



3D Synthetic Aperture Radar on an Unmanned Aerial Vehicle

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Mission Statement

The goal of the project is to implement synthetic aperture radar (SAR) on an unmanned aerial vehicle (UAV). The system will be capable of collecting radar scans and positional data to generate 3D imagery for potential military reconnaissance by May 2015.



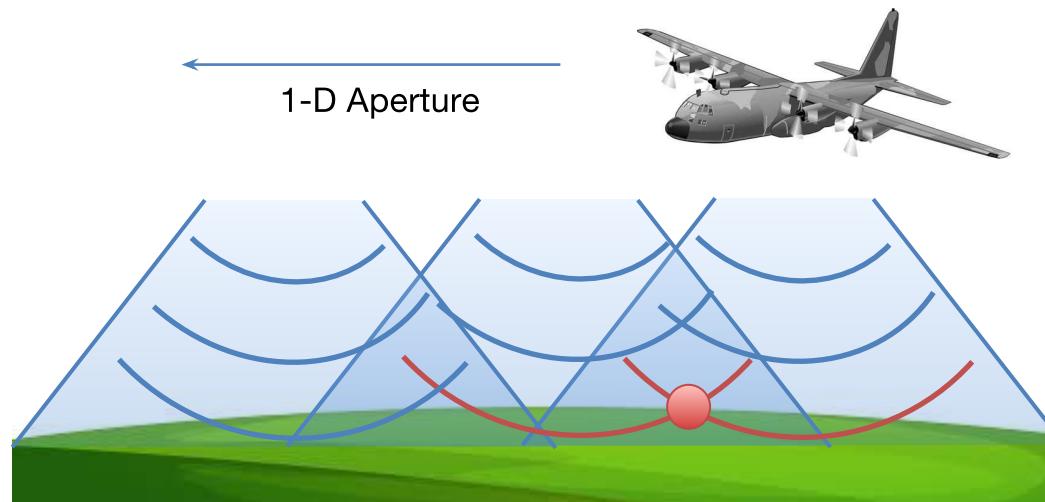
Project Overview: The Value





Intro to Synthetic Aperture Radar (SAR)

