A meeting was scheduled with Dr. Hensel to discuss the extension of the deliverables due to all the benchmark testing and research that is required to perform a thorough analysis of all the available and feasible options for the design of the control system for the RP1. What absolutely needs to be done by the end of fall quarter is a detailed list of specifications that the mechanical team will need to start in winter. All other deliverables as far as having a fully functional control system can be pushed into spring quarter, and a schedule has been made noting those changes.

A decision on the motor module was reached – a DC motor is to be used for drive and a servo for steer. But the system will be able to support any configuration of motors viable from DC, stepper or servo for drive or steer. Some further benchmark testing was done on the DC motors. DCs with part numbers listed on them were obtained from the robotics lab in order to have a better idea of their performance based on numbers listed on spec sheets. A servo was obtained from Dr. Sahin to understand the control parameters and functionality. Orders were placed for parts required which included the microprocessor, device drivers and oscillators. Research into PWM control for DC and servo was performed, as well as the microcontroller’s capability to handle multiple motors.

Over the course of today, all the types of motors were prototyped. Rudimentary designs for the power distribution, general layout of the entire system, and schematic for the DC control driver were created. The battery being used for the motors is going to be the same one from the previous RP1 design because it is already at hand for testing and has been shown to support the current draws of the motors. Further individual research was performed on voltage regulators, DC motors (that may even be used for the RP10 platform), the functionality of the voltage regulators and relay switches and backward engineering on the serial cables which included continuity testing. The components list was updated with the parts that have been received as free samples, and a Bill Of Materials (BOM) is starting to take shape.

Next week, schematics are going to start being drawn up and parts needed such as double pull double throw switches will be ordered. The physical, electrical and connector details will be updated to the Interface Control Document (ICD) which discusses the physical interface of the platform. The communication protocol and commands will also be finalized by the end of next week.