Introduction

Congratulations on your BotBoard 05 Pro purchase! These instructions have been written in order to assist you in writing code for your new BotBoard.

This documentation has been written assuming you're running a the development environment detailed on the BotBoard website. If you're running other software, we can't help you. Sorry.

Let's begin!

Step 1 - Launch MPLAB and create a new project

From the Microchip folder under Programs, choose MPLAB IDE. Choose Project -> New, and give the project a name. Next, click Browse, and create a directory somewhere for the project.

NOTE: Due to path length limitations in MPLAB, it is highly recommended that you create project directories either directly in the root of your C drive (or other disk), or under a "C:\Work" directory or something similar.

As an example, I may wish to create a project titled Test, in the c:\test\ directory. MPLAB prompts to create the directory - select OK.

Step 2 - Select Language Tool

Choose Project -> Select Language Toolsuite, and from the dropdown select HI-TECH PICC Toolsuite. Click OK. Select Project -> Build Options -> Project. In the next window, click Suite Defaults under the General tab. This sets up the include paths for compilation. Click OK, and save the project (Project -> Save Project)

Step 3 - Set up Linker options

Select Project -> Build Options -> Project, and select the PICC Global tab. Check on "Compile for MPLAB ICD". Next, select the PICC Linker tab. Check on the Use Alternate Settings checkbox, and enter the following in the textbox:

```
-M"$(TARGETBASE).map" -O"$(TARGETBASE).cof" -O"$(TARGETBASE).hex"
-PSECTMAP -L-preserved=0000h -L-pintentry=04h,intcode,intret -ICD
-L-ppowerup=20h,init,init23,end_init,clrtext,stringtable,pstrings,str
ings
```

These settings are available as linkersettings.txt on the BotBoard webpage on the IEEE Student Branch website. Click OK, then save the project.

Step 4 - Create a source file

There are two ways to include files into a project - adding as a new file, or adding an existing file. To add a new file, click on the appropriate heading in the project workspace window (with .mcw in the heading) - Source Files or Header Files - and select Project -> Add New File to

Project. Navigate to the project directory, type in the name for the file, and click Save. Once that is completed, click Save.

For creating programs that work with the Sparkfun bootloader and the PICC Compiler, we have created a template for writing code. This is available as c_template.txt from the IEEESB website. Copy and paste this text into your program's main module when you create it, and add your code inside of it.

To add an existing file, copy them to the project directory, and choose Project -> Add Files to Project to add them. Save the project when you're done.

Step 5 - Setting the device type and fuse settings

Select Configure -> Select Device and choose PIC16F877A from the dropdown. Click OK. Next, select Configure -> Configuration Bits and set the following:

- Oscillator: HS
- Watchdog Timer: Off
- Power Up Timer: Off
- Brown Out Detect: On
- Low Voltage Program: Disabled
- Flash Program Write: Write Protection Off
- Data EE Read Protect: Off
- Code Protect: Off

Close the window and save the project.

Step 6 - Compiling the project

To compile your project, choose Project->Make. If the project compiles without error, a HEX file ready for downloading will be generated. Otherwise, you'll need to go back and check for erros.