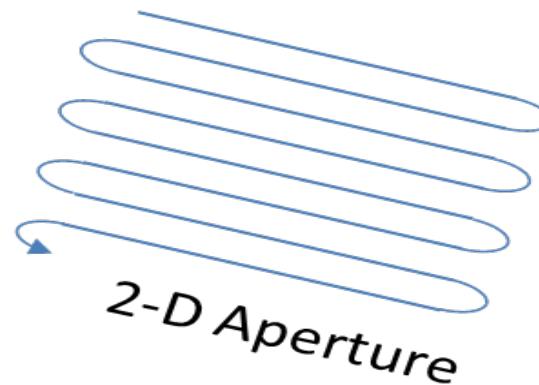
2D SAR





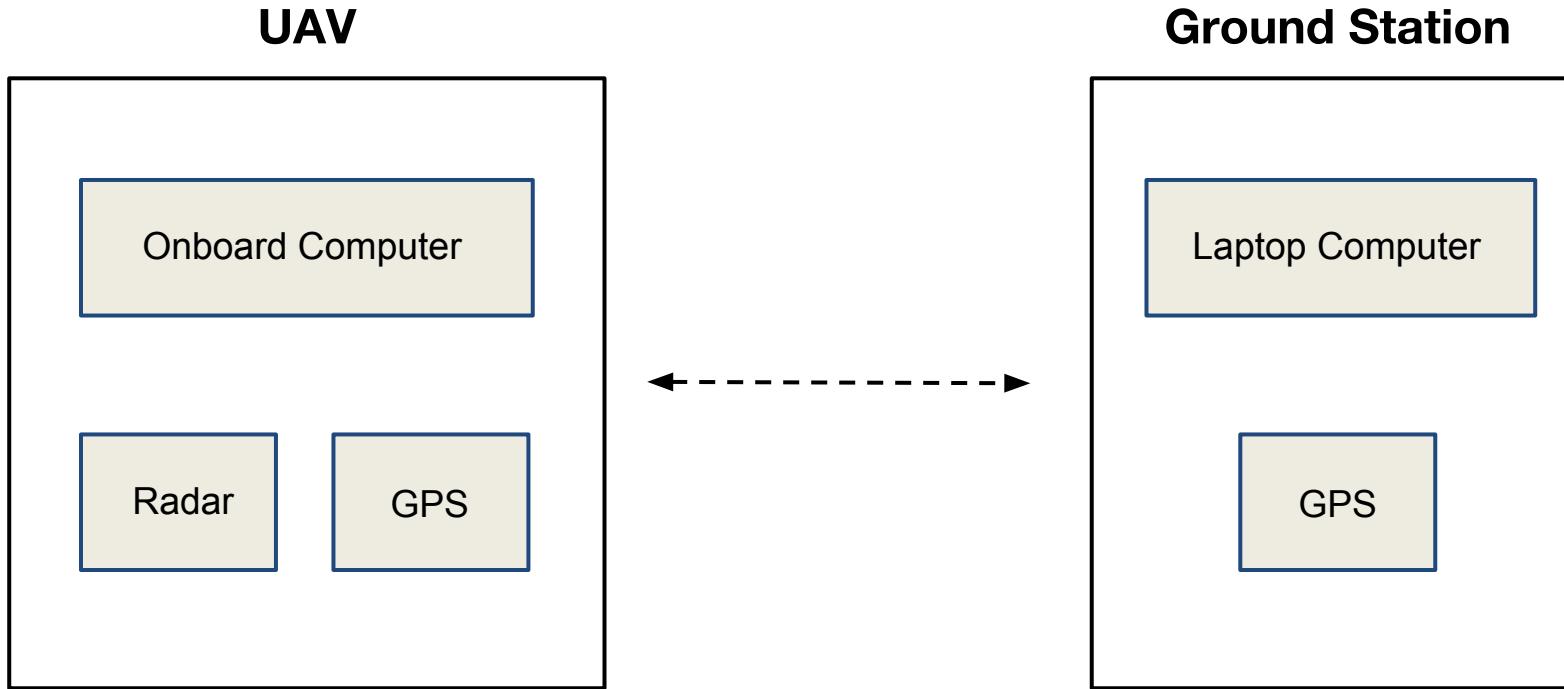
Intro to Synthetic Aperture Radar (SAR)

