RENSSELAER MECHATRONICS
RASPLIB INSTALLATION INSTRUCTIONS 2016B-2017A

Rensselaer Arduino Support Package - RASPlib installation Instructions 2016b:

Prerequisite: MATLAB/Simulink 2016b and Arduino Support package for Simulink has been installed.

Part 1: Compiler Installation

1. First verify you need to install a compiler. At the MATLAB command prompt type "mex -setup". If a compiler is installed you can **SKIP Part 1**: Compiler Installation.

```
>> mex -setup
MEX configured to use 'MinGW64 Compiler (C)' for C language compilation
Warning: The MATLAB C and Fortran API has changed to support MATLAB
        variables with more than 2^32-1 elements. You will be required
```
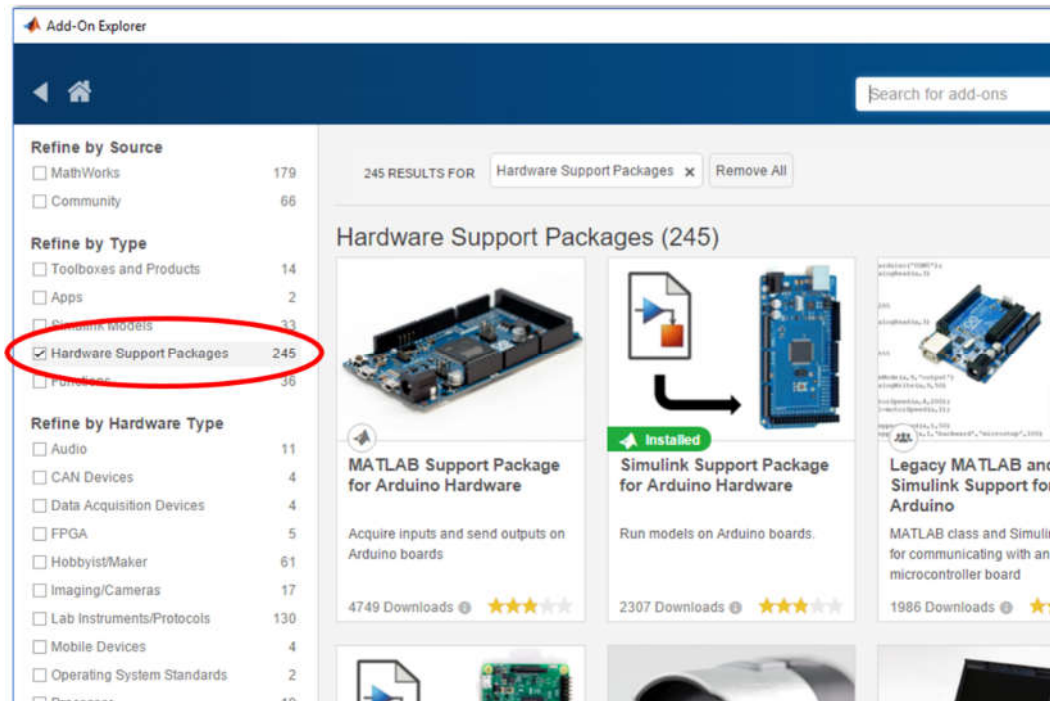
Figure 1: Indicates compiler is installed

2. If no compiler is installed:
   o Close MATLAB. Open MATLAB by right clicking the icon and selecting "Run as
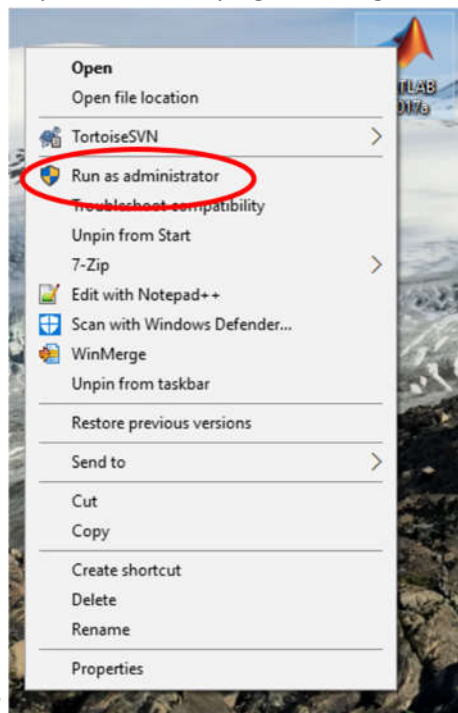
   administrator"
   o type "supportPackageInstaller" at the MATLAB command prompt.
   o **Uncheck** the box "Hardware Support Packages"

