# Wandering Ambassador
Tips and Tricks

Powering on the robot

Down by the battery is a power connector (see below). This provides all the power to the robot.


Connecting this will provide the board with power, and the regulators will step the 12V down to 5V and 3.3V for the electronics.

When the Beagleboard first gets power, it tries to boot from the NAND instead of the SD card. You must manually reset the Beagleboard so that it boots from the SD card. To do this, hold in the User button (the top one in the picture below) and tap the Reset button (bottom). Once it resets, you can let go.
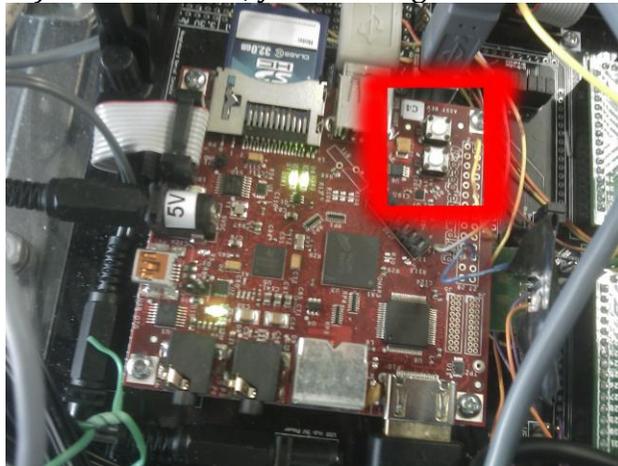
The Beagleboard will now boot Angstrom linux from the SD card. It sometimes gets stuck on a step in the boot process so you may see a Beagleboard logo that sits on the screen. If this happens, just wait 5 or so minutes and it will time out and continue booting.
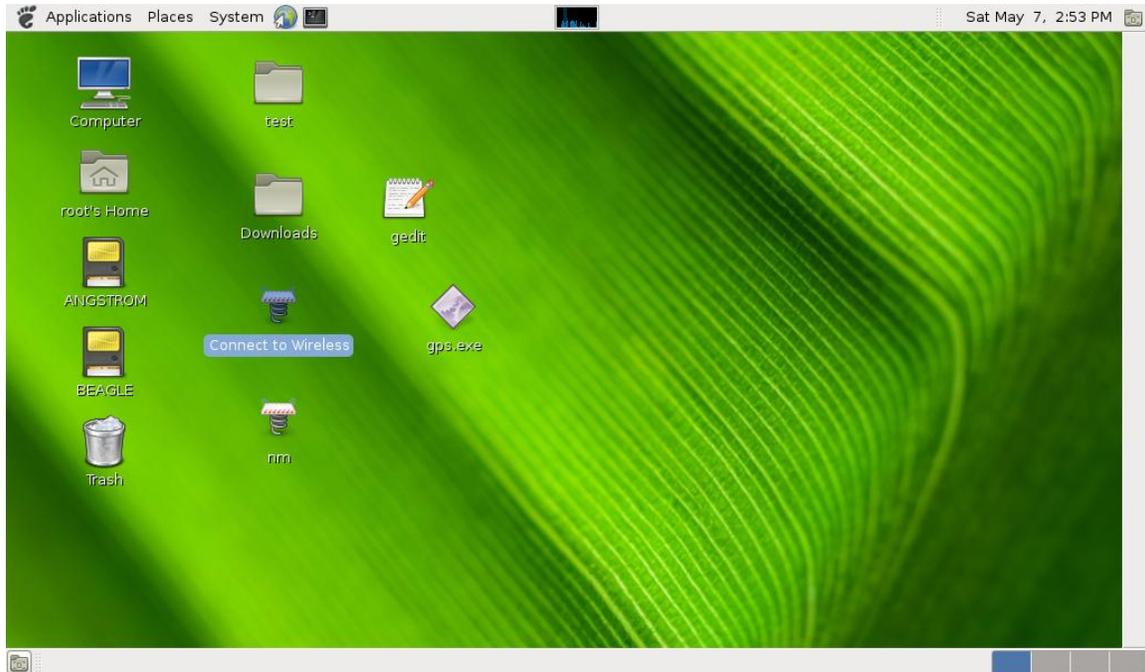
The board auto-logins as root. It doesn't ask for the password, but if you ever need it, it is **wander**

Network Manager doesn't recognize the wifi adapter, so after booting you need to double-click the "Connect to Wireless" icon. Nothing will pop up but this will run a bash script that manually connects the wifi to the RIT access point. You can go to Applications>Internet>wpa_gui to bring up a program that will give you the status of the connection. It will claim the domain of wander.student.rit.edu, but it doesn't always do this successfully.

After the network is established, you can SSH into the board (ssh root@wander.student.rit.edu)

Programming the MSP430s

The MSP430s are programmed though a JTAG connection from a Windows computer. The software required is TI's Code Composer, which can be downloaded from here:
http://processors.wiki.ti.com/index.php/Download_CCS
Get the MSP430 code size limited version, which is free. It has a 16K code size limitation, but this is more than sufficient for what is needed.

Once it is installed, you need to configure the drivers for the JTAG-TINY connector. The drivers can be downloaded from here:
http://www.olimex.com/dev/soft/msp430/JTAG/OLIMEX%20MSP430-DLL%20drivers%201.041.zip
Tell Windows to search these extracted drivers when it's installing the hardware.

You also need to set up Code Composer to use these drivers. Once the Windows driver installation is complete, you also need to copy FTD2XX.dll, HIL.dll, and MSP430.dll to the folder Texas Instruments\ccsv4\DebugServer\drivers (overwrite any that already exist).

Once this is done, you can hook up the JTAG like below and starting programming and debugging the MSP430s.
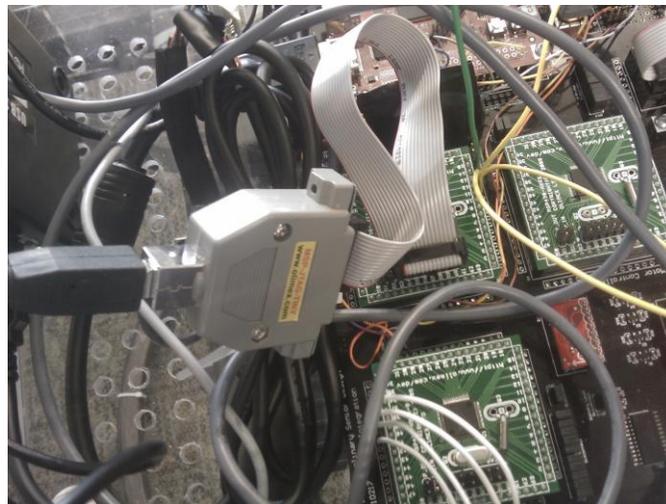
Sometimes it gives errors that it cannot see the MSP430 or the USB connector. Most of the time you can just unplug and replug everything back in and it works. Sometimes you also need to restart Code Composer.