

MICHIGAN STATE

U N I V E R S I T Y

Beta Presentation Flight Simulator Suite

The Capstone Experience

Team Boeing

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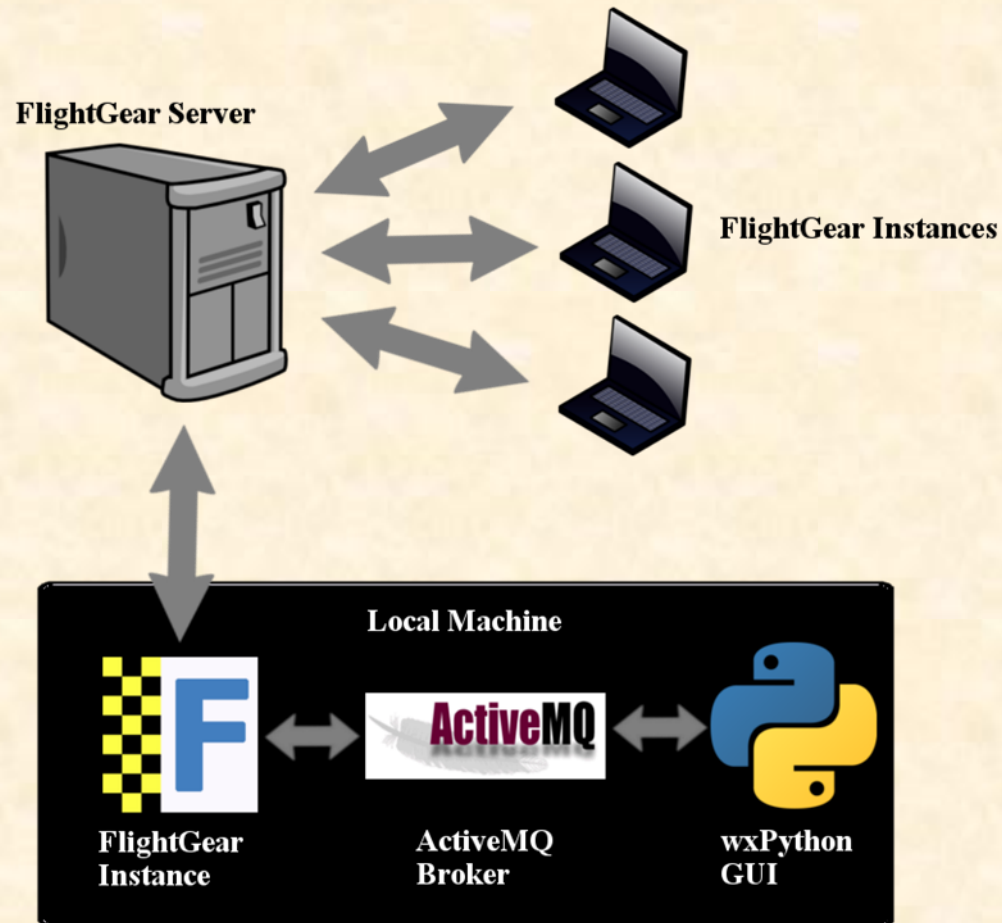
*From Students...
...to Professionals*

Project Overview

- Inter-process communication using message queuing
- Improve usability of open source software through the a series of Python GUIs
- Incorporate custom physics engine
- Allow future developer to use his or her program in conjunction with Flight Simulator Suite through the message queuing



System Architecture



GUI

The screenshot displays a flight simulator interface with a central map of the San Francisco Bay Area and two side panels. The left panel contains 'Environment Info' and 'Select A Flight:' sections. The right panel contains 'Flight Info'.