- o Type "MinGW" in the search bar
- o Follow the prompts to install "MATLAB Support for the MinGW-w64 C/C++ Compiler from TDM-GCC"

- o At the MATLAB command prompt type "mex -setup" and verify the compiler is installed

Part 2: RASPlib Installation

1. Unzip the contents and copy the "RASPlib" folder and 'startup.m' file to your home MATLAB directory for example C:\Users\hurstj\Documents\MATLAB\RASPlib (**not** the installation directory, e.g C:\Program Files (x86)\MATLAB):
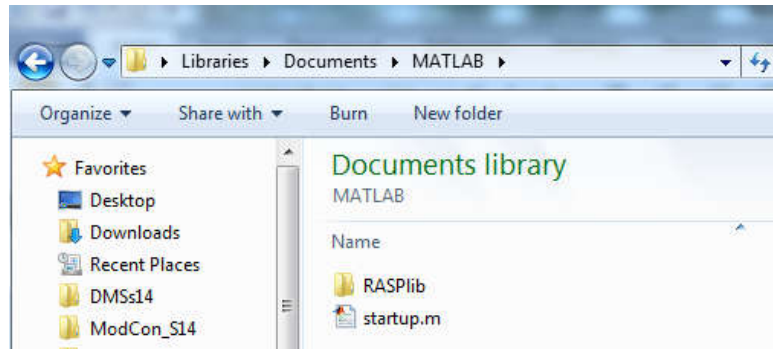
2. Open Matlab, open the Simulink Library Browser by entering the command "slLibraryBrowser" at the