

Project Synopsis:

Short Title: Autonomous Drone Framework

Title: Publishing/Deploying a Framework for Controlling Autonomous Drones

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Suggested team size: 3-5? 4-5?

Logistics: On-campus

Project Description:

Drones are becoming more common both as a research tool and for hobbyists. The capability for drones to autonomously with low effort from the end user is vital to maintaining productivity in a research environment and lowering the barrier for entry for hobbyists. There are no current existing frameworks which allow end users to control drones without the need for more complex programming patterns. Thus, a framework was developed during a previous field session which allows drones to be controlled autonomously with ease.

The project being offered for the CS Field Session Fall 2022 targets developing, deploying, and publishing this framework for controlling autonomous drones. The students will have the opportunity to work with a physical and simulated system while testing and deploying the system. They will be able to work with Docker containers, Github workflows, and package managers (such as Python package installers). The final goal of the project is to have the framework be a fully featured Python package available for install through PyPI. Along with the deployment, examples and Docker containers will be other end goals of the project.

Desired Skills:

Following skills are a plug but not necessarily required:

- MAVLink or other drone-communication protocols
- Gazebo simulator
- Python and Python packaging

Expected Outcome:

At the end of the project, the team is expected to have a published version of the drone control framework on PyPI. Alongside this the team is expected to have put together examples and Docker containers for end users.