



DRAPER

# Visualizing UAV Data

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*August 16, 2018*

Draper Proprietary

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# Background

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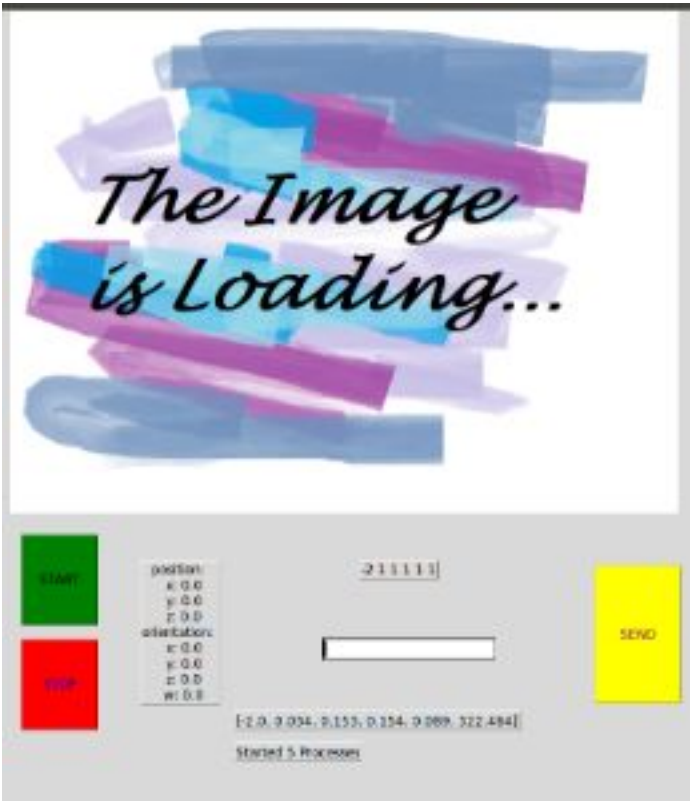
**Purpose:**

***Create a front end for the SB-ISR ROS System***

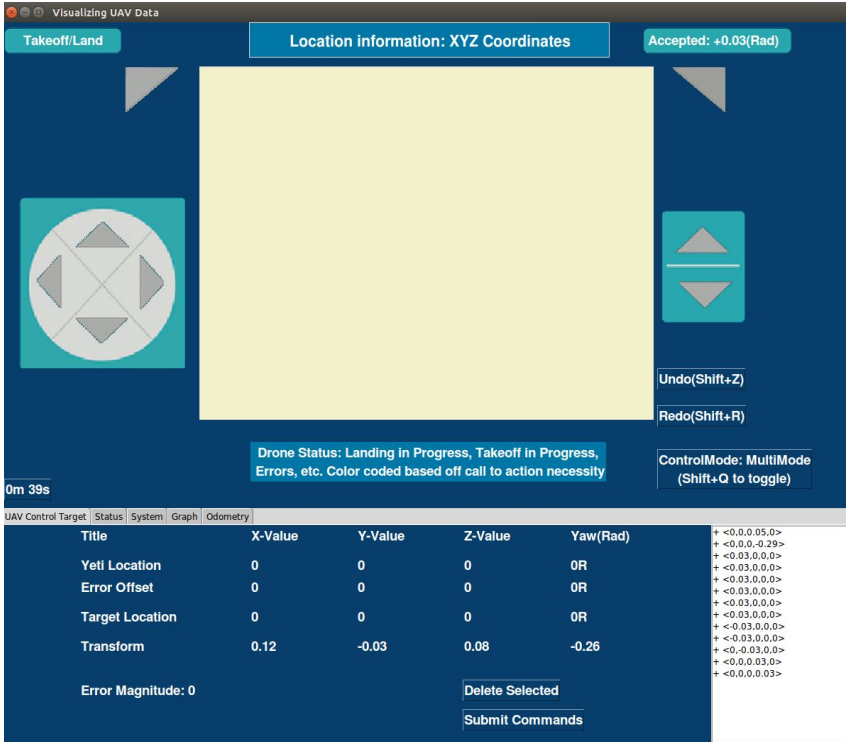


# Developmental Stages

Before



After



# Features

Control

Camera Feed

Control

Odometry

Visualizing UAV Data

Takeoff/Land

Location information: XYZ Coordinates

Accepted: +0.03(Rad)

