

Initial Project and Group Identification Document Divide and Conquer

1. Project Descriptive Title: Electric Powered Motorized Surfboard

Group Members:

- Ryan Taylor – Electrical Engineering
- D. Anthony Higgins – Electrical Engineering
- Alwin Amoros – Computer Engineer

Sponsor(s) / Significant Contributor(s):

- Allen, Dyer, Doppelt, Milbrath, and Gilchrist, P.A.

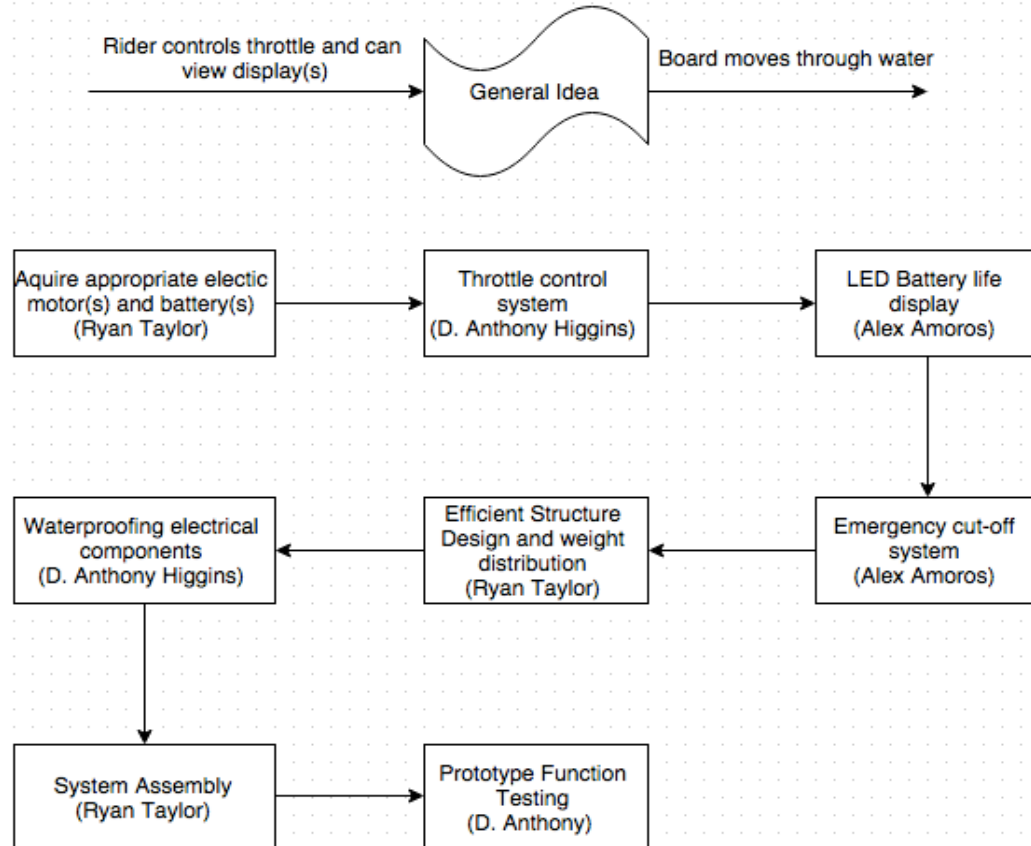
2. Project Narrative Description:

The idea of this project is to create an electric powered surfboard that can give the rider the experience of surfing without needing waves or wind sails. The motivation behind building such a device is purely for the enjoyment of the rider or the watersports enthusiast. This project should be light enough weight to be carried by a single person out to the desired body of water with motors powerful enough to operate with an average sized man and simple enough to use that a person with no surfing or watersports experience could ride it.

3. Project Requirement Specifications:

- 1-4 Electric powered motors
- 1 Surfboard or light-weight custom made board shell
- 1 hand held throttle control system
- 1 engine activation or cut-off system
- 1 rechargeable battery back with up to 1 hour running life
- Water proof LCD display
- LED light bulbs
- Light-weight material support beams for structure
- Leash (to attach board to rider)

4. Block Diagram and Prototype Illustration:



- Acquire appropriate electric motors and batteries to power those motors that can be used to power the surfboard and smaller weaker motors may be needed for prototype/testing purposes.
- Our throttle control system will be either wireless or use wires depending on project specifications and our waterproofing abilities.
- The LED battery life display will be on the top surface of the surfboard and most likely contain 5-10 LED's that are red, yellow, or green to show the rider how much battery life is left.
- Emergency cut-off system is a backup safety feature that will shutoff the motors when the rider falls off the surfboard. This may consist of a blue tooth device that measures the rider's distance from the surfboard or from a pressure switch.
- System assembly will be to assemble all the pieces together. We predict that attaching all the systems to the board itself may be one of the last steps in the project, other than more testing and trouble shooting of course.
- Prototype function testing will be one of the most important and probably the most stressful task due to functional errors and trouble shooting. Trouble shooting and testing will be done along the way as each individual piece of equipment is developed.

5. Estimated Project Budget and Financing:

Materials and Devices	Predicted Price Range
Electric Motor(s)	\$25 - \$200 Each
Battery Pack(s)	\$30 - \$150 Each
Waterproofing Materials	\$15 - \$100 Total
Throttle Control System	\$20
6-10 LED Bulbs	\$2 - \$6 Each
Surfboard	\$150
Or Custom Board Shell	\$300 - \$500

Total Maximum Estimated Budget: \$1500

Total Minimum Estimated Budget: \$490

Estimated Maximum Finances: \$2500

6. Initial Project Milestone for Each Semester:

- Senior Design 1:
 - Complete research and acquire and obtain as much materials as possible
 - Achieve functional electric powered motors
 - Understand different types of throttle communication

- Senior Design 2:
 - Develop a prototype by the beginning of Feb.
 - Troubleshoot all of Feb.
 - Add finishing touches and cosmetic features
 - Final functioning product by mid April