Software Maintainability Plan

ECE 492 – Spring 2014

Latest Revision: March 24, 2014

Prepared by: Robert Lombino

Abstract

The software written for this project must be used by others over the 5-year life of the system. This deliverable documents how software maintainability will be achieved.

Table of Contents

Introduction

The software written for this project must be used by others over the 5-year life of the system. This deliverable documents how software maintainability will be achieved. The software maintainability plan must be delivered in written form and accompanied by an oral presentation.

Questions to Consider

1. What is the design of the system API and how will this design support ongoing reliable operation, maintenance and expansion?
2. How is system configuration maintained? Will the system auto detect hardware configuration changes or will configuration maintenance be required? If the latter, what is the consequence of misconfiguration?
3. What tool chain will be used? Is the tool suite up-to-date and actively supported? Is the tool suite mature enough to have stable functionality? Evidence must be provided to support assertions.
4. What third party software will be incorporated into the system? How will this be maintained, upgraded, or patched during the life of the system.

System API Design

The system API is designed to control the smart charging algorithms used to charge the pack as well as data manipulation including logging, relaying, displaying data for the user. The hardware being used is a TS-8160-4200. This board comes with 64MB RAM and a 256MB XNAND Drive. This board is guaranteed by the company to last more than 5 years. The system will be booted from an SD card containing an image of the operating system, linux kernel, and software. The SD card can be implemented on the board using an RS232 connection and edited using an SD reader. The SD card we are using has an estimated MTBF of 2 years so there will be at least 3 backups available with the current image installed. The image will also be available on our website for future teams to access.

System Configuration

The config file that determines how the program will function on the board will be installed on the SD cards. If you want to change the configuration, you can use the SD card reader and change the config file easily using any text editor. System will auto detect hardware changes and

see if it fits the requirements set by the config file on the SD card. The consequence of misconfiguration is that the software will detect it and will raise an error for user to correct.

Tool Chain

The board manufacturer has provided a tool chain to be used on the board. This board was released in July 2013 and the software has been maintained to date. The tool suite is designed for stable functionality and supports our needs. It will also be available on our website for future teams to access. The following is a quote from the manufacturer's website describing evidence for these claims. "Technologic Systems provides complete documentation for our mature products, including manuals, schematics, mechanical drawings, etc. The most recent documentation files are always made available through our website. If you don't find the documentation you are looking for, contact support for more information. Also, please make sure to visit our Embedded Systems Support webpage, our official WIKI and join our official Developers Forum."

Third Party Software

The current design does not use any third party software other than the tool chains provided by the manufacturer. If our design changes to include the use of third party software we will maintain it to the same standards as our own software. The software will also be available on our website and links will be provided for the third party's website for future teams to access.