3D SAR



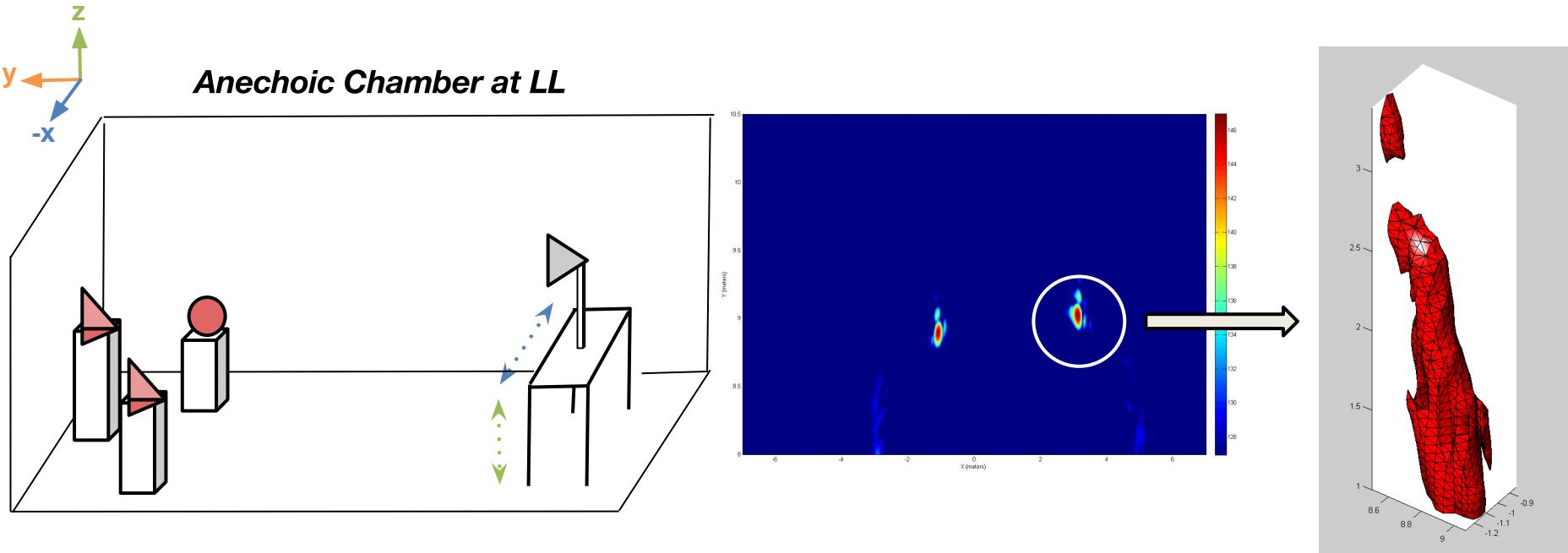


System Overview



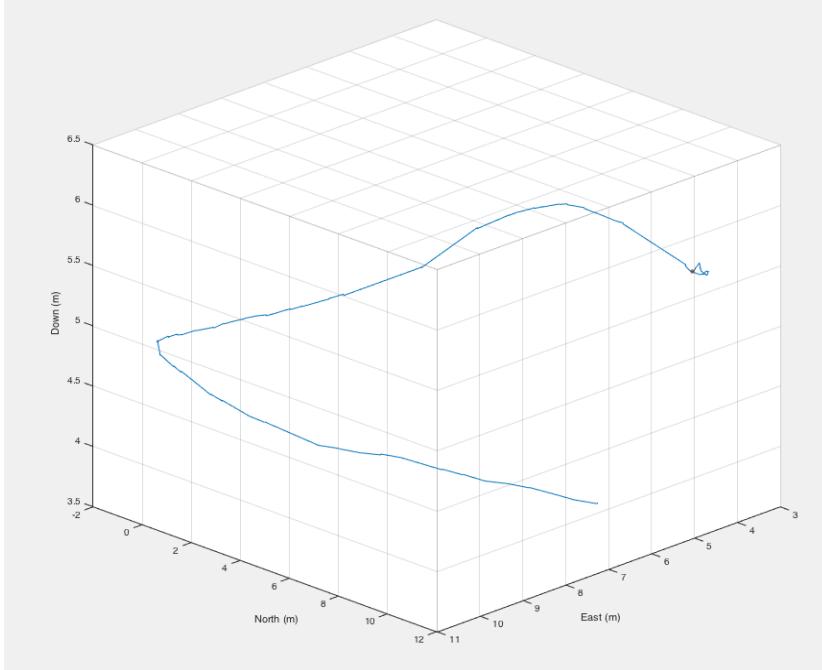


Imaging Results





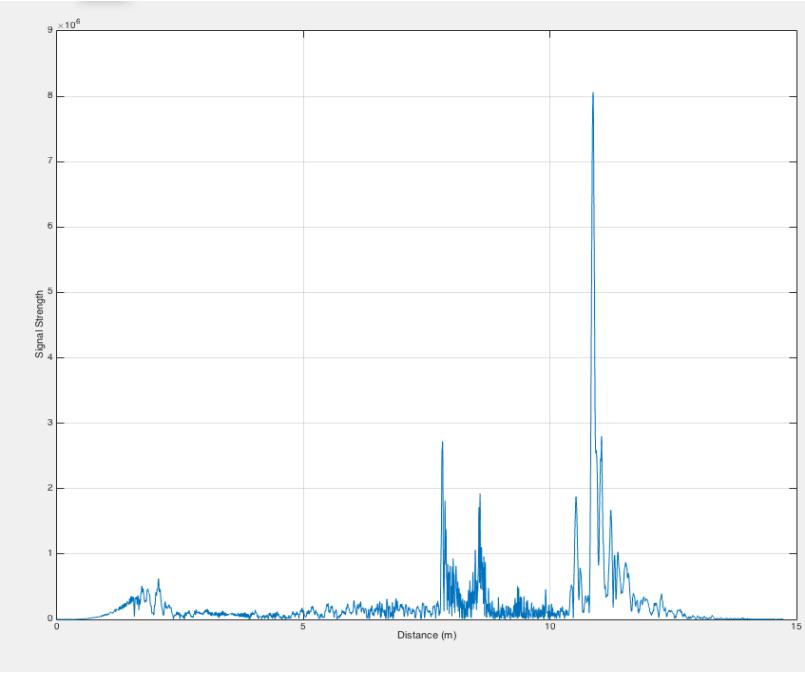
Platform Results



UAV Flight Path



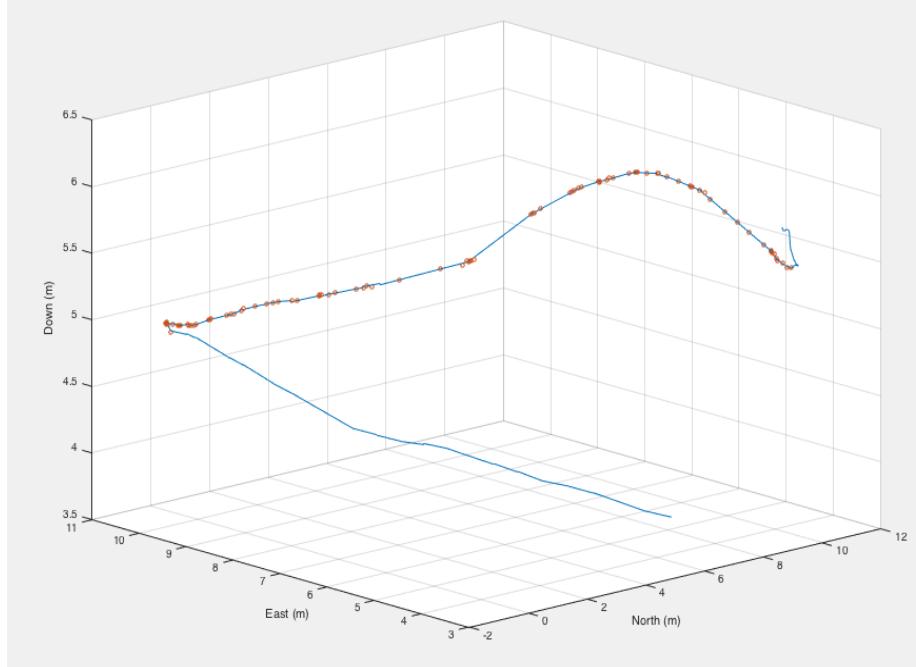
Platform Results



Radar scan return



