

IPRO 317: VTOL Aircraft for the Masses

Spring 2005

Objectives

The goal of IPRO 317 was to continue work on the design and testing of a vertical takeoff and landing aircraft that, when in production, will be much more affordable and easy to fly than anything currently in the market (which is not much). Further, this semester we worked to get more public input and to find parts for new prototypes of different scale than the current one.

Tasks

This semester, IPRO 317 was divided into three subgroups as follows:

Construction/Testing – This group worked with the continued construction and testing of the physical prototype.

Achieving controlled tethered flight was their main goal.

Design – This team was tasked with coming up with parts lists and costs for future full- and micro-scale prototypes.

X-Plane simulations were used to help in this process.

Social/Fundraising – This last group was new to this semester. It was tasked with finding answers to common questions to assist in gaining interest in our project, as well as determining possible sources of funding for future work.

Obstacles

“VTOL for the Masses” faced many obstacles this past semester. On the construction end, parts failed and the prototype fizzled. Each new test brought new problems, making it difficult to progress in our testing schedule. This impacted the design team as well. Early in the semester the emphasis was to be on finding parts for a full-scale prototype, but it was decided to design a much simpler, electric powered micro scale prototype instead. Still again, the problems with the prototype affected the social/fundraising group. Without data from successful tests, most funding proposals could not be completed. Also, many questions that have and will continue to come up regarding the full-scale model cannot be answered with anything more than educated guesses until work has really begun on a full-scale prototype.

Accomplishments

Even with the obstacles mentioned, there have been accomplishments made this semester. Noting how unforeseen problems can be a huge setback, the construction team created a checklist for future IPRO groups to use to help avoid any problems encountered by this current group. In design, we have a full parts list for a new micro-scale prototype, which will have all of the features of the current prototype but will be much more reliable and easier to operate and modify. These parts will be ready for next semester’s team to assemble. Also, the social/fundraising team distributed a market survey which has identified aspects we will have to aim for in the full-scale model.

Future work

As mentioned, next semester IPRO 317 will construct and test a new prototype. This testing must progress to controlled flight. With a working scale prototype we can begin work on a true-size prototype, as well as get the answers and data needed to gain funding for the project. Next semester’s ultimate goal will be to have a working small-scale prototype to demonstrate our design, and to gain sponsorship to begin work on full-scale construction and testing.

The IPRO 317 Team

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