

Brogan Museum

EML 4551C – Senior Design – Fall 2011 Deliverable

Team # 13

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Project Sponsor

Mary Brogan Museum



Project Advisor(s)

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Reviewed by Advisor(s):

Introduction

This project is commissioned by the Mary Brogan Museum and is headed by Dr. Oates of FAMU-FSU College of Engineering. The actual tasks given to Group 13 serve as a continuation of a previous project that was left incomplete. The initial product that is to be expanded upon currently has all the required physical components and assembly to provide air flow through a display case. This “wind tunnel” display is meant to be added to the Museum’s exhibit upon the completion of the senior design course with which we are enrolled. Previous groups have had trouble finding a strong direction on how to present aerodynamic properties in the current display; we hope to not only determine how best to demonstrate such properties, but to also complete the display and present it to the Mary Brogan Museum.

Product specifications

The purpose of this project is to expand upon an existing display model so that it can be used in the Mary Brogan Museum. This display is meant to demonstrate properties of air flow and what affects/relevance such properties may have to young students. The display structure and basic materials are already present and assembled; as well as the fans that will be used to move the air through the display. What we are meant to add are mechanisms with which the air flow leaving the fans can have some demonstrate-able effect. The exact properties that we are to demonstrate were not explicitly stated but the inherent limitations of both the size of the display and the speed of the air leaving the fans should serve as a strong enough limitation.

Along with the mechanisms inside the display we are also tasked with creating an interactive visual display to accompany our presentation. The display should server to engage any user/viewer, and to add a more detailed visualization and explanation as to what is being shown. The quality of the visual display will be heavily limited by our budget and will take up the major portion of it.

It is important that our display be geared for the understanding and interest of young students from k-12; and that this display server as a motivator for future scientists and engineers, or just to inform young minds as to what forces drive the world we live in.

Customers Needs:

- ❖ Wind tunnel’s commands have to be easy to use;
- ❖ Experiment must offer no danger or harm to visitors;
- ❖ Minimum maintenance needed ;
- ❖ User interactive interface;
- ❖ Friendly interface;
- ❖ Quick and easy to understand phenomenon’s explanation ;
- ❖ Fully automated system;

		Structure	Software	Interface	Background
Customer Needs	Easy to Use	X	X	X	
	Safe	X		X	
	No Maintenance	X			
	Interactive		X	X	
	Didactic		X		X
	Friendly Interface		X	X	
	Automated System		X		

Budget:

The mechanical engineering department has provided us with 2000\$, and Dr. Oates and his associates have said that they are willing to also provide software and a touch screen display to allow for a visualization of air flow without using a form of smoke. Because the visualization has already been taken care of, the initial budget of 2000\$ can be used to improve the existing housing as well as provide more interactive opportunities for kids using the wind tunnel.

