Tutorial to Lab 3 Amendments by Craig Pavlich.

Amended Lab 3 Tutorial:

1-5) Follow the Tutorial as specified through dragging the input ports into the loops.

5.1) In the file "StairSensorFPGA": Do not use Right Click à Create to create the sensor indicators. Instead, copy the indicator from the nearby "Sonar Distance Sensor Loop" and paste it into each or your new loops. Notice that the indicators will automatically be named "Sensor Distance (m) 2" and "Sensor Distance (m) 3", as is depicted (but not explained) in the original tutorial.

Click à Save then Clickà Run. This will compile the File "StairSensorFPGA". This will take at least 10min to complete. When compilation is complete, you may close StairsensorFPGA.

This compilation step has created the new FPGA bitfile, which will be required in later steps. The when you search for bitfiles in later steps, you should find 2 present. This new bitfile name should contain components of your projects name (as opposed to Starter Kit…).

6-7) Complete theses steps as directed in the original Tutorial.

7.5) In the file "roamingsubvi": Before continuing to step 8, instead, right click on the existing Open FPGA reference (sbRIO-9631), and "select FPGA bitfile". Set the bitfile to the one you created in step 5.1 (this should be the top of the list).

7.7) Skip ahead to Step 11: Create the "read/write" control, and make the required changes to the stop condition. Set the read write control drop-down menus to the sensor names created in step 5 (i.e. Sensor Distance (m) 2 & 3), they should be at the bottom of the available sensors. If these inputs are not available for selection, you made an error somewhere. Double check your bitfile selection. If that doesn't help, double check your loop creation in step 5, and re-compile the bitfile.

Do not worry about selecting the bitfile in step 11. Return to step 8 and continue.

8-9) Complete these steps as specified.

9.1) Still in file "roamingsubvi": On the Open FPGA reference you just created in step 9, right click and once again set the bitfile. Once again, select the bitfile you created, the same one we created in step 5.1, and selected in step 7.5.

This somewhat convoluted series of steps creates the correct reference chain for the FPGA target. Due to some vagaries of Labview programming, following the steps as originally directed will fail to pass the new sensor values (Sensor Distance (m) 2 & 3), to the read/write control. If these values are not passed to the read/write control, your code will not respond.

10-14) Complete these steps as directed.

14-15) Hint: On the connector pane ("roamingsubvi" Front Panel) the connections should be made as follows:
- **FPGA Reference In Icon à** Upper left corner of connector.
- **FPGA Reference Out Icon à** Upper right corner of connector
- **Error In à** Lower left corner
- **Error Out à** Lower right.

16-20) Complete these steps as specified. You should not receive any connection errors now.

21) Save your work (all files). Plug in your robot. Make sure the robot is on, but that the motor switch is off. Hit "Run" in the last file created "RoamingWithStairSensor" to download the code to the robot.