command prompt, then Right-Click "Rensselaer Arduino Support Package" and select "Open Rensselaer Arduino Support Package".
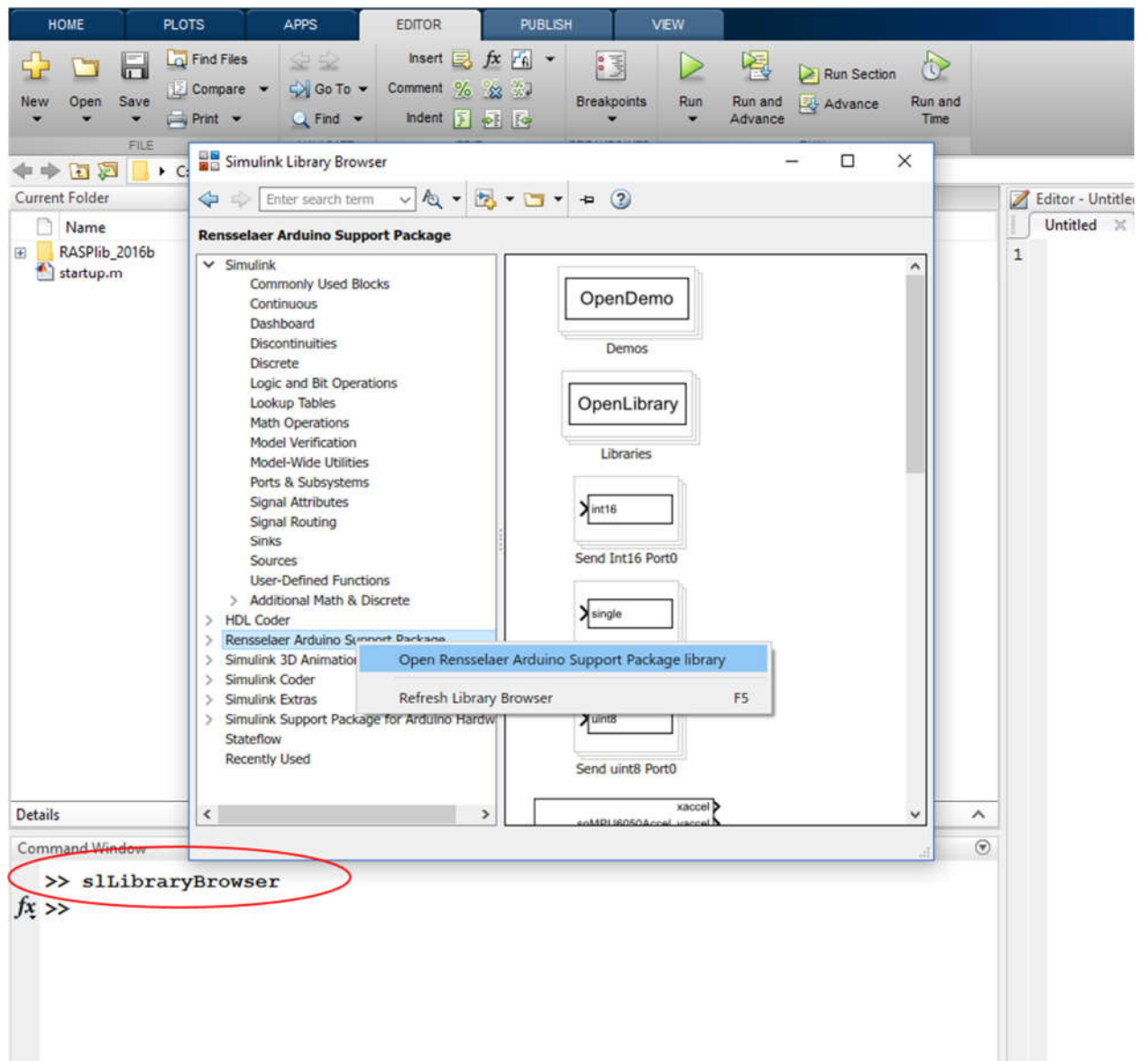
You can also open RASPlib from the MATLAB file browser:
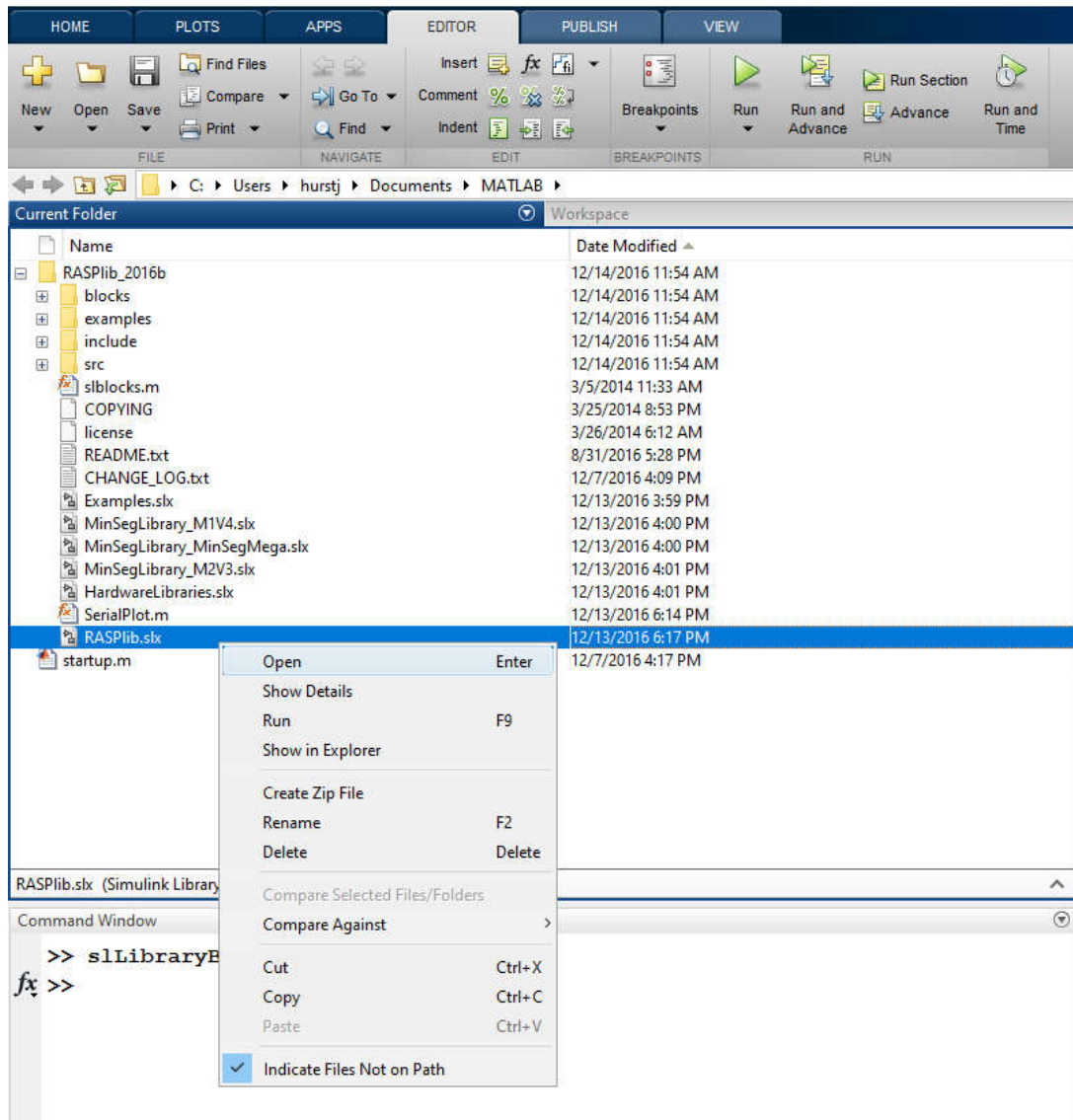
3. Open the demo file for your particular hardware (if you have a generic hardware setup you can create a Simulink example using the one of the available blocks in the main library or adopt any of the provided device specific libraries blocks using the indicated pins). **The Mechatronics board at RPI is M1V4**. You can also open examples directly from the

