

Client Interview

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1 Project Scope

1.1 General Expectations: What are you wanting us to accomplish (by the end of Summer)

High Level: We would like a shaker table on 2 axes (the ground plane) to disturb the drone. This should have changeable parameters in order to fully explore the performance of the drone.

The goal is to have a control system on the teeter totter, with the ability to mount it to the table and balance during a “disturbance”.

1.2 Which task would you like to see the most progress in this summer?

More progress would be helpful in the control system, there is no need for a more developed shaker table, but we need more work on the teeter totter.

1.3 Is there a design that the shaker table is based upon? (Resources for similar product)

There is not a design the table is based upon. The difficulty of the project is in developing ideas, rather than execution, and so we should put more emphasis on the architecture of our solution.

1.4 Is the goal to have the shaker table and Teeter-totter functioning separately from one another or together?

The goal is to mount the teeter totter on top of the shaker table. The table is a piece of test equipment built to examine the control system.

1.5 How do you think we should best combat the short time-frame of our project?

Agile meetings are a good first step, but the meetings aren’t getting the project finished. The only way to get work done is to be in the lab working on the project. Asking questions and using cooperation to solve problems is a tool we should be learning.

1.6 Where is this project going past this semester (Long-term goals)?

Shaker Table we are obviously looking for more degrees of freedom. The control system is eventually going to be a flyable drone. The reason we want a drone we built ourselves is that we can then extend the project to do anything within our abilities (i.e. drone swarm, longer flight life, imaging, etc.)

2 Project History:

2.1 Current State Analysis: What has been done in the past?

Last years team accomplished: building several test jigs, which are now in use. The jigs went through several generations of advancement. The electrical engineers worked on developing a wireless sensor network, as well as designing an electric speed controller.

2.2 What is the plan for the helium balloon?

So... that ended up being the most complicated part. We thought it was easy, but it was quite difficult. If someone was interested in continuing the idea they are free to.

2.3 Is there anything you want our team to work on with the helium balloon this summer?

No.

2.4 Were there any mechanical problems with the “Teeter-totter” test stand?

Mechanically I think it's set. It would be worthwhile to go over the electronics and batteries and stuff. It was done relatively quickly and it could be done better.

2.5 Are all previous control algorithms done through Arduino?

No, there is just the first pass that is saved on the computer in the lab.

2.6 What previous code/algorithms are available from previous teams?

It was an evolution, and not truly designed. It just uses the proportional algorithm. The thrust was initially small relative to the inertia of the system, so it was never going to work.

2.7 What is the primary function of each Arduino? (Sno-Makr, XLR8, etc.)

There is a sno type arduino connected to each two motors.

3 Other Questions/Clarifications

3.1 What frequency of communication do you expect from us?

Weekly meetings are fine

3.2 How often are you planning to travel to Moscow?

Every 2 weeks

3.3 Should we account for your travel to Moscow in our budget?

No.

3.4 What will Dakota Roberson's role be over the summer?

Questions regarding the control system, and the TRUE client of the shaker table.

3.5 What will be the primary first step for this week?

Meeting and goal design.