



IPRO 353

Goal: Our IPRO is aimed at laying the groundwork for a small company that supplies attachable, battery-powered motors for kayaks. Throughout the world, water sports are a popular activity for families and couples that look to spend time together while enriching their health. Recreational kayaking is a popular and convenient way for people to spend time with their family while engaged in an enjoyable activity. Due to imbalances in physical abilities within the family (such as the wife having to carry the paddling load when her husband gets tired), the pleasurable experience could become too rigorous for some individuals to enjoy. Our product is an easy-to-install kit that provides convenient, on-demand power assistance to enhance the kayaking experience.

Tasks: After an initial analysis of the project requirements and the team composition, the team decided that it would be most efficient and effective to divide the team into three sub teams: technical, marketing, and website.

- **Technical:** The members of the technical team are responsible for designing and modifying the kayak based upon specifications agreed upon by the team. The team plans to develop a rudimentary prototype in order to perform field testing, then to use the test results to help design the second prototype.
- **Marketing:** Marketing members are to assimilate information on the recreational watercraft environment to develop a project plan and comprehensive business model. The marketing team is to determine the target market, the distribution channels, and the supply chain.
- **Website:** The website team members are to develop a website that provides a customer friendly interface that provides ample information regarding all aspects of the project.

Achievements:

- The technical team accomplished a majority of the goals that were stated at the beginning of the semester, as well as a few goals that emerged through the course of the project. The initial prototype was a wood and metal bracket that was mounted onto the end of the kayak. The bracket was designed to support a trolling motor that could be attached to the bracket. The prototype was tested on Lake Michigan to identify strengths and weaknesses of the design. For the second prototype, safety, convenience of use, convenience of installation, and performance considerations were taken into account to improve the design. The second prototype replaced wood components with a variety of plastics, and used custom made metal pieces. A breakaway mount was designed to allow the motor flexibility if it were to hit underwater obstacles. A control system was installed to allow the user easy access to power supply. A battery mount was installed inside the kayak to protect the battery, yet the user can still easily remove the battery for charging.
- The marketing team performed extensive research into the marine industry to gather information regarding products that exist in the recreational boating market. Research was then focused on ways to introduce a product like a power assist kit for recreational kayaks into the industry. Target markets, barriers to entry, and critical success factors were evaluated to create a business plan.
- The website team designed an attractive website that includes information regarding all aspects of the project. They created a logo for the company and did other graphic design for the website.

Outcome: By the end of the semester, each sub team had accomplished all of the key goals that they had determined at the beginning of the project. The second prototype is well designed, and has most of the key elements that the team hopes to include in the final design when the project is completed. The team developed a firm concept of who the target market is and the means to deliver the product to the consumers. The final website is intelligently designed and visually appealing.

Next Steps: The prototype is currently functional and attractive, but there is still work to be done for the product to be marketable. The marketing team needs to perform more in-depth market research to confirm the second hand information that has been gathered. The team also needs to explore means of production for the final product as well as finalizing the distribution strategy.

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Technical Team

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Marketing Team

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Website Team

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