Drone Status: Landing in Progress, Takeoff in Progress, Errors, etc. Color coded based off call to action necessity

ControlMode: MultiMode (Shift+Q to toggle)

0m 39s

UAV Control Target | Status | System | Graph | Odometry

Title	X-Value	Y-Value	Z-Value	Yaw(Rad)
Yeti Location	0	0	0	0R
Error Offset	0	0	0	0R
Target Location	0	0	0	0R
Transform	0.12	-0.03	0.08	-0.26
Error Magnitude: 0				

Delete Selected

Submit Commands

Undo(Shift+Z)

Redo(Shift+R)

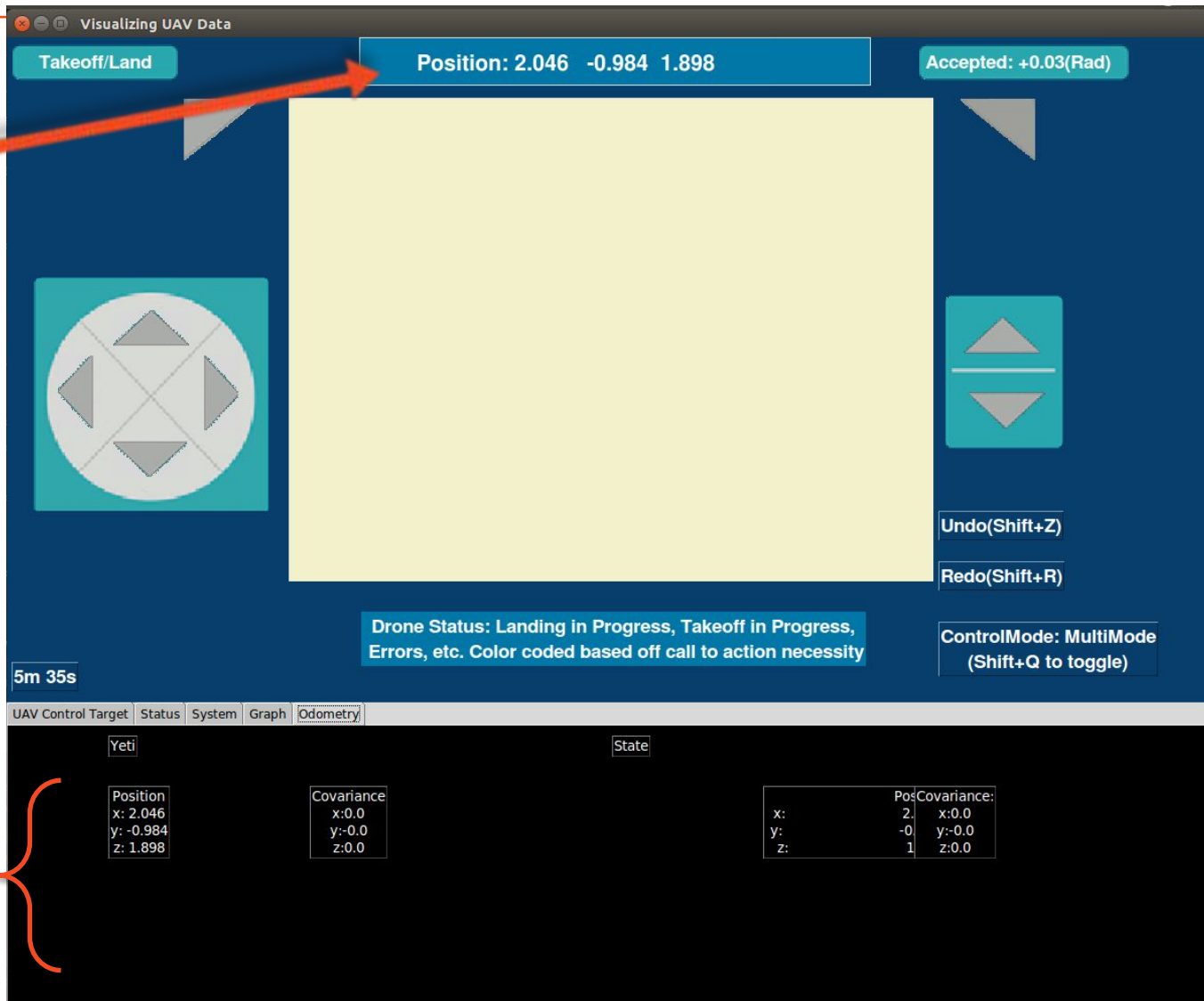
+ <0.0,0.05,0>  
+ <0.0,0,-0.29>  
+ <0.03,0.0,0>  
+ <0.03,0.0,0>  
+ <0.03,0.0,0>  
+ <0.03,0.0,0>  
+ <0.03,0.0,0>  
+ <0.03,0.0,0>  
+ <-0.03,0.0,0>  
+ <-0.03,0.0,0>  
+ <-0.03,0.0,0>  
+ <-0.03,0.0,0>  
+ <0.0,0.03,0>  
+ <0.0,0.03,0>

