Instructions to setup up Visual Studios, Kinect and Arduino

Add all the header and the source files in your C++ projects in Visual studios 2015. Fig 1 shows were which file should go.

Follow the following steps to avoid any error w.r.t Nui header and library files for Kinect V1

To run Kinect successfully using Visual Studios:

Most important thing when you attach Kinect (NUI) header files like NuiApi.h or NuiImageCamera.h you should make sure the following things are added to you project.

1) Header Files necessary. These can be found in the following default directory: C:\Program Files\Microsoft SDKs\Kinect\v1.8\inc
2) Addition of Kinect library to you solution items. For this just right click on your project and add the library file directly. This file can be found in C:\Program Files\Microsoft SDKs\Kinect\v1.8\lib\x86
3) Adding Include and Library directories. For this follow the following steps:
   Right click on your project in the solutions explorer window found on the right hand side of your screen → In configuration properties → VC++ directories → Add this C:\Program Files\Microsoft SDKs\Kinect\v1.8\inc directory in the include directories and Add this C:\Program Files\Microsoft SDKs\Kinect\v1.8\lib\x86 directory to the Library directories.
4) Now in go to Linker in Configuration properties → General → In additional Library dependencies add this C:\Program Files\Microsoft SDKs\Kinect\v1.8\lib\x86
5) Now in go to Linker in Configuration properties → Input → In additional Library dependencies add this C:\Program Files\Microsoft SDKs\Kinect\v1.8\lib\x86\Kinect10.lib
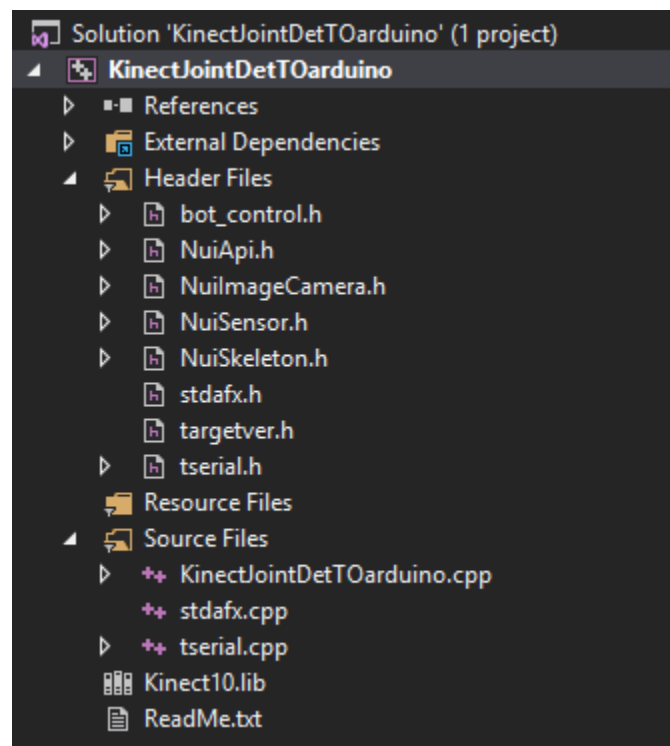6) Finally your Solution Explorer should look like this:

Fig 1

For Open CV:

Google how to setup Open CV with Visual Studios. Set Open CV and then follow these steps. I have provided a file which explains how to setup openCV. VS OpenCV installation Guide.

It is preferred if you first setup open CV and test it using the examples provided online. In the task bar → View → Other Windows → Property Manager → A Property Manager window will pop up in the right hand side of the screen → Select your project → Right Click and say add existing property sheet → locate where u stored jj_opencv (I have included this in the project) and add it. Now build it and you open CV and Kinect code builds up and is ready to run.

Adding serial communication code:

1) Copy the files named bot_control.h, tserial.h,tserial.cpp in the project source directory.
2) Add tserial.cpp in source files of your project in Visual studios.
3) Add bot_control.h and tserial.h in the header files of your project in Visual studios.
4) For the Main Code of this project you can either attach the file provided to the source files or copy paste it into the new file provided by Visual studios. In either case the name of the file and the project name should be same.

NOTE: A quick fix is to add the _CRT_SECURE_NO_WARNINGS definition to your project's settings:

Right-click your C++ and chose the "Properties" item to get to the properties window.

Now follow and expand to, "Configuration Properties"->"C/C++"->"Preprocessor"->"Preprocessor definitions".

In the "Preprocessor definitions" add _CRT_SECURE_NO_WARNINGS;%(PreprocessorDefinitions) as to inherit predefined definitions

Note: It is very important to keep all the header files in the project directory as this will help you if you miss out to edit the properties. Project directory is by default searched for any header file which doesn't have a source defined.

When Arduino is connected:
Do the following settings 1) Tools → Board → select your board. 2) Tools → Serial Port → Select the serial port
Put the Arduino code provided in the Arduino. You can test the code using the Serial Monitor provided in the Arduino.

Your project folder should like this:

Debug	12/2/2016 10:46 AM	File folder	
bot_control	12/2/2016 10:42 AM	C/C++ Header	1 KB
stdafx	12/2/2016 10:13 AM	C/C++ Header	1 KB
targetver	12/2/2016 10:13 AM	C/C++ Header	1 KB
tserial	12/1/2016 9:29 PM	C/C++ Header	4 KB
KinectJointDetTOarduino	12/2/2016 10:43 AM	C++ Source	7 KB
SerialComm	12/2/2016 12:26 AM	C++ Source	1 KB
stdafx	12/2/2016 10:13 AM	C++ Source	1 KB
tserial	12/2/2016 10:34 AM	C++ Source	9 KB
ReadMe	12/2/2016 10:13 AM	Text Document	2 KB
KinectJointDetTOarduino	12/2/2016 10:46 AM	VC++ Project	11 KB
KinectJointDetTOarduino.vcxproj	12/2/2016 10:41 AM	VC++ Project Filte...	3 KB
KinectJointDetTOarduino.vcxproj	12/2/2016 10:37 AM	Visual Studio Proj...	1 KB