Lynbrook Robotics FIRST Team 846

Software Workshop #1 December 7, 2012

Today's Goals

- Install the necessary development tools
- Set-up those tools
- If time allows, discuss how software on the robot works

Software Installation

Wind River!

What: Wind River is our development environment. We use it to write, compile and deploy code.

Where: Copy the installation files from the storage media.

How: Run the installer. When asked for a license, browse for and select "FRC_2012_WB30_WB33_install.txt" (same directory)

WPILib

What: WPILib is the API that we use to control the robot.

Where: <u>http://firstforge.wpi.</u> <u>edu/sf/frs/do/listReleases/projects.wpilib/frs.</u> 2012_update_for_c

Software Installation Subclipse

What: Integrated SVN (subversion) version control plugin for Windriver. Subclipse allows for a seamless SVN experience built right into the IDE.

Where: http://subclipse.tigris.org/update_1.8.x

How: In Wind River, press the double arrow button at the top right:

Select "Advanced Device"

Click "Help -> Install New Software"

Add the site, uncheck "Subclipse Integration for Mylyn 3.x" Install the software

Software Installation

Doxygen

What: Doxygen creates a neat documentation file for us from our documentation created in the code.

Where: http://www.stack.nl/~dimitri/doxygen/

Your first Wind River Project!

1. Click on "Open Perspective" at the top right hand corner

C/C++

- 2. Click on "Other..."
- 3. Select SVN Repository Exploring and press OK
- 4. Click "Add SVN Repository" and type <u>http://svn.</u> <u>lynbrookrobotics.com:82/software2013</u> and click Finish
- 5. Right click "DefaultRobot" and click "Checkout..." and click Finish
- 6. The project will download into your workspace
- Go back to the Advanced Device Development workspace and you should see the new project in the Project Explorer

Your first Wind River Project!

- 1. Go to the Project Explorer and expand the newly created project
- 2. Right click "Build Targets" and click "New Build Target..." and click Finish
- 3. Delete the old build target
- 4. Go to Project > Build Project and the project should now build structures fully!

CriginalDefaultCode (Wind River VxWorks 6.3 Downloadable Kernel Module Project) [DefaultRobot]
Build Targets (PPC603gnu - debug)
OriginalDefaultCode (OriginalDefaultCode.out)
Dinaries
Includes
PPC603gnu
DefaultRobot.cpp 3 12/6/12 11:54 PM
Makefile 2 12/6/12 10:23 PM
sample.properties 2 12/6/12 10:23 PM
sample.txt 2 12/6/12 10:23 PM

Setting up Wind River for FIRST

- 1. Go to Windows > Preferences
- 2. Click "FIRST Downloader Preferences"
- In the field labeled "Team Number," type "846"
- 4. Click "Browse..." and select your compiled program, usually in (project_dir) \PPC603gnu\DefaultRobot\Debug\DefaultRobot t.out
- 5. Click Apply, then OK

Setting up your computer to deploy

1. Right click the wifi icon in the taskbar, and click "Open Network and Sharing Center"



- 2. Click "Change Adapter Settings"
- 3. Right click your wireless adapter, and click "Properties"



Setting up your computer to deploy

4. Click "Internet Protocol Version 4 (TCP/IPv4)"

5. Click "Properties"

6. Call IP.

Wireless Network Connection Properties	Internet Protocol Version 4 (TCP/IPv4) Properties
Connect using:	You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Configure This connection uses the following items:	Obtain an IP address automatically O Use the following IP address:
 ✓ ■ Kaspersky Anti-Virus NDIS 6 Filter ✓ ■ QoS Packet Scheduler ✓ ■ File and Printer Sharing for Microsoft Networks 	IP address:
	Default gateway:
A Link-Layer Topology Discovery Responder	Obtain DNS server address automatically O Use the following DNS server addresses:
Install Uninstall Properties	Preferred DNS server:
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	Validate settings upon exit Advanced
OK Cancel	OK Cancel

Deploying your code to the robot

Come to us and we'll deploy your code to the robot.

That's it!

Congratulations! You have successfully set up Wind River and can now begin developing for the robot!

Lecture Time :)

Threads/Tasks

Homework!

Create an asynchronous printf function. (Hint: You might need to make a separate class)

Good luck :)

If you need help, feel free to send an email or chat to one of us.

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