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# Features

Position



Odometry

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# Features

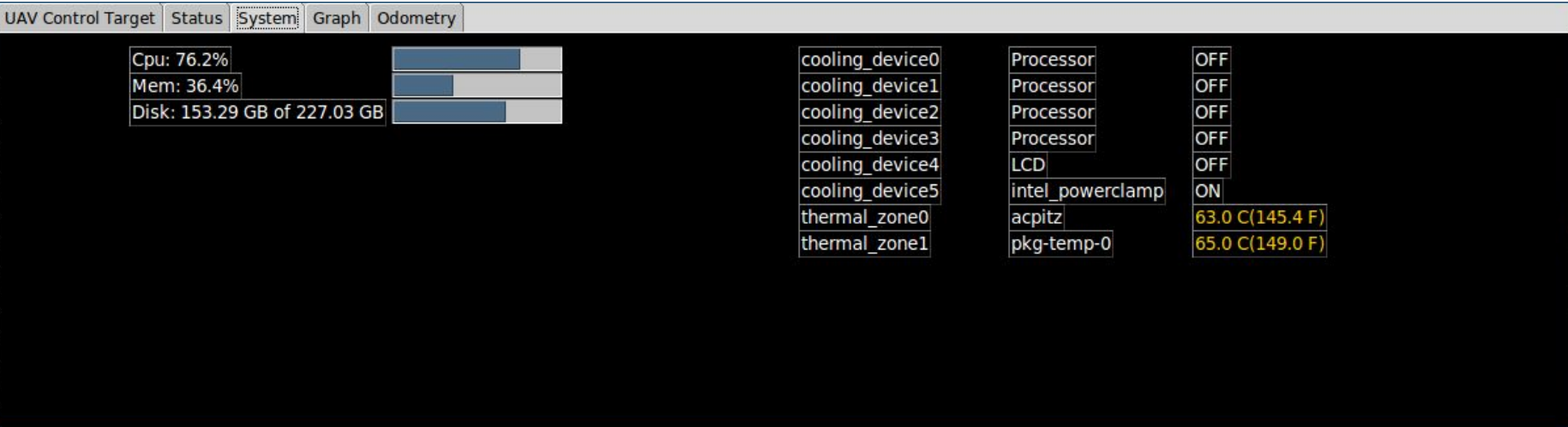
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## Processes and Status

UAV Control	Target	Status	System	Graph	Odometry
		Status	Last Ping		
<div>START</div> <div>STOP</div>	Camera	1	running	119ms	
	Proc 2	2	running	121ms	
	Helper	3	running	188ms	
	Controls	4	running	79ms	
	Paper	5	running	414646218ms	