"examples" folder in "RASPlib" folder.
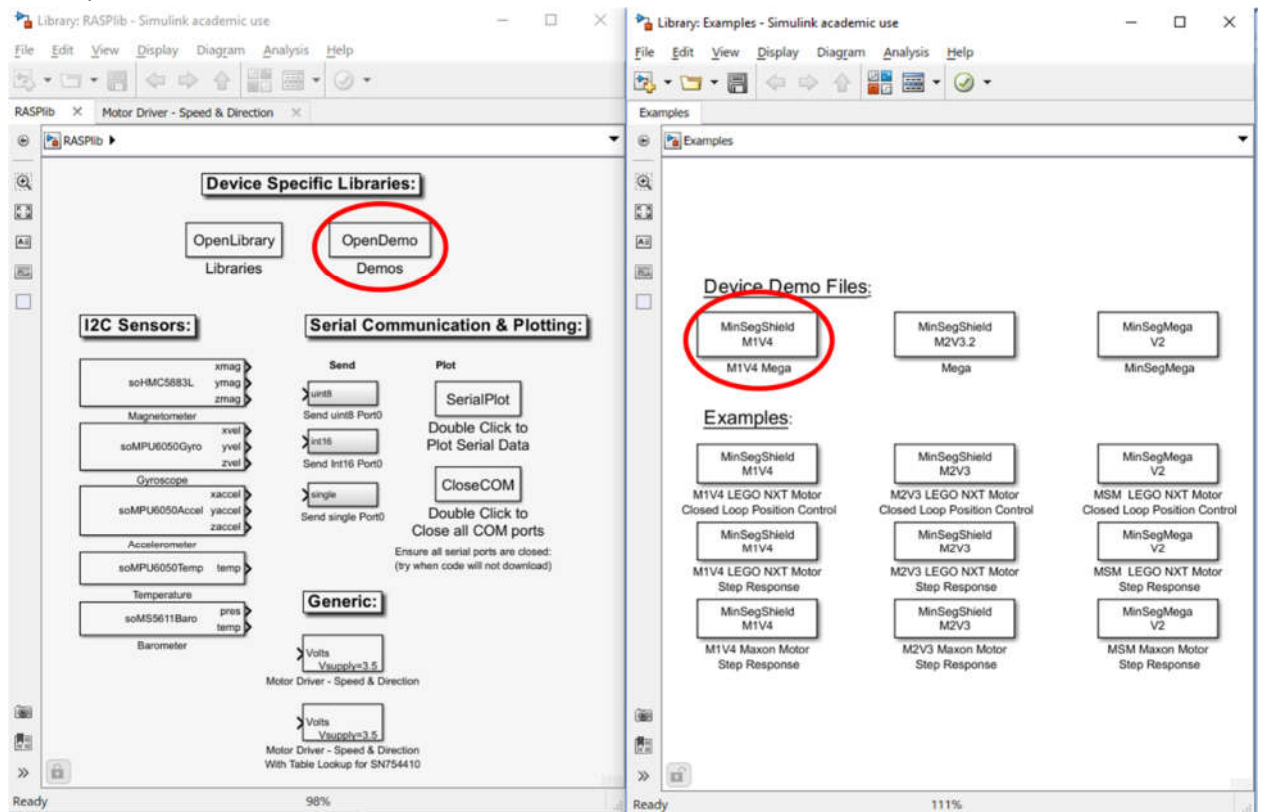
- After opening the Demo save it to your home directory with "save-as". From now on you can create Simulink diagrams in any location and just drag the blocks from the library since Matlab knows where all the necessary library files are.
- Run the demo on the hardware by clicking the green 'play' button
    o If it cannot find your COM port, right click in the demo file and select "Model Configuration Parameters" to specify your COM port and setup the hardware.

