

Visitor Research Report

Visitor Name: Mr. Ryan Hubbard
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Area of Research: Materials Selection and Redesign of Trinity

Period of Visit: May 12, 2008 through August 20, 2008

Goal:

The goal of this assignment was to identify the design flaws of the current design platform (Trinity, etc) and construct a new model addressing these concerns

Strategy:

My strategy involved a very hands-on approach to learning about ornithopters. By examining Trinity and the other models, I learned how the vehicles operate and how they are constructed. I began studying which parts were constructed using a machine, which parts I would need order, and which pieces were made using hardware. I ordered the necessary parts and materials and began designing the parts to be machined.

I created a 3-D drawing of each part for the construction of a complete ornithopter and assembled each piece I designed to predict the assembly of a new bird. I began machining and fabricating new parts and assembled my own ornithopter in the lab. I learned about flight operations of the RC vehicles by flying the current ornithopters on a frequent basis and applying what I learned from flights to my research.

Accomplishments:

At the end of this period, I had managed to produce a complete prototype of a new ornithopter design. I also have created drawing and part files that can be downloaded to produce future birds. In addition, I've also produced a manual for future ornithopter builders, so that they too can familiarize themselves with the design and can follow the steps to producing their own bird.

Future Work: I currently have no plans to continue any future work; however I have added some suggested research topics in the conclusion of my manual. The suggestions spawn from ideas and thoughts that arisen during my project, though I had no time to explore.

Pending Publications: none

Seminar Presented: none