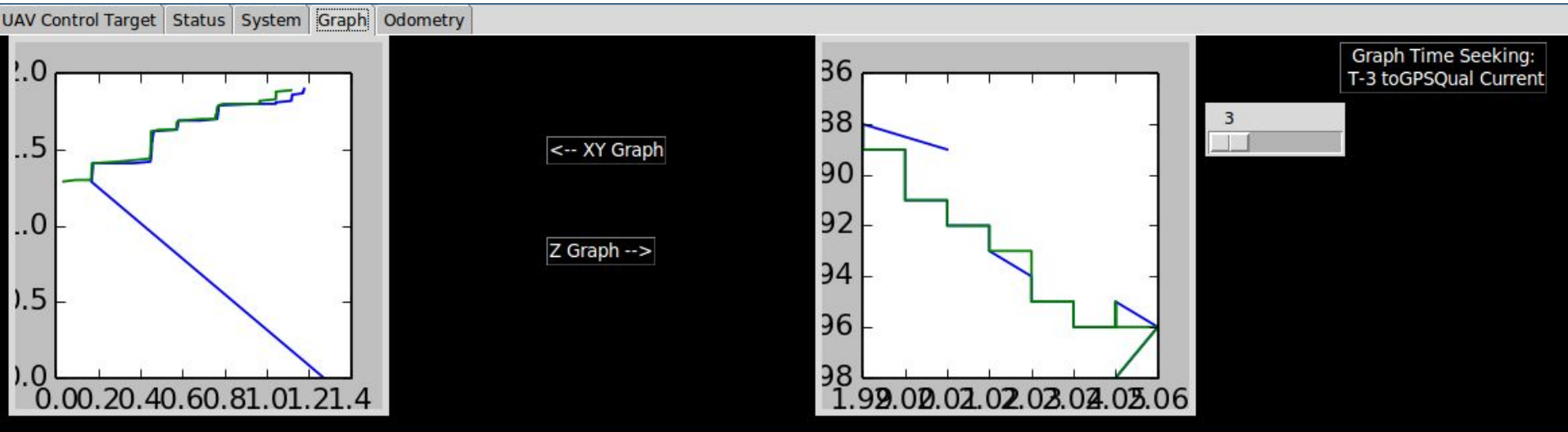
# Features

## System



# Features

## Graphs





# Challenges

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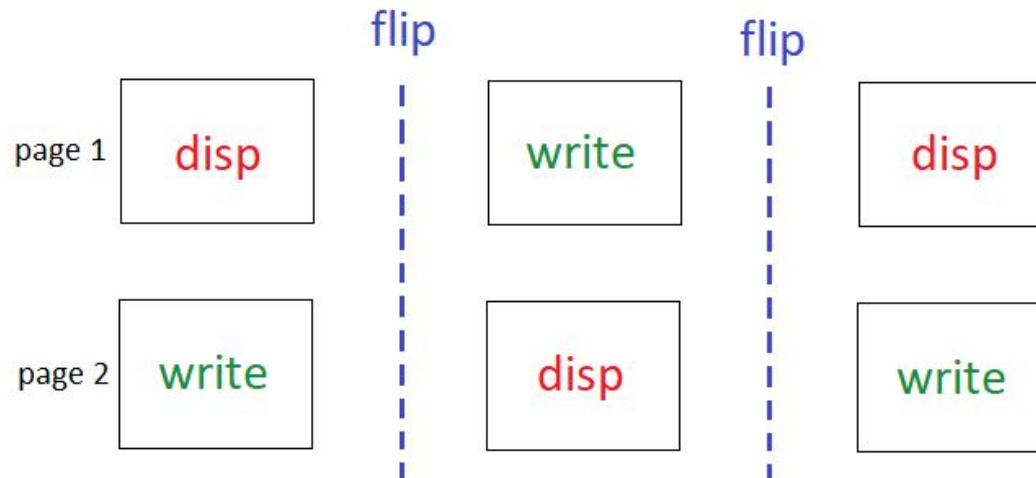
- Lilac/groundstation
  - Understanding and adding to the preexisting code library by publishing to groundstation
- Transform and visualize collected data from UAV camera feed
- Synchronizing state control and yeti control
- Producing a lightweight control system

# Challenges

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- Camera:

- Parsing the image in feasible time
  - Fix image feed flickering



# Future Developments

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- Integrate it into the SB-ISR procedure
  - Measuring performance of the GUI
- Generate 3D displays from the UAV cameras
- Use different methods of visualizing the odometry and processes

# Acknowledgments

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- We would like to thank...

- Alex Helderman — Task Lead
- Members of the SB-ISR project
- Ashley Gard — High School Internship Program Coordinator
- Elizabeth Marr — High School Internship Program Coordinator
- Tina Lung — High School Internship Program Coordinator
- Martha Porter — Education Program Administration
- Sheila Hemami — Director of Educational Programs
- Office of Education
- William McFarland and Kevin Duda — Tour Guides
- Alla Gimbel, Olive Rappoli, and Alejandro Miranda — Panelists