Environment Info

- Station ID: KSF0
- Temperature: 68.0249 Deg F
- Wind Speed: 3.00792 Knots
- Wind Direction: 150.044 Deg
- Air Pressure: 29.9729 inHg

Select A Flight:

- Player
- Samudra
- DOM
- ER-REF
- KORM_TW
- BAL
- KSF0_TW
- FP-MDL
- JeanME

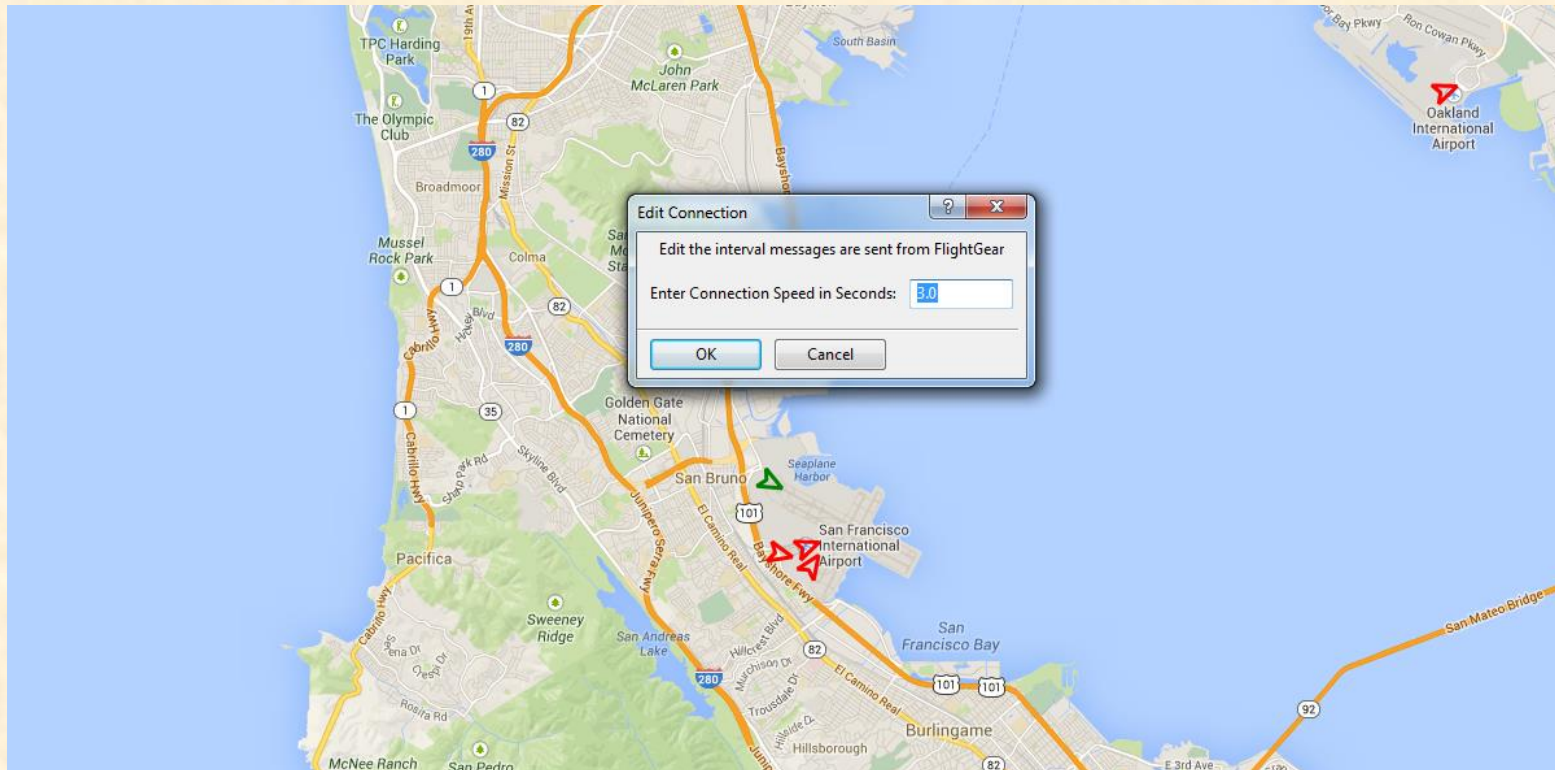
Flight Info

- Flight Name: Player
- Latitude: 37.6287 Deg - Longitude: -122.393 Deg
- Speed: 2.52338 Knots
- Heading: 117.888 Deg
- Altitude: 6.01734 Ft?
- Current Fuel: 38.1865 Gals?
- Total Fuel Capacity: 56.0606 Gals?
- Flight Time: 0:10:05.099000
- Current Time: 2014-03-30 19:02:17.312000

