PEA Design Lab

Student Project Application

*The Design Lab at Phillips Exeter Academy believes that project-based learning is an integral part of understanding the design process, and therefore strives to support worthy student projects by providing tools, workspace, materials, and mentorship. Students whose projects are selected, in exchange for these resources, agree to document, display, and share their work with the broader community as dictated by the Design Lab.*

*To apply to pursue a project in the Design Lab, please fill out the application below and submit to* [*ngallo@exeter.edu*](mailto:ngallo@exeter.edu) *or in writing to Mr. Gallo at Phelps Science 317.*

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| --- | --- | --- | --- | --- |
| **Student Name(s)** | **Year** | **Email** | **Phone** | **Advisor Name** |
| Tianen Song  Jaime Romero  Pavan Garidipuri | 2021  2019  2019 | [tsong1@exeter.edu](mailto:tsong1@exeter.edu)  [jromero@exeter.edu](mailto:jromero@exeter.edu)  [pgaridipuri@exeter.edu](file:///C:\Users\Song\Documents\Downloads\pgaridipuri@exeter.edu) | +86 139-1887-9914  +1 617-898-7470  +1-713-855-0963 | Timothy Mitropoulos  Jeffrey Ward  Russel Weatherspoon |

**Project Title:**

**Project Background/Overview:**

Please provide a concise description of your proposed project, including motivations, goals, and deliverables. Why are you interested in this project? What do you hope to learn/achieve by undertaking this project? What will the result of a successful completion of this project look like?

Our project is to build a drone submarine with 3D printing and arduino. Our motivation is merely our interest and our goal is to practice integrating our 3D modeling, programming and designing skills and apply them in our project. I am interested in this project because realizing a drone submarine requires a combination of physics principles which make it an interesting challenge for me. Besides, as a deliverable of our project, I think that Biology teachers would be happy to take my submarine with them in a field trip to a pond or a river to shoot photographs of amazing water creatures. As a result of our project, we should be not only able to build a submarine that demonstrates amazing speed and perhaps also flexibility which originate from its cigar shaped design, but also useful as a tool for scientific research.

**Project Affiliation:**

Is the proposed project affiliated with a class or club? If so, please explain.

Not really, but might be used in biology field trip as mentioned.

**Project Timetable:**

Please describe the timetable for this project. A strong application will include dated milestones for each stage of the proposed project (i.e. research, design, build, test, present, etc.)

Thanksgiving break:

-remote controller design 50%

-software 100%

-submarine shell design 100%

12/04 – 12/10

-build and test the ballast section

-first prototype printed out

-80% required pieces arrive

-remote controller 65%

-software tested, controlling system 20%

12/11 – 12/17

-ballast section refined for machines

-all electronic pieces of submarine put together for testing

-controlling system 50%

-remote controller 80%

12/18 – 12/24

* soldering und gluing of circuits
* final construction 20%
* remote controller 95%
* 100% pieces arrive
* controlling system 80%

Christmas break

* controlling system finished
* remote controller finished

1/4 – 1/7

* final construction 50%
* ballast section retest (under water real test)

**Project Budget:**

Please provide an itemized budget for your project as an attached spreadsheet.

**Space/Resources:**

What are the physical spaces where your project work will take place? Will your project require space and tools beyond what is currently available in the Design Lab? How should this be accommodated?

No space besides design lab.

**Mentorship:**

In what capacities do you foresee that you will need advising in your project? Please name any faculty and staff that will be advising your project and what you anticipate their role(s) to be. (Project advisors should be cc’d on the submission of this application).

Mr. Gallo has agreed to advise this project.

**Student requirements:**

In exchange for having a project sponsored by the Design Lab, students will be required to document and share their progress in any/all of the following ways:

-Contribute regular content to the Design Lab blog

-Participate in critiques with other Design Lab students

-Present completed work to a body of students and faculty

-Submit a written report upon project completion describing the results of your work

*By signing below, I indicate that I have read and understand the goals and expectations of student projects sponsored by the Design Lab. I will, to the best of my abilities, carry out the project proposed in this document to completion.*

Student signature(s):

Project advisor signature(s): X

Date of submission: 20171110