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5. Work Name : Kinect/Arduino Setup Report

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Kinect Setup

When setting up the Kinect on a computer so that it is able to be used with Processing (an IDE of sort,) there are a total of five different files that must be downloaded (all files should be the 32-bit versions if applicable.) Three of the files are for setting up the Kinect's Middleware and drivers. The other two are for setting up a 32-bit Processing IDE with the Simple OpenNI libraries inside of the sketchbook's libraries folder.

The first three files pertain to the setup of the Kinect's Middleware and drivers:

- OpenNI SDK v1.5.4.0, Greg in our book says that this is Middleware and I think that mean that it basically acts as a mediator between programs and the Kinect (Borenstein 2012). This file can be downloaded at the OpenNI site I have in the references (OpenNI).
- NiTE v1.5.2.21, Mr. Borenstein says that this is, “PrimeSense middleware that provides skeleton tracking capabilities” (Borenstein 2012). This file can be downloaded at the OpenNI site I have in the references (OpenNi).
- SensorKinect, after installing the .msi file that I got from GitHub a window popped up saying that a Kinect driver got installed (I think it was the camera's driver.) This file can be

downloaded at avin2's repository on GitHub (avin2 2012).

The Kinect should be ready to go thus far. Now we have to setup the Processing IDE that we'll be using to talk with the Kinect:

- The first thing that needs to be done is the downloading of the 32-bit version of Processing (http://processing.org/download/).
- A directory should be made for the programs and libraries that we'll be working with. Once this directory is created, another directory called, “libraries” should be created inside of it (this is where the Simple OpenNI library will be placed.)
- Then the sketch book should be linked to the directory that was just created through file → preferences in Processing.
- Now we need to download the Simple OpenNI library for the Kinect Middleware that was installed previously (code.google.com/p/simple-openni/downloads/list).
- After downloading the Kinect library, we must place it within our sketch book's libraries directory that we made earlier.

Then to test to see if everything was setup properly, there are examples that are included by the Simple OpenNI library. It's possible to access these examples through file → examles → contributed-libraries → SimpleOpenNI.

Arduino

A Java-based Arduino library will be setup so that it can be used alongside the Simple OpenNI library in our previously installed 32-bit Processing IDE. And there is also a Arduino UNO.inf file that we'll need to use to manually install our Arduino's driver:

- First we'll download the Arduino library and it is called , "processing-arduino.zip" (http://playground.arduino.cc/interfacing/processing).
- Then we need to extract that library and move it into our sketch book's library folder. And this will allow us to talk to the Arduino's drivers through Processing. But we need the drivers still.
- So now we're getting to the Arduino's drivers. And I found it is easier to just get the drivers from the download at the Arduino's homepage (http://arduino.cc/en/Main/Software.) But since we don't want to use the C++-based Processing environment, we're just going to be borrowing the drivers from the download and then delete all of it.
- Go ahead and plug in the Arduino.
- Now let's open up the Device Manager (start → search programs and files → device manager.)
- The Arduino should be the unkown device listed. So we want to right-click that, go to its properties and under the driver tab select the, "Update Driver Software" button.
- Then we must locate the "driver" folder within the Arduino file that was just downloaded and use that file to update the device's software.

Now the Processing program should be able to talk to the Kinect and Arduino drivers that we installed through the libraries that we have placed in our sketch book.

References

-Borenstein, G (2012). *Making Things See.* Sebastopol,California: O'Reilly Media.

- . (undefined). OpenNI. In OPENNI SDK HISTORY. Retrieved January 27, 2013, from http://www.openni.org/openni-sdk/openni-sdk-history-2/.

-avin2. (May 15, 2012). GitHub. In SensorKinect. Retrieved January 27, 2013, from https://github.com/avin2/SensorKinect.