Cognitive-Driven UAS
Justin Swanson, Christopher Norton
Faculty Advisor(s): Siddhartha Bhattacharyya, Dept. of EECS, Florida Institute of Technology
Graduate Student Advisor(s): Parth Ganeriwala, Dept. of EECS, Florida Institute of Technology

Goal
To provide enhanced safety when operating Remotely Piloted Aircraft Systems (RPAS) in close proximity to people by developing autonomous navigation capabilities while minimizing risk to people on the ground, and avoiding hazardous weather.

Previous Approaches
- Check and repair navigation, to avoid densely populated areas described as highly populated areas in flight maps.
- Augment check and repair, to include polygons representing weather formations. Weather data retrieved from weather API, and convex hull implemented to build polygons from data.

Our Approach
Previous approach relied heavily on manual data construction, as populated areas were manually described by enclosing polygons.

Transform project to use population database, and retrieve weather data from data providers.

Data Processing Pipelines
- Implementation of various pathfinding strategies
- Reinforcement learning with the SOAR agent to discover which factors are most important in safe flights.

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