Quantitative Approach and Departure Risk Assessment

VTIP 20-098: “Quadra Risk Assessment Tool”

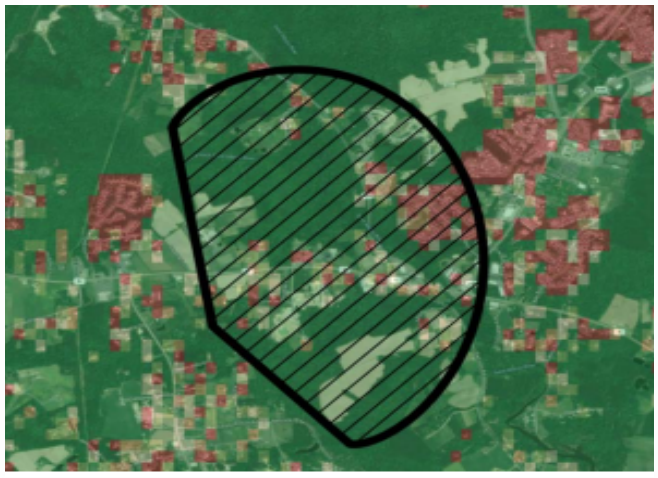
THE CHALLENGE

Drones are becoming an increasingly more prevalent piece of technology in today’s society. Unmanned drones typically are used in situations where manned flights are considered too risky or difficult. While drones can perform these riskier tasks, there are a multitude of things that could potentially go wrong including equipment failure or termination of flight. Because of this possibility, it is extremely helpful to have knowledge about the potential ground risk for a given flight throughout the course of its flight pattern. This type of data would be crucial to plan and adjust flight paths to reduce the overall potential ground risks in the case of flight failure or termination.

Unmanned aircraft in flight.

OUR SOLUTION

The QUADRA tool is a software tool that allows unmanned aircraft or drone operators to effectively assess the risk of a proposed mission. This includes accurately determining all possible crash areas and the resulting lethal crash footprint for all portions of the flight, determining the exposed population and calculating the total risk. The user inputs the desired flight path, aircraft characteristics and environment constraints. The tool combines these inputs with a population database and other information sources to assess risk to 3rd party individuals on the ground.



Probable crash area mapped over population density data.

CONTACT:

Grant Brewer

grantb76@vt.edu

540-231-6648