



CROPP: CUBESAT RESEARCH OF PLANT PLATFORMS

Computer Science Contribution 2021-2022

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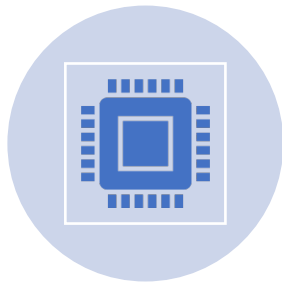
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Client: NASA

GOALS AND MOTIVATION

The goal of the project is for NASA to test plant pathogens in space without risking health of astronauts on a manned mission. Testing on the ISS for example can potentially put the crew at risk. The isolated CubeSat provides a test bed incapable of doing harm.

APPROACH



Using FlatSat STEM Kit to control on board environment with Arduino which is natively supported by FlatSat.



Control and communicate with the CubeSat by using Fox in a Box with Raspberry Pi ready open-source software.



Create a camera system to monitor plants and provide results of the experiments.



Design these elements along with area for the plants to grow inside the CubeSat size requirements.

TECHNICAL CHALLENGES

FlatSat Kit and Fox in a Box are both hardware and software that is new to me.

I have worked with Arduino and Raspberry Pi but how these softwares interact with them will be something I have to learn.

Getting all the hardware to work together and using breadboards.

PROJECT MILESTONES

Milestone 1: Gaining familiarity with FlatSat and Fox in a Box and creating small demos. Creating Requirement and Design Documents with a Test Plan.

Milestone 2: Some FlatSat functionality. Having better understanding of the direction CubeSat project will be going with AEE members.

Milestone 3: Have Arduino and Raspberry Pi working for demos locally. Get FlatSat hardware modules working.