Project Charter: FlyNet

Autonomous Multi-rotor Mapping and Localization  
Sponsored by: United Technologies Research Center

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| Project Title: | FlyNet | | |
| Brief Project Description: | Design a team of autonomous robots consisting of multi-rotors and ground robots to map and localize in an unknown environment, while searching for known targets. | | |
| Project Manager: | Drew Ellison | | |
| Signature: |  | Date: |  |
| Machine Shop: | Matt Rhode | | |
| Signature: |  | Date: |  |
| Instrumentation Shop: | Trudy Schwartz | | |
| Signature: |  | Date: |  |
| Faculty Adviser: | Eric Frew | | |
| Signature: |  | Date: |  |
| Course Coordinator: | Joe Tanner | | |
| Signature: |  | Date: |  |

Team Organization Chart (add blocks as necessary)

Roles and Responsibilities

|  |  |
| --- | --- |
| **Members** | **Role/Description** |
| **Company, org. or individual** | **Project Sponsor:** Expect the perfect project with no hitches and exceeds specifications. Will provide money begrudgingly. |
| **Professor So & so** | **Project Advisor:** Faculty advisor for your project. |
| **Kim Jung Un**  Kim Jung Deux | **Project Manager**: Dictator in Charge of the project. Will give on the spot advice as needed. |
| **Nancy Karrigan**  Tonya Harding | **Systems Engineer:** Technical leaders of the team. Work closely with the Dictator in Charge. Will administer beatings until morale improves. |
| **Fritz E. Miller**  Carlos Felippa  Mahmoud Hussein | **Structures Team:** In charge of doing the FEM for the vehicle and ensuring there is a large enough safety factor to ensure the vehicle cannot take off. Will serve as a human shield between the team and Matt Rhode. |
| **Carl F. Donaghu**  Ryan Starkey  Kenneth Jansen | **Aerodynamics Team:** In charge of doing the CFD for the vehicle and ensuring that there is no access doors to any of the electronics. Will complain vehemently about any rivets on the vehicle. |
| **Peter I. DiCaprio**  Dale Lawrence  Eric Frew | **Controls Team:** In charge of developing, testing, integrating, blessing, cajoling, coaxing, and begging the instrumentation, flight computer, sensors, wiring, power systems, and borg systems. Will ensure any minor moisture on the vehicle will cause the whole system to crash. |

Scope & Objectives

This is the most important section of the Charter. Start with a high level description of the entire project but focus on the end products and the actions the team will take to complete the work scheduled for this semester. What can the project sponsor expect as deliverables at the end of this semester?

Make sure you include your objectives. You can use SMART objectives (SMART objectives are specific, measurable, attainable, relevant, and time-bound). You don’t have to have separate sections for scope and objectives; they should build on one another. Include any assumptions and constraints you have determined.

You don’t have to include the full work breakdown structure (WBS) but make sure you hit on the major points of the WBS. Briefly summarize the high level risks to project completion (budget, schedule or technical.

Definitely include a manufacturing and instrumentation plan. You should include what you are planning on building, when you plan on building it, and where you will build it. If you are planning on using the machine or instrumentation shop, make sure you run it by Matt and/or Trudy before you bring them this charter. Even if you do not plan on using the machine and/or instrumentation shop, you are required to have this charter signed by Matt and Trudy, so you will want to discuss your plans in this section with them in advance.

Basic Schedule Overview

This section should hit on the major milestones as well as work phases for this semester. This includes mid-semester and final presentation dates (estimates are fine). You may also want to write down what individuals will contribute to the schedule, for example setting forth how many weekly work hours are expected. In general, this is about 15-20 hours a week. Example:

* 8/25/15 – 9/25/15 – Design Phase
* 9/27/15 – 10/25/15 – Test Phase
* 10/12/15 – Mid-Semester Presentation
* 10/26/15 – 11/26/15 – Build Phase
* 11/26/15 – 12/12/15 – Celebration Phase because nothing went wrong in the other phases.
* 12/13/15 – Final Presentation

Resource List

You should list out what resources you will need and indicate what you will have. This includes equipment, personnel, and lab space.

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| --- | --- | --- |
| **Resource** | **Point of Contact** | **Reason for Need** |
| Aerospace Machine Shop | Matt Rhode | The CNC machine will be used to cut metal for the frame.  Drill bits will be destroyed by the dozen. |
| Aerospace Instrumentation Shop | Trudy Schwartz | Electronics equipment |
| SolidWorks | OIT | To create CAD models and run FEM analysis |
| Previous year’s knowledge base | Kim Jung Zero | Will serve as a Rosetta Stone for the continuity documents written last year. |

Budget Information

Here is your budget this academic year. What do you estimate you will need, how much has been spent, and how much has been funded. Example:

|  |  |  |
| --- | --- | --- |
| **Source/Expense Item** | **Project Funds Available** | **Expected Expenses** |
| Scrooge McDuck | $50,000 |  |
| Previous Expenditures |  | $25,000 |
| Forecast Expenditures |  |  |
| Donuts |  | $8,000 |
| Electronics |  | $2,000 |
| Emotional Support Animal |  | $5,000 |
| Vehicle materials |  | $300 |
| Subtotal | $50,000.00 | $15,300.00 |
| Estimated Final Balance | $34,700.00 |  |

Communication Plan

Include anything pertinent to communication. This can include how often you will meet, where information is stored, and who must be contacted for certain tasks. For example, you might want to include who must be contacted and when in order to complete a purchase order.

Change Log

Keep a record of change dates with a brief description of the changes incorporated