

Robotics Internship Proposal

Navigation Testing Rover

Introduction

Venturi Lab is a private Swiss company founded in February 2021 and headquartered in Corminboeuf, Switzerland. Led by a team of experienced engineers, we research, develop, design, and build new mobility hardware and materials that are resilient to the extreme environmental conditions that exist on the Moon and Mars.

Project Summary

To keep pushing the boundaries of science and exploration, modern planetary exploration robots need to go faster, travel farther, and survive for longer than ever before. Among other things, this means investigating novel sensors and developing new navigation algorithms. We are currently using a remote-operated vehicle (the “miniROV”, Figure 1) to perform small-scale real-world sanity-checks for our perception hard- & software in our lunar analog simulation chamber. The hastily assembled proto-miniROV requires a makeover to be more performant, reliable and user-friendly so the Navigation Team can test more rapidly.



Figure 1: The current proto-miniROV, based on an RC-car frame.

Your Internship

Working together with the Navigation Team, we would like YOU to look at the various improvements possible to the miniROV, and to design and implement a system which fits the mission requirements. Possible improvements might include:

- Improved battery management (power circuits & PCB design)
- Improved structure (CAD & rapid prototyping)
- Improved sensor integration + new sensors (communication & drivers)
- Better resistance to dust & other contaminants

Due to size constraints, this project might be more challenging than it initially seems, and will require a lot of autonomy; however, we are willing provide you a lot of operational freedom and are open to discussion on the exact scope of the project.

Contact

If you are interested in both high-level system design and low-level implementation, and would like to work on a very cool little project, reach out to michael.biselx@venturilab.ch

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