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Message Interval



Flight Logs

Log

FLIGHT LOG

CURRENT FLIGHT (Flight# 1)

Flight Name: Dom

Flight Started at: 2014-03-30 18:59:31.950000

ENTRY 1: Time: 2014-03-30 18:59:31.950000, Latitude: 37.6234, Longitude: -122.105

ENTRY 2: Time: 2014-03-30 19:00:31.230000, Latitude: 37.5864, Longitude: -122.057

ENTRY 3: Time: 2014-03-30 19:01:30.509000, Latitude: 37.5443, Longitude: -122.005

ENTRY 4: Time: 2014-03-30 19:02:29.789000, Latitude: 37.4985, Longitude: -121.95

ENTRY 5: Time: 2014-03-30 19:03:29.071000, Latitude: 37.4515, Longitude: -121.895

ENTRY 6: Time: 2014-03-30 19:04:28.350000, Latitude: 37.3989, Longitude: -121.836

ENTRY 7: Time: 2014-03-30 19:05:27.632000, Latitude: 37.3426, Longitude: -121.776

Log

CURRENT FLIGHT (Flight# 1)

Flight Name: Player

Flight Started at: 2014-03-30 18:52:12.338000

ENTRY 1: Time: 2014-03-30 18:52:12.338000, Latitude: 37.6136, Longitude: -122.357

ENTRY 2: Time: 2014-03-30 18:53:11.620000, Latitude: 37.6287, Longitude: -122.393

ENTRY 3: Time: 2014-03-30 18:54:10.900000, Latitude: 37.6287, Longitude: -122.393

ENTRY 4: Time: 2014-03-30 18:55:10.181000, Latitude: 37.6287, Longitude: -122.393

ENTRY 5: Time: 2014-03-30 18:56:09.460000, Latitude: 37.6287, Longitude: -122.393

ENTRY 6: Time: 2014-03-30 18:57:08.742000, Latitude: 37.6287, Longitude: -122.393

ENTRY 7: Time: 2014-03-30 18:58:08.021000, Latitude: 37.6287, Longitude: -122.393

ENTRY 8: Time: 2014-03-30 18:59:07.301000, Latitude: 37.6287, Longitude: -122.393

ENTRY 9: Time: 2014-03-30 19:00:06.581000, Latitude: 37.6287, Longitude: -122.393

ENTRY 10: Time: 2014-03-30 19:01:05.860000, Latitude: 37.6287, Longitude: -122.393

ENTRY 11: Time: 2014-03-30 19:02:05.142000, Latitude: 37.6287, Longitude: -122.393

ENTRY 12: Time: 2014-03-30 19:03:04.424000, Latitude: 37.6287, Longitude: -122.393

ENTRY 13: Time: 2014-03-30 19:04:03.702000, Latitude: 37.6287, Longitude: -122.393

ENTRY 14: Time: 2014-03-30 19:05:02.980000, Latitude: 37.6287, Longitude: -122.393

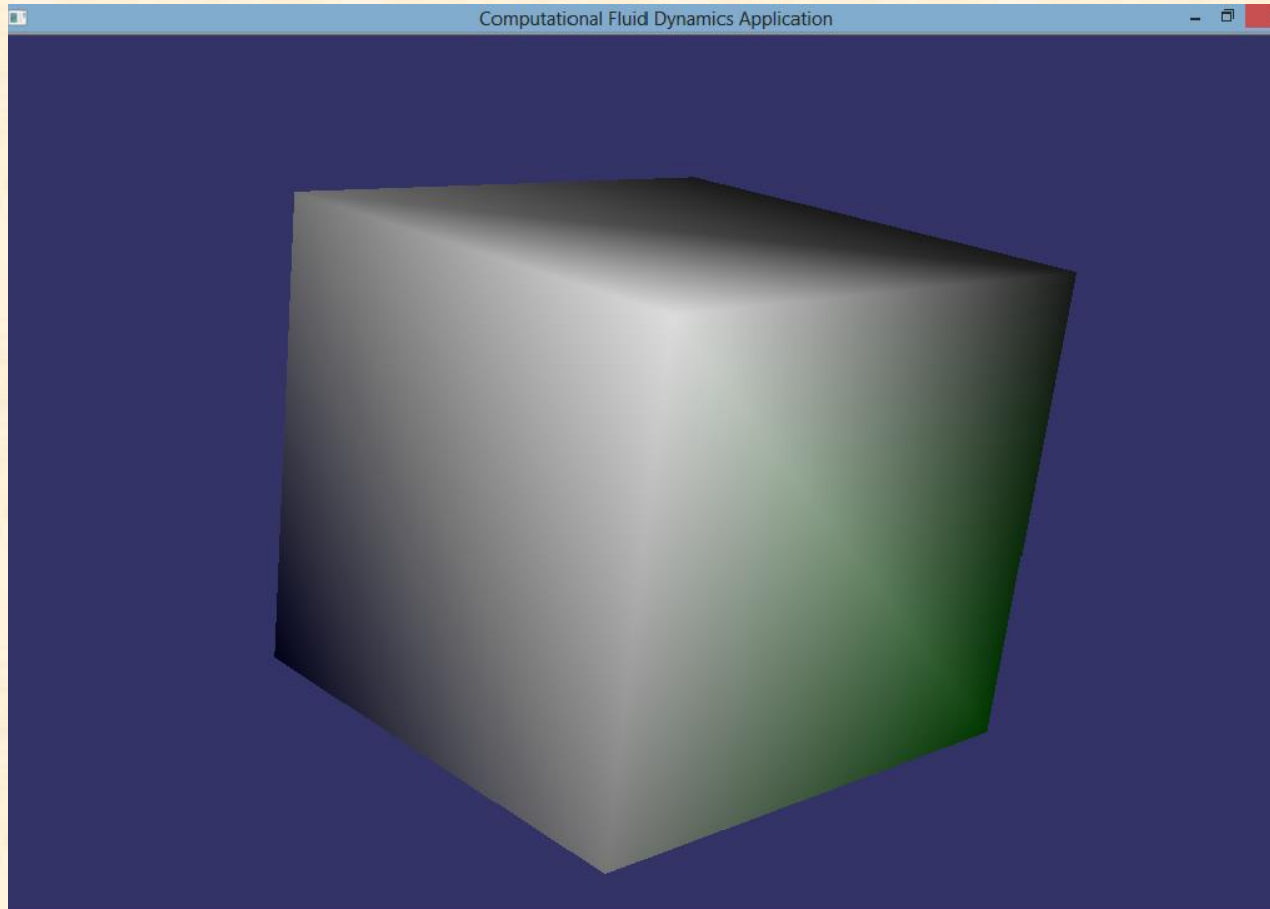
A Flight:

Flight Info

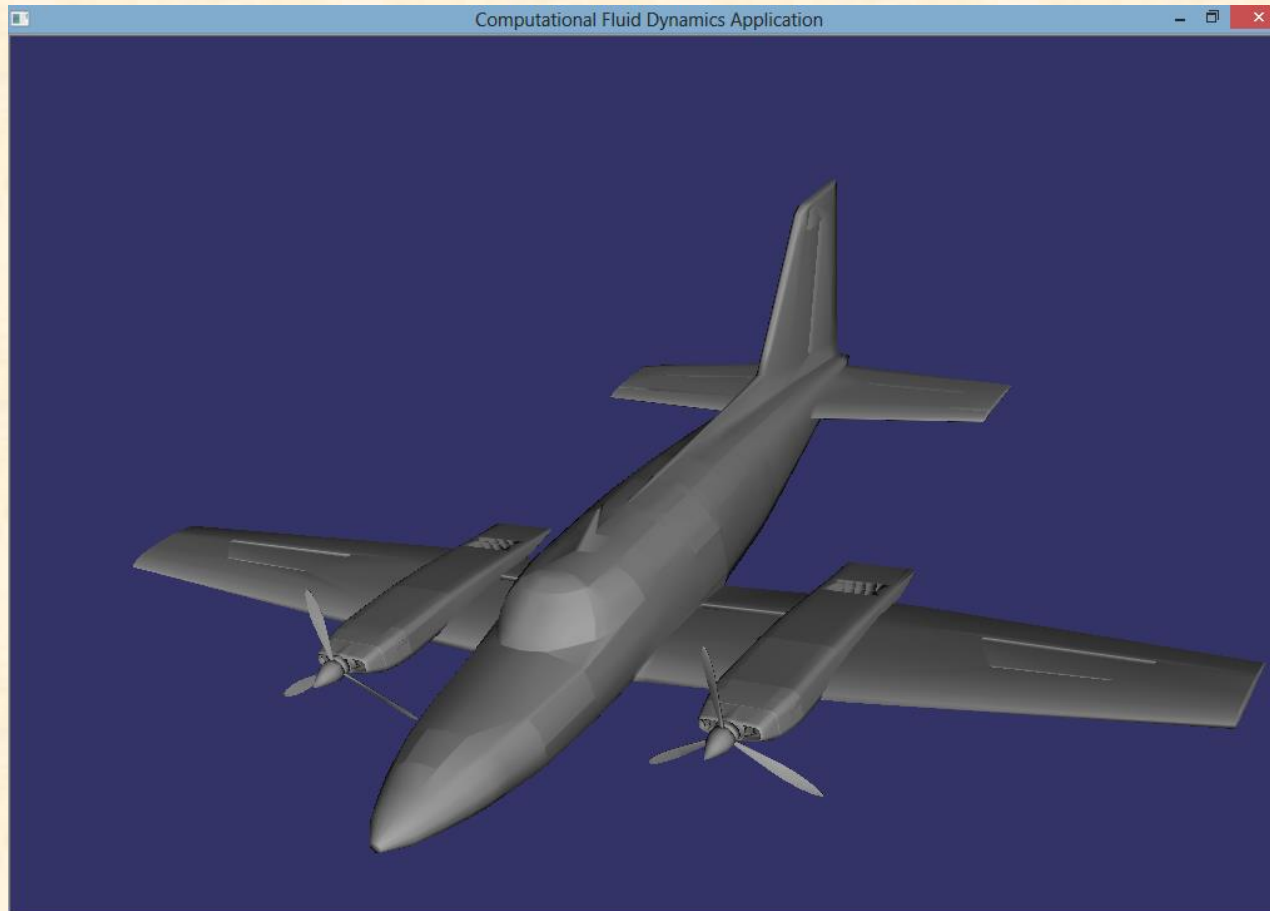
- Flight Name: Player
- Latitude: 37.6287 Deg - Longitude: -122.393 Deg
- Speed: 2.52338 Knots
- Heading: 117.888 Deg
- Altitude: 6.01734 Ft?
- Current Fuel: 38.1865 Gals?
- Total Fuel Capacity: 56.0606 Gals?
- Flight Time: 0:15:08.989000
- Current Time: 2014-03-30 19:07:21.203000



Fluid Dynamics Cube



Plane Mesh



What's left to do?

- Physics/Graphics
- Polish GUI
- Testing