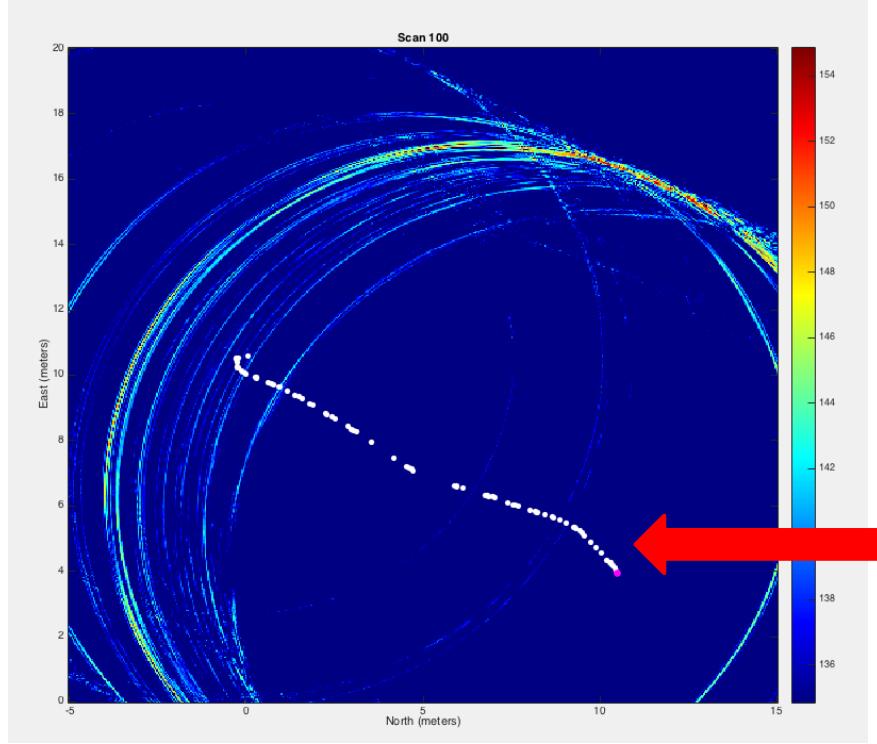
Platform Results



Radar return data along flight path

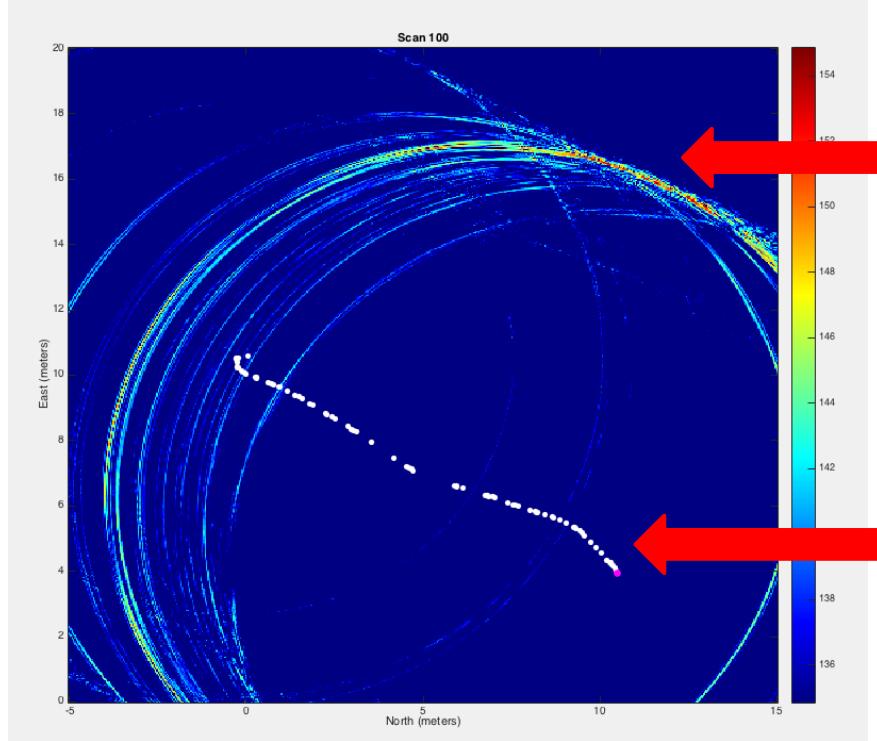


Platform Results





Platform Results



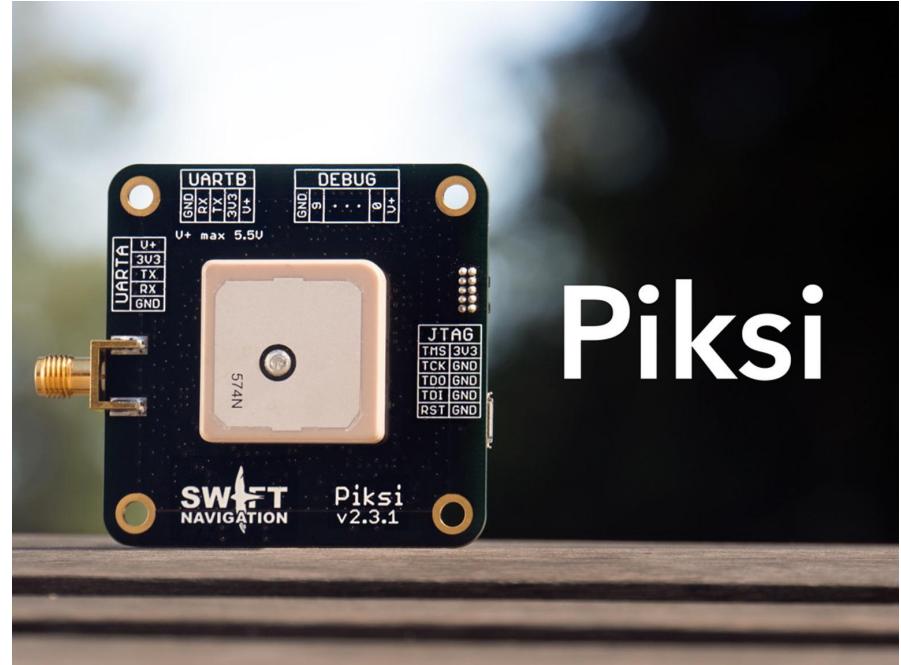
Radar reflections off of scoreboard

Aperture - path of the UAV



