('\n')
```

```
***********************
1) sensorid - get sensor id string
2) wavelength - get wavelength
3) spectrum - start spectrum acquisition and get the result data
4) xyz - start XYZ acquisition and get the result data
5) exit - exit program
type an available command (case sensitive): wavelength
#points: 67
Wavelength:
400, 405, 410, 415, 420, 425, 430, 435, 440, 445, 450, 455, 460, 465, 470, 475, 480, 485, 490, 495, 500, 505, 510, 515, 520, 525, 530, 535, 54(
```

Details about Matlab Console Example

```
22 -        case 'spectrum'
23 -            infoS=nsp32.AcqSpectrum(32, 3, false);
24 -            fprintf('#points: %d \n',infoS.NumOfPoints);
25 -            fprintf('IntegrationTime: %d \n',infoS.IntegrationTime);
26 -            fprintf('IsSaturated: %d \n',infoS.IsSaturated);
27 -            fprintf('Spectrum: \n');
28 -            fprintf('%f, ',infoS.Spectrum.double);
29 -            fprintf('\n')
30 -            fprintf('XYZ: (%f, %f, %f) \n',infoS.X,infoS.Y,infoS.Z);
```

```
***********************
1) sensorid - get sensor id string
2) wavelength - get wavelength
3) spectrum - start spectrum acquisition and get the result data
4) xyz - start XYZ acquisition and get the result data
5) exit - exit program
type an available command (case sensitive): wavelength
#points: 67
Wavelength:
400, 405, 410, 415, 420, 425, 430, 435, 440, 445, 450, 455, 460, 465, 470, 475, 480, 485, 490, 495, 500, 505, 510, 515, 520, 525, 530, 535, 54
```

Details about Matlab Console Example

```
31 -        case 'xyz'
32 -            infoXYZ=nsp32.AcqXYZ(32, 3, false)
33 -            fprintf('IntegrationTime: %d \n',infoXYZ.IntegrationTime);
34 -            fprintf('IsSaturated: %d\n',infoXYZ.IsSaturated);
35 -            fprintf('XYZ: (%f, %f, %f) \n',infoXYZ.X,infoXYZ.Y,infoXYZ.Z);
```

```
************************
1) sensorid - get sensor id string
2) wavelength - get wavelength
3) spectrum - start spectrum acquisition and get the result data
4) xyz - start XYZ acquisition and get the result data
5) exit - exit program
type an available command (case sensitive): xyz
IntegrationTime: 32
IsSaturated: 0
XYZ: (88.196808, 96.148155, 89.522797)
```

Details about Matlab Console Example

```matlab
36 -            case 'exit'
37                  % close serial port
38 -                nsp32.Close();
39 -                break;
40 -            otherwise
41 -                disp('invaild command');
42 -        end
```

```
***********************
1) sensorid - get sensor id string
2) wavelength - get wavelength
3) spectrum - start spectrum acquisition and get the result data
4) xyz - start XYZ acquisition and get the result data
5) exit - exit program
type an available command (case sensitive): exit
fx >> |
```