Automated Drone Navigation with Cognitive Architecture

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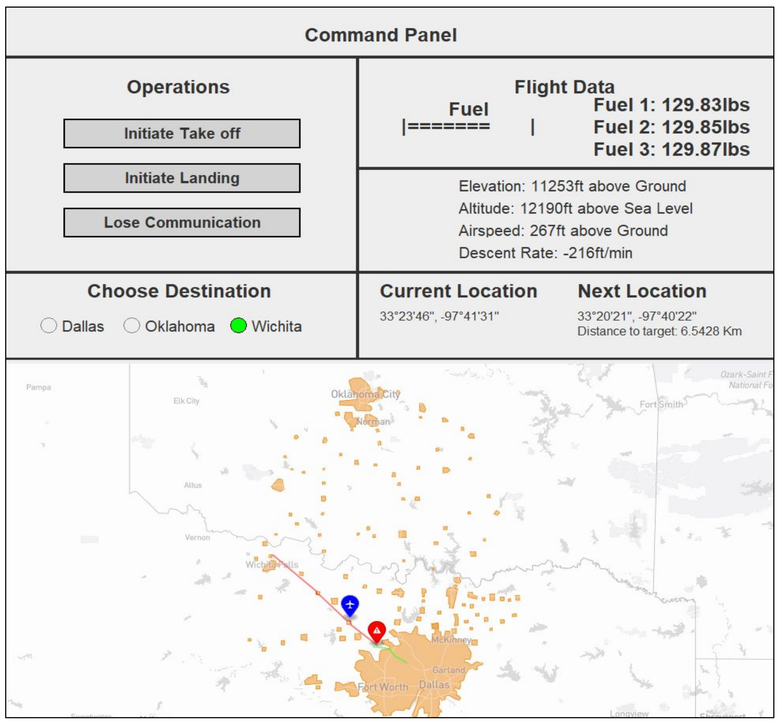
NORTHROP GRUMMAN

