INSTRUCTIONS FOR SETTING UP MPLAB X AND STARTING PROJECTS

These instructions are provided to help you set up the MBLAB X IDE. Note that this process should only need to be done once on your own system but potentially need to be done every time on the lab computers (should verify this Monday morning, supposedly the profile will travel).

One time setup instructions

1. Open MPLAB-X IDE
   a. On Windows, it can be found by searching for “mplab” in the Windows Start Menu, and select the MPLAB X IDE. Otherwise there is a shortcut in the class programs folder on the desktop.
2. Configure MPLAB X through the options menu at “Tools” -> “Options”
   a. Specify the proper line length by setting “Editor” -> “Formatting” -> “Right Margin” to 100.
   b. Set Tools->Options->Formatting->Language (C)->Style to K&R

New Project instructions

1. Create a new project. A project is a collection of files and settings that you need to build an application (such as the code for a mobile robot’s microcontroller).
   a. Click on create new project (the icon with the green + sign in the toolbar). This will open the new project dialog window.
   b. Now we choose the type of project. Select a Microchip Embedded -> Standalone Project. Click “Next.”
c. In this screen, we select the microcontroller that we want to run our code on. We want the PIC32MX320F128H, which is the chip that the Uno32 boards use. Click “Next.”

d. We now pick the hardware tool for loading code and debugging. For this class we will use both the simulator and the PICkit3. It can be changed later so using simulator as the first option is an acceptable choice. Click “next”.

e. Select the XC32 compiler. If the XC32 compiler isn’t an option, than you most likely failed to install the XC32 compiler if this is your own computer, so go and install that now. Otherwise, if it’s a lab computer, alert the TA/tutor and switch computers. Click “Next”.

f. Give your project a name that aptly describes what you are doing (such CE13Lab1) and choose a location for the project. Click “Finish.”

g. You should now see your empty project in the “Projects.”
h. We now need to change a setting in the Project Properties window, accessed from the toolbar dropdown menu. The project properties is also where you can switch between the simulator and the PICkit3.

![Image of MPLAB X IDE](image)

i. Go to the “xc32-gcc” category (under “XC32 (Global Options)”) and select “Preprocessing and messages” from the dropdown menu. Make sure “Additional warnings” are enabled. These options will need to be set every time you create a new MPLAB X project. The graders will have this setting enabled when evaluating you!

2. You now should have a new project. Before any work begins we need to add two files that add useful features.
   a. Open up the folder for the project just created and copy BOARD.c and BOARD.h from the lab files.
   b. While the files are now in the project directory MPLAB X will not find the files by default. Do this by right clicking on the header files folder and selecting “add existing item.”

   ![Image of Add Existing Item](image)

   c. Select the BOARD.h file from your project directory. Make sure you set “Store Path As” to “Relative” before you click select.
d. You should now see the files you added in the “Project” window.

![Image of file selection dialog]

```
...Files of type: All Files
File name: "BOARD.h" "roach.h" "serial.h"
...```

e. Repeat this process for BOARD.C and add it to the source files folder.

3. At this point the project is ready to start by either generating a new main or adding an existing file.