

GUST Sprint #3

GROUND CONTROL STATION FOR UNCREWED SWARMS AND
TEAMS



Nick Warren

Jacob Stock

Ricardo R-C

James Montgomery

Cameron Acree

GitHub: <https://github.com/rickycr123/GUSTv2>

Website: <https://rickycr123.github.io/GUSTv2/>

What is GUST?

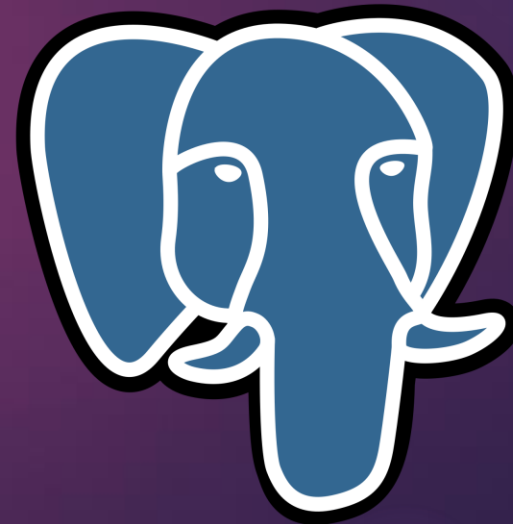
- ▶ Multiplatform ground control station for autonomous aerial vehicles
- ▶ Written in React + Python FastAPI + PostgreSQL
- ▶ Runs on Docker container
- ▶ Designed as an open-source alternative to Mission Planner that supports large groups of vehicles
- ▶ Path Design, Live Telemetry, Flight Controls

Major Functionality

- ▶ Live telemetry streaming, including air speed, altitude, heading, and GPS position
- ▶ Individual path design
- ▶ Swarm maneuver design
- ▶ Flight command and execution
- ▶ Return to home functionality

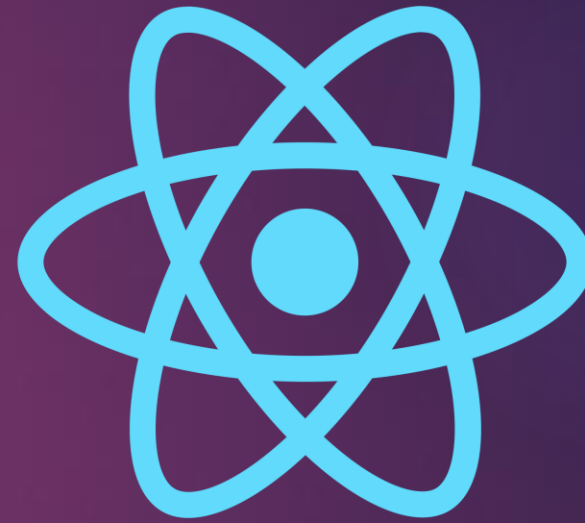
James Montgomery

- ▶ Initial database design (swarm, drone, program)
- ▶ Database helper functions to modify and access database
- ▶ Partial integration with FastAPI
- ▶ Functionality improvements



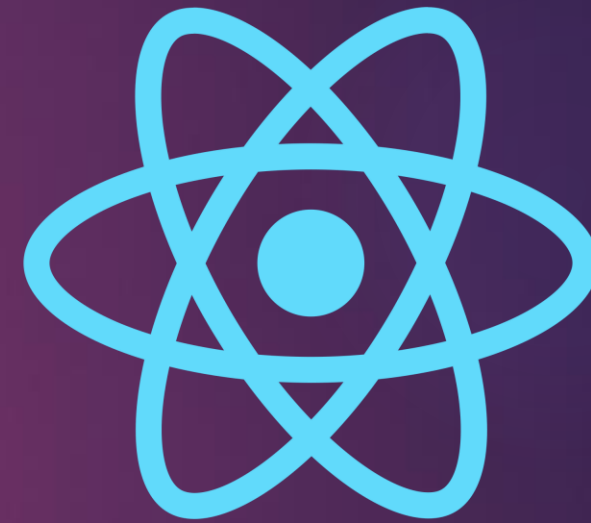
Jacob Stock

- ▶ Telemetry screen implementation
- ▶ React App design
- ▶ FastAPI integration
- ▶ Docker Work



Ricardo RC

- ▶ Planning screen implementation
- ▶ Connection screen implementation
- ▶ React App design
- ▶ Drone Tests
- ▶ FastAPI integration



Nick Warren

- ▶ Fast API Server and Endpoints
- ▶ Database and API Integrations
- ▶ Drone hardware testing



Cameron Acree

- ▶ Background code and sim testing
- ▶ Help with drone flight



GAZEBO

Sprint 3 Backlog

ID	Story
34	Dragon Link hardware testing
35	Connection Screen Implementation
36	Telemetry page refactor
37	Telemetry page maneuver list
38	Telemetry page ARM functionality
39	Dragon Link takeoff/land
40	Dragon Link seek to waypoint
41	Doodle Labs takeoff/land
42	Doodle Labs seek to Waypoint
43	Planning Screen Point table
	Planning screen maneuver
44	integration
45	Connection enumeration
46	Connection configuration + refresh
47	Direct connect w/ connection string
48	Saved connections
49	Telemetry screen flight controls
50	Telemetry screen E-Land
51	Telemetry screen return to home



Live Demo