MinSegShield M1V4 Sensor and Actuator Library
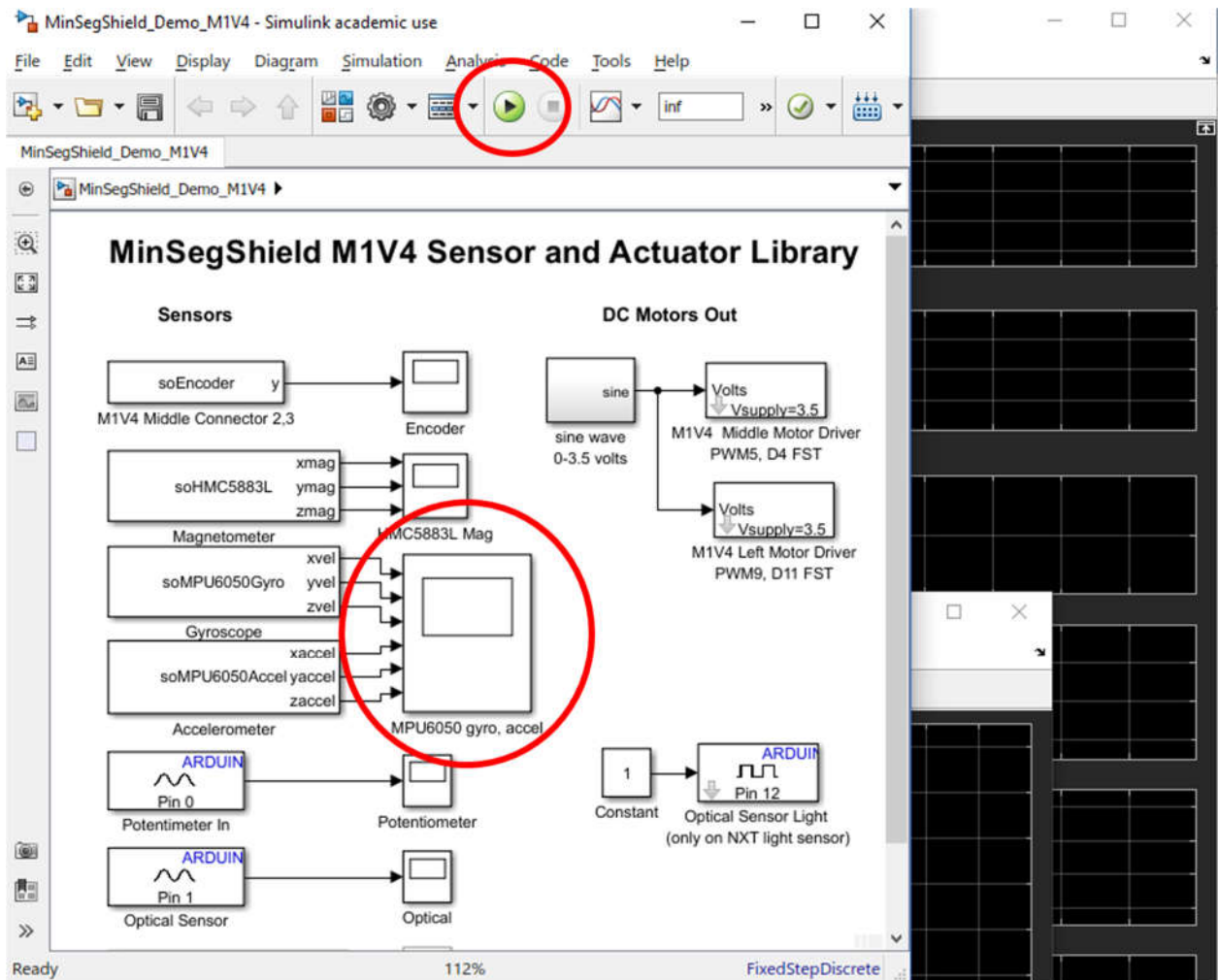
You can view the outputs of the sensors by double clicking scope, and if any motors are