Boeing Remotely Piloted Hovercraft – Boeing Group 2

Overview
The goal of this project is to create a remotely piloted hovercraft (RPH) no larger than 18x12x12 inches that is capable of navigating an unknown obstacle course for 15 consecutive minutes. The hovercraft must be able to navigate around various obstacles on the course, and must carry a 1 lb payload.

Objectives
The team’s objective was to create a RPH that would be successful in the final competition. The team needed to design the hovercraft for simplicity, efficiency, safety, stability and ease of manufacture.

Approach
- Used various system level design methods such as the black box and V-diagram.
- Evaluated the customers needs to break the system down into 5 parts
  - 2 Inputs: RC Transmitter, and Batteries
  - 3 Outputs: Steering, Thrust, and Lift
- The team went through the entire engineering design process to iteratively fine-tune the design
- Keeping the hovercraft design simple was an extremely important design point for the team
- Weekly meetings with Boeing to assess progress and have technical reviews
- CAD models in SolidWorks were created for every step of the project
- The team created multiple prototypes incrementally testing each individual system before putting it all together for the final product.
- Testing the hovercraft lead the team to be extremely confident in our hovercraft design being successful in the final competition.

Outcomes
- The hovercraft competed in the final competition against another Hovercraft.
- The final competition taught both teams about the necessity of planning and testing.
- This hovercraft design was able to successfully complete 5.75 laps around the competition course.
- The hovercraft was reliably able to run for more than the entire 15 minute duration.
- Overall Boeing was satisfied with the group’s proper implementation of the engineering design process and approved of our final hovercraft design.