Development Plan

# Development Requirements:

1. Platform controller must be a student’s HCS12 board from previous semester.
2. Platform link shall be a commercial Linux box. Uses Rs232 to communicate with platform controller.
3. Platform supervisor shall be a desktop PC running Linux or Windows and be controller using keyboard commands or a USB controller.
4. PID controller to enable closed loop speed control.
5. Document communication protocol for how the platform controller receives commands. And for how the Linux Box communicates with the platform supervisor / controller.
6. Ability to monitor the sensors from the platform supervisor using Wi-Fi.
7. Use the current triangle robot mechanism and the power connection to the platform is the only allowed wired connection.
8. Platform operations has to work with asynchronous commands.
9. Sensors and power details for the environmental logger will be fill researched next week.
10. Platform robot shall be able to move from a starting location using PID control, search for environmental logger and transfer data to the platform supervisor.
11. Code must be managed by some form of version control software.
12. Students must complete the project in the 10 weeks of allotted time.

# Individual Responsibilities

|  |  |  |
| --- | --- | --- |
|  | **Task** | **Description of Task** |
| **James** | * Preliminary Development Plan | Create a preliminary development plant that highlights development requirements, Individual Responsibilities, Resource Requirements, and Scheduling |
| * Research Sensor |  |
| * Rasbian OS |  |
| * Encoders |  |
| **Kevin** | * Design Review | Create a Design review, go over all requirements from last semester and compare them to our current robot status. Identify deficiencies |
| * Research Sensor | Ultra Sonic |
| * Encoders |  |
| * Alpha Proof of Concept |  |
| **Ovi** | * Information Assessment | Create an information assessment of our previous project, highlight all requirements, missing information and potential technical risks |
| * Research Sensor |  |
| * Raspbian OS |  |
| * Encoders |  |
| **Undeclared** | * PID control * Platform Link * Wi-Fi Link * Environmental Logger * Communication protocol |  |

# Resource Requirements

1. Electronic measuring equipment (multi-meters, oscilloscopes, logic analyzers)
2. HCS12 Board from semester 4
3. Platform supervisor running Linux
4. Embedded COTS system running Linux
5. Environmental Logger Sensor
6. Robot supplied by Dave
7. Linux integrated development environment
8. GitHub Source code control

# Scheduling

|  |  |  |
| --- | --- | --- |
| **Week Ending Date** | **Phase** | **Jobs** |
| Sept 23, 2016 | Planning | * Preliminary Development Plan * Design Review * Information Assessment * Embedded COTS research * Prepare Questions for Peter * Distribute Linux host to group members |
| Sept 30, 2016 | Planning / Development | * Finalize Development Plan * Preliminary Specification for Alpha Proof of Concept, upon customer requirements * Selection Matrix for COTS system; Pick system * Preliminary research for sensors * Raspbian OS setup on COTS Linux box |
| Oct 6, 2016 | Development | * Finalize specification for proof of concept * Final selection of sensors + start technical reports on assigned sensors * Test code running on Raspberry Pi 3 Model B * Encoders |
| Oct 15, 2016 | Development | * PID Control |
| Oct 21, 2016 | Development |  |
| … | … | … |