hooked up they should begin to move back and forth.
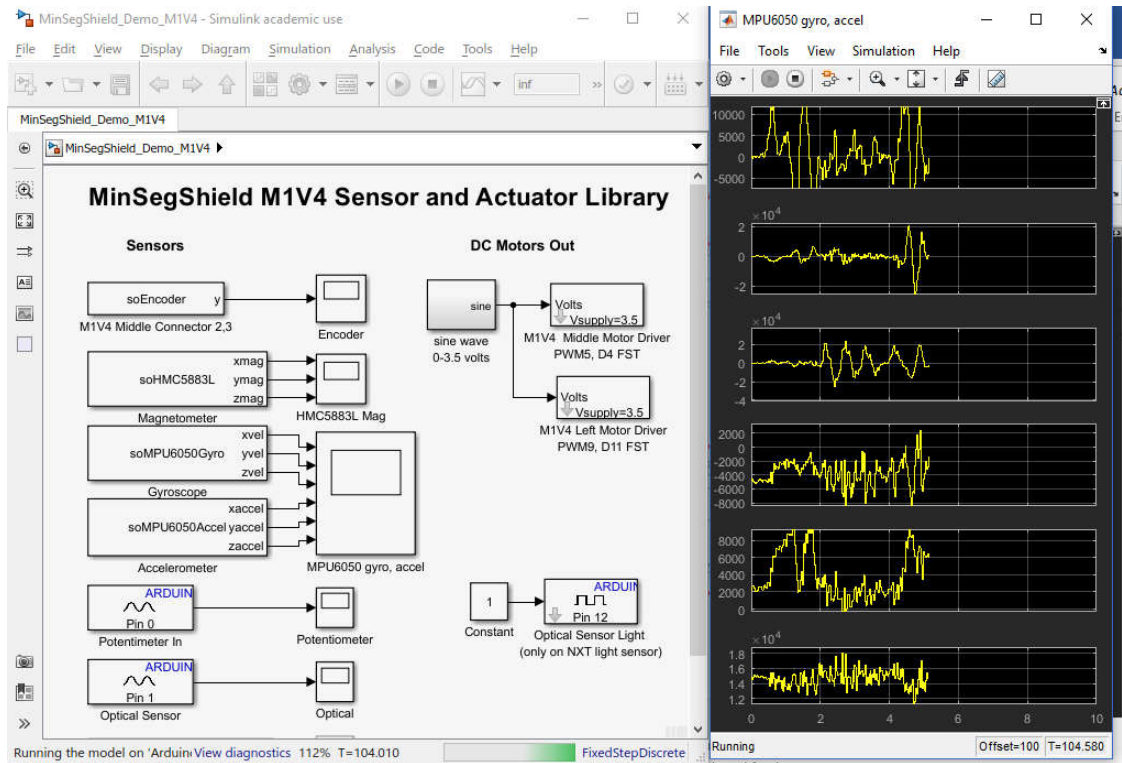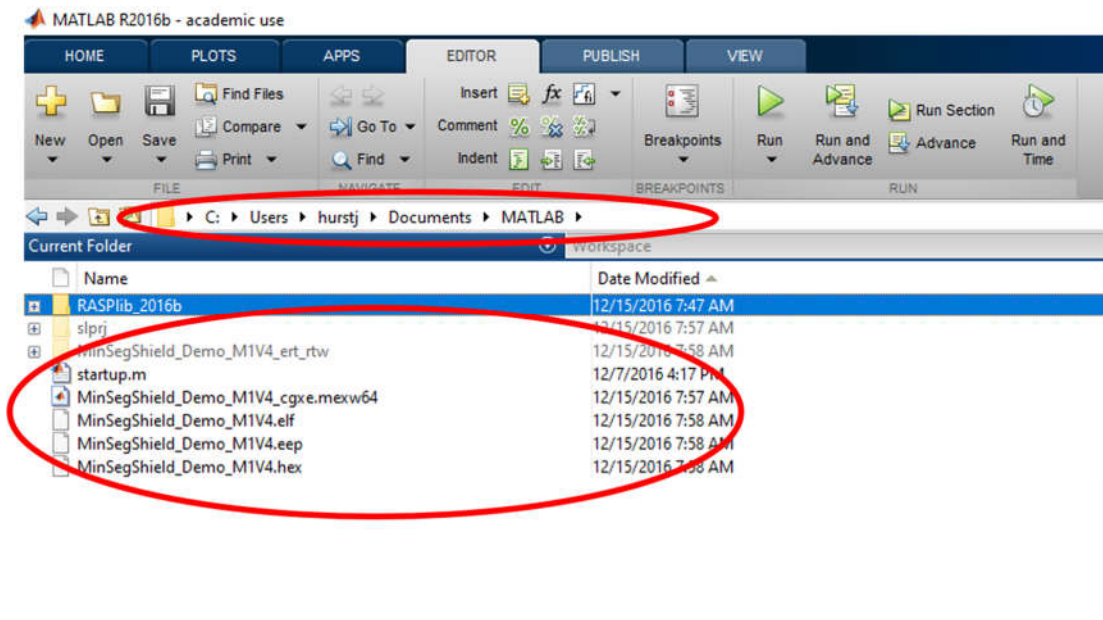
Other examples for the hardware can now be run.

Troubleshooting

1. Cleaning Compilation files

When you press "Run" or "Deploy to Hardware" the code will get compiled in the current directory and necessary compilation files and folders are produced in the current directory:

To help keep your files organized it is recommended to create a folder to compile in, this way all the compilation files and folders can be deleted. Sometimes if there is unusual behavior or errors delete all these temporary compilation files.
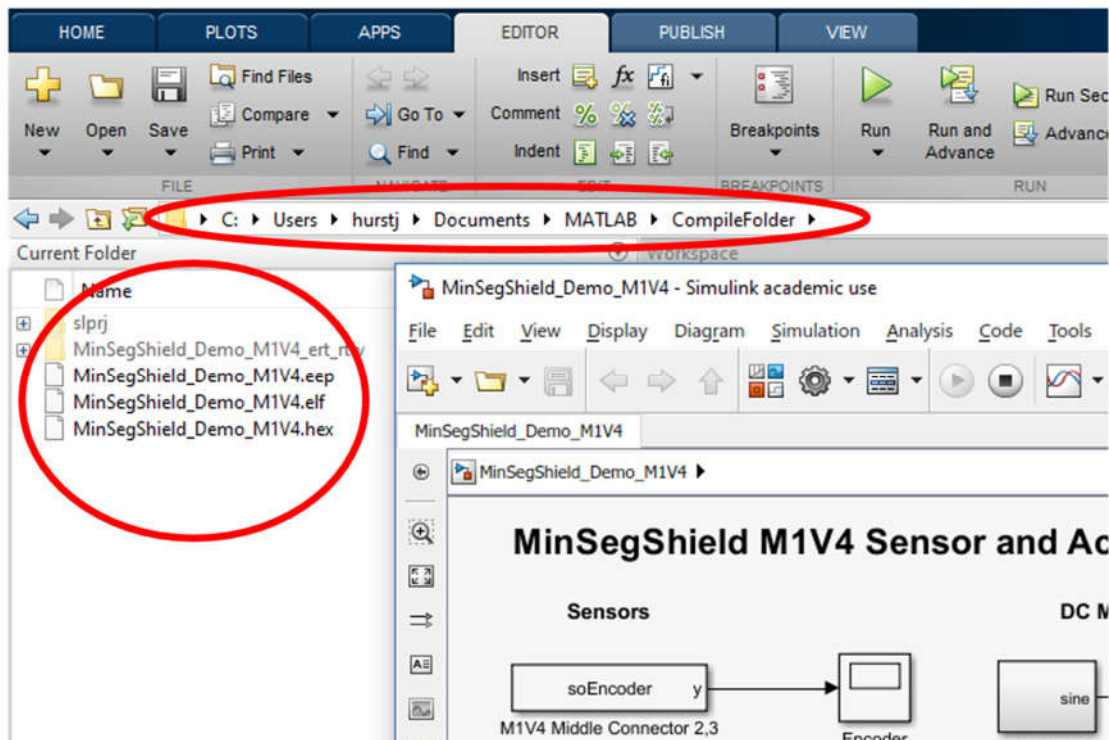
In general, you will not want to delete the files unless you suspect a problem. When the code is first compiles it can take a while, but after the first compilation it can be much faster if these files exist already.

If there are compilation problems, try cleaning up the temporary compilation files:
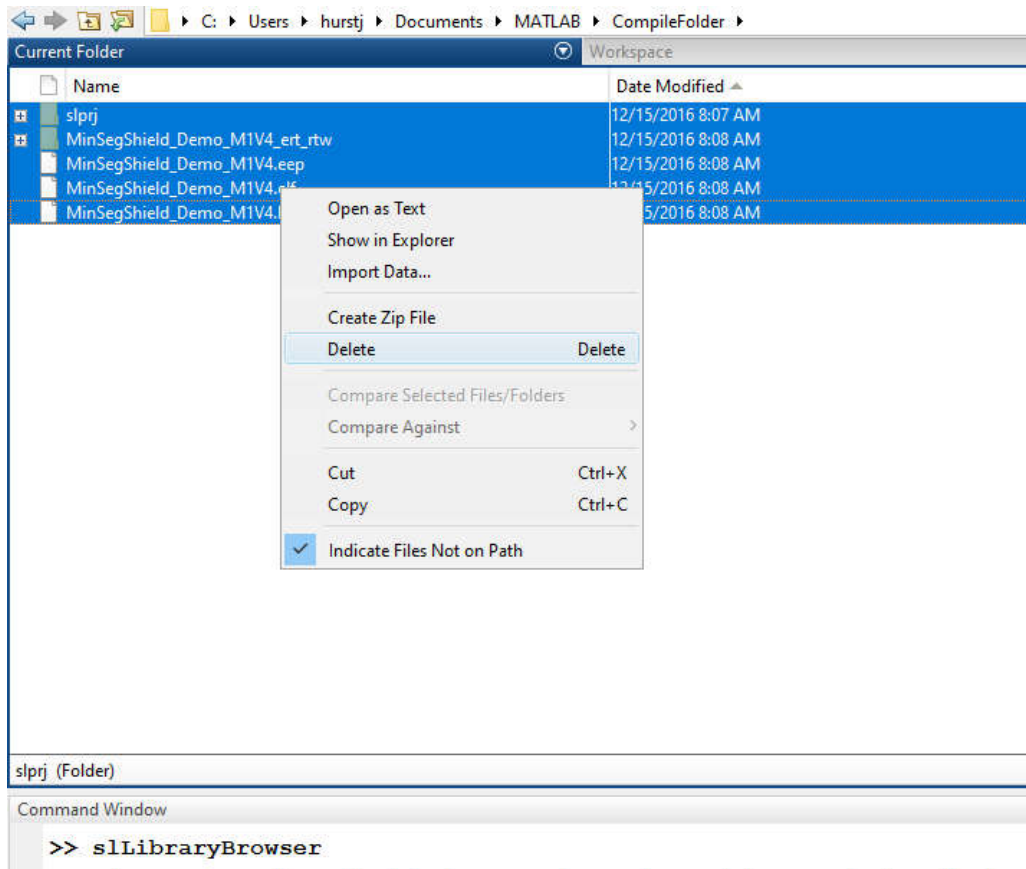
2. If the system gets "stuck" building, or cannot find the COM port
   a. Try disconnecting and reconnecting the USB cable