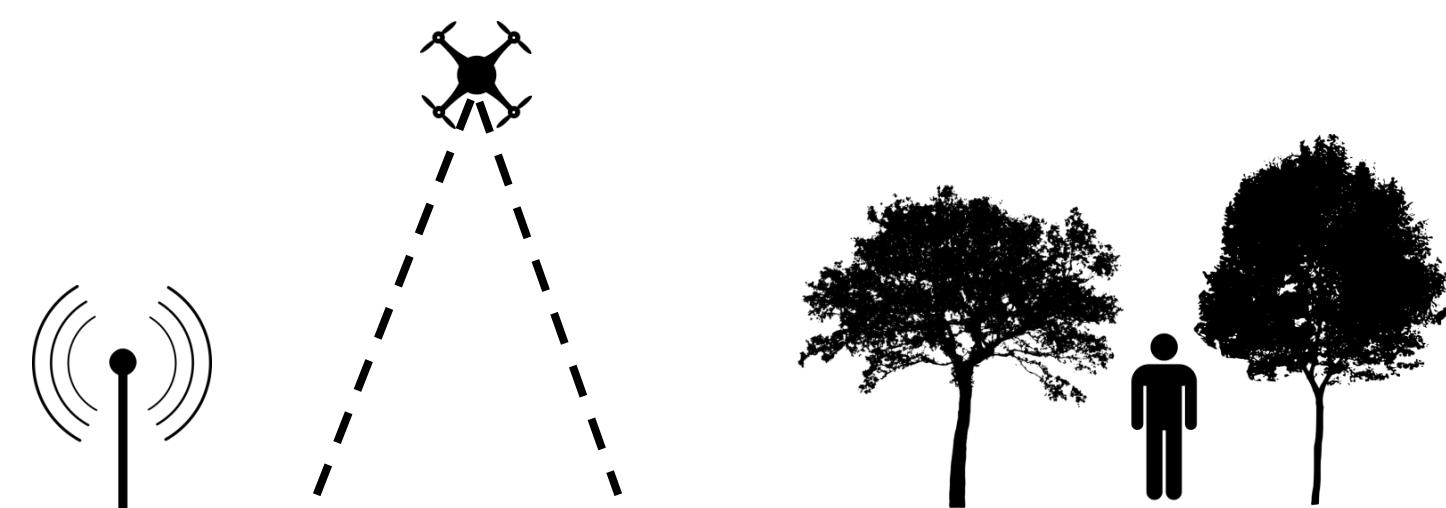


Introduction

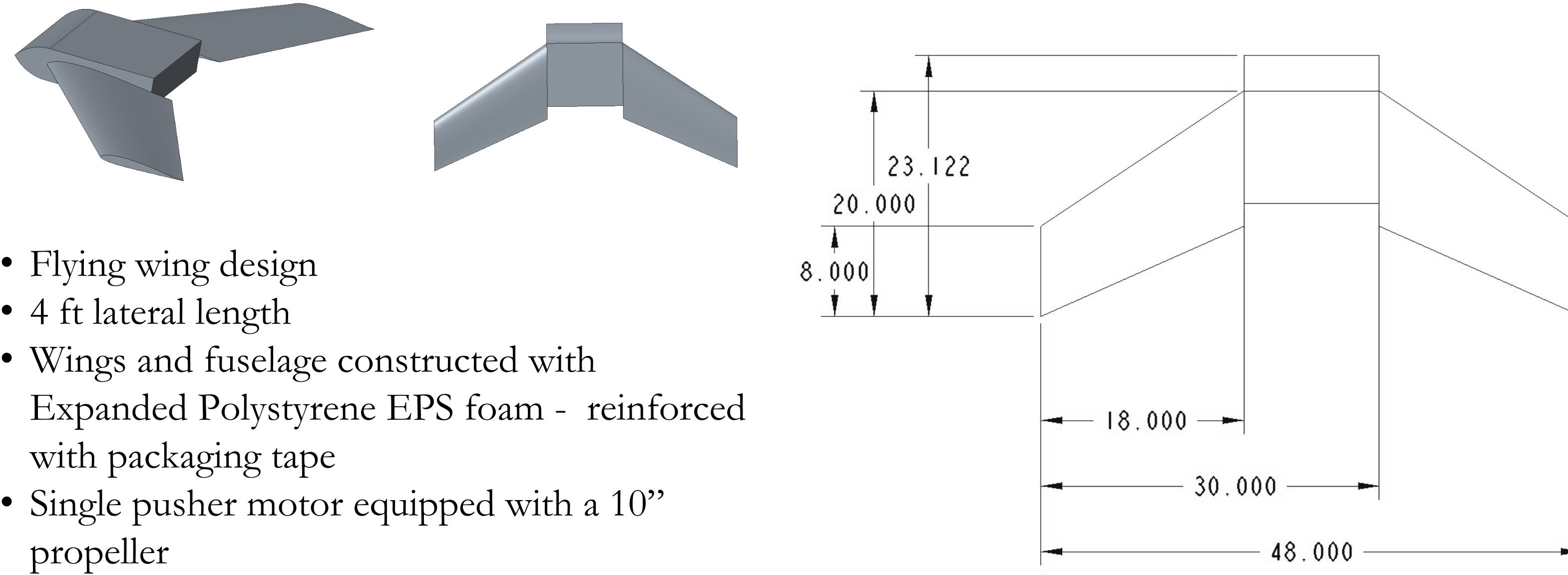
Emergency management drones are used countrywide in searches where foot searches are neither efficient nor safe. The purpose of this project is to design a unmanned autonomous vehicle (UAV) capable of assisting search and rescue teams in finding targets.



Objectives

- Design a vehicle with the goals of increasing flight time, flight range, improving camera stabilization, and adding more user interface options
 - Minimum 20 min flight time
 - Minimum 1km flight range from ground source – Optimal range of 2km
 - Maximum 2kg weight
 - Automatic pathfinding
 - Object detection

Mechanical Design