ENGINEERING & SCIENCE STUDENT DESIGN SHOWCASE

FLORIDA TECH

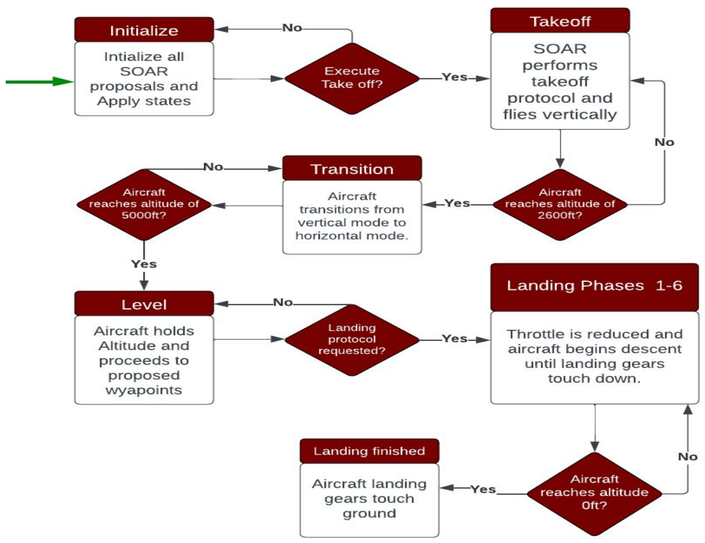
GUI



Map

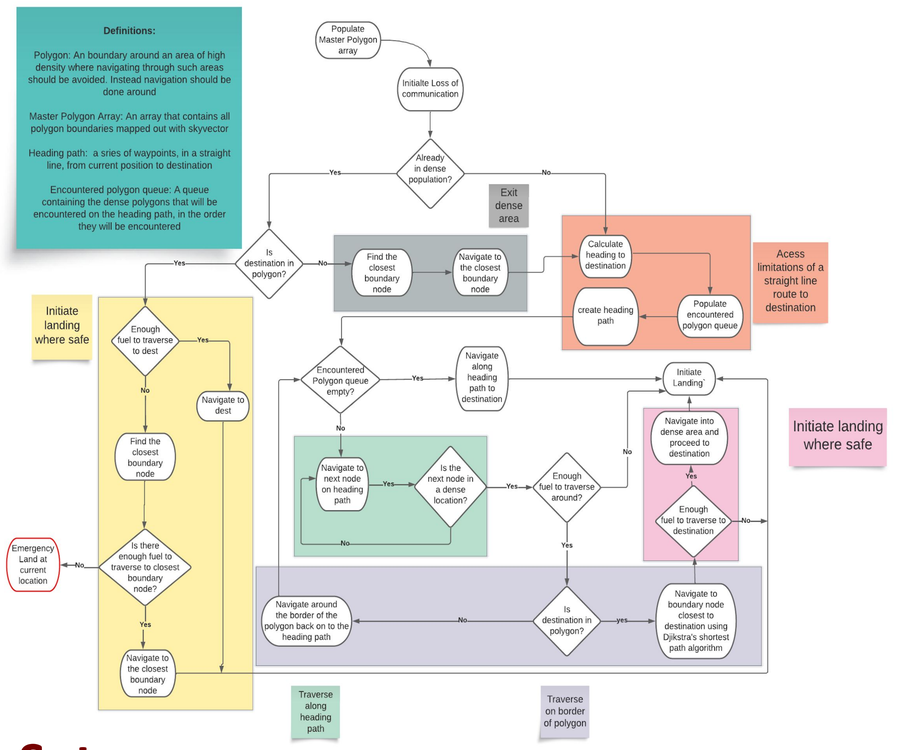
The map is integrated onto the GUI using the MapBox API. Overlays are displayed to show current position, path already travelled, location of communication loss, and path that the traversal algorithm computed after loss of communication.

SOAR Architecture Diagram



Goal

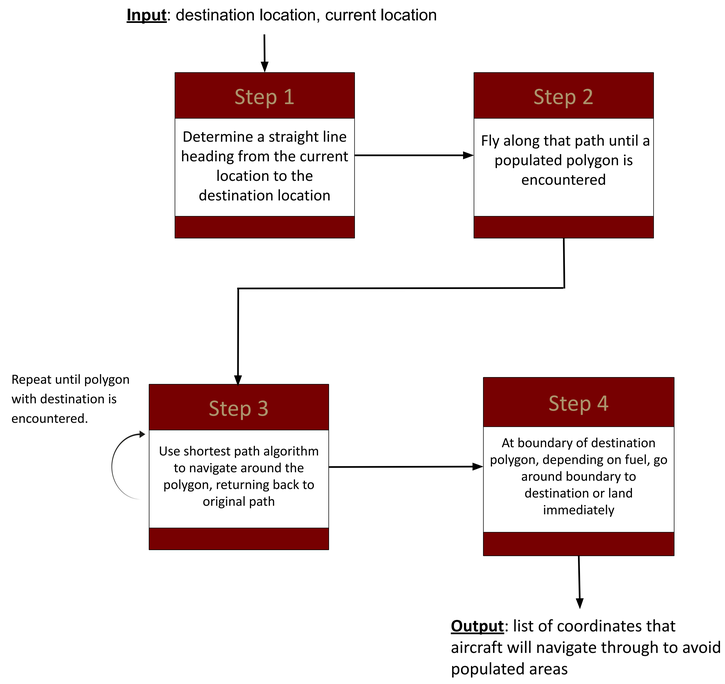
The AW609 poses a risk to public safety if it loses connection to the command center. Our task is to provide automated navigation in the event of a total loss of connection with the overall goal of returning back to the designated landing site safely while navigating densely populated cities.



Setup

The user can manually control the aircraft until loss of communication which transfers the control to the program

Path Finding Algorithm



Future Work

- Incorporate machine learning to better predict path based on previous flight data
- Incorporate weather factors that may affect flight

System Architecture Diagram