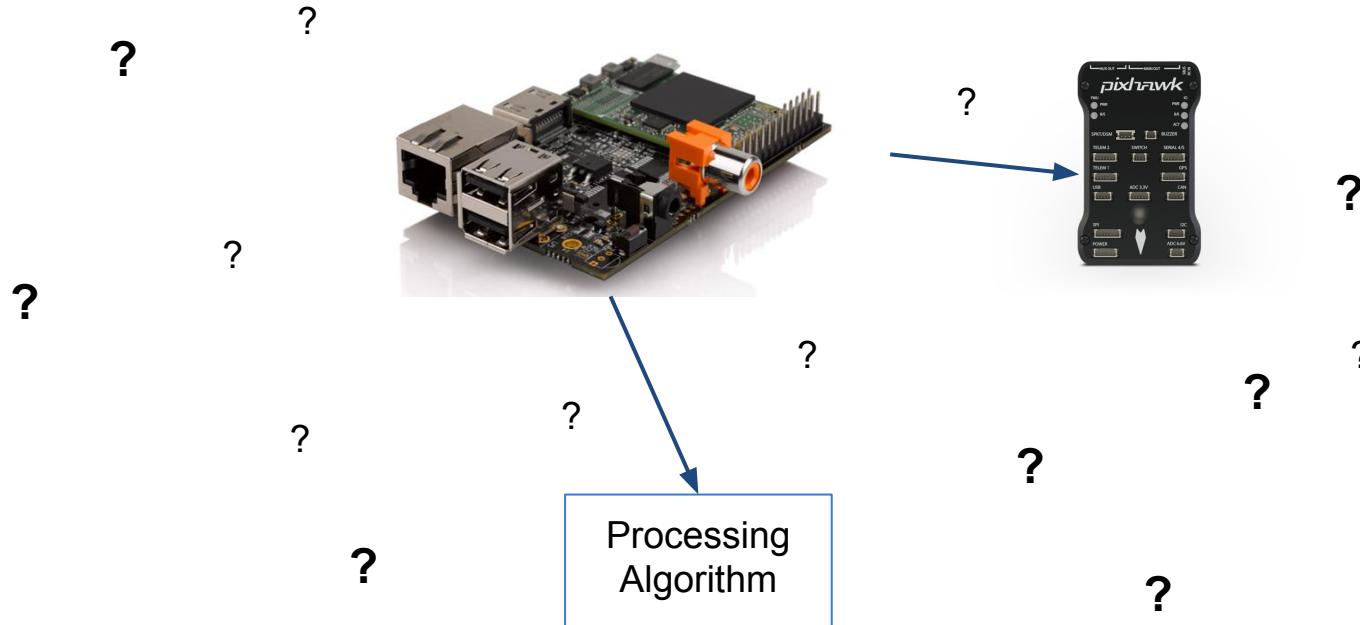
● Our Challenges

KICKSTARTER



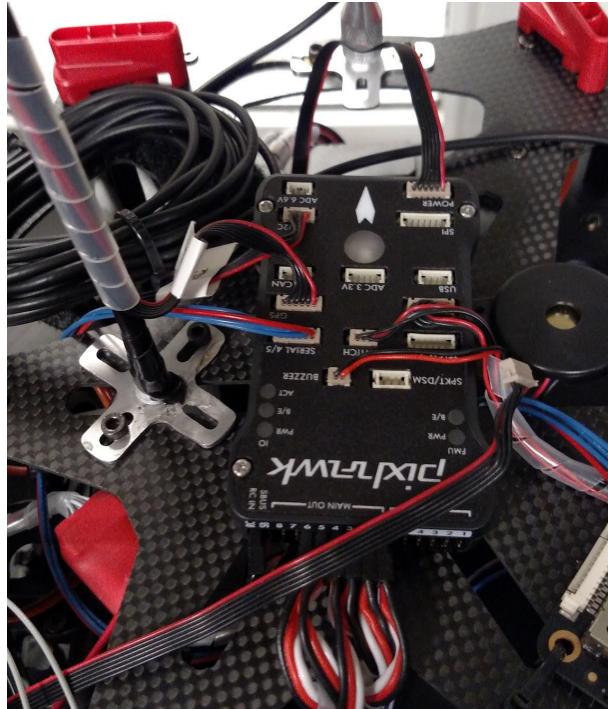


● Our Challenges





● Our Challenges





● Our Challenges





Lessons Learned

- Problem Solving
- Time management
- Team within a team





Ethical Inquiry

Mike Keefe/TOON.COM 5-18-12 caglecartoons.com





Impact

Impact on sponsor

- Created modular platform that allows for further expansion of the project

Impact on society

- First application of a radar on a UAV to assist military and disaster response teams





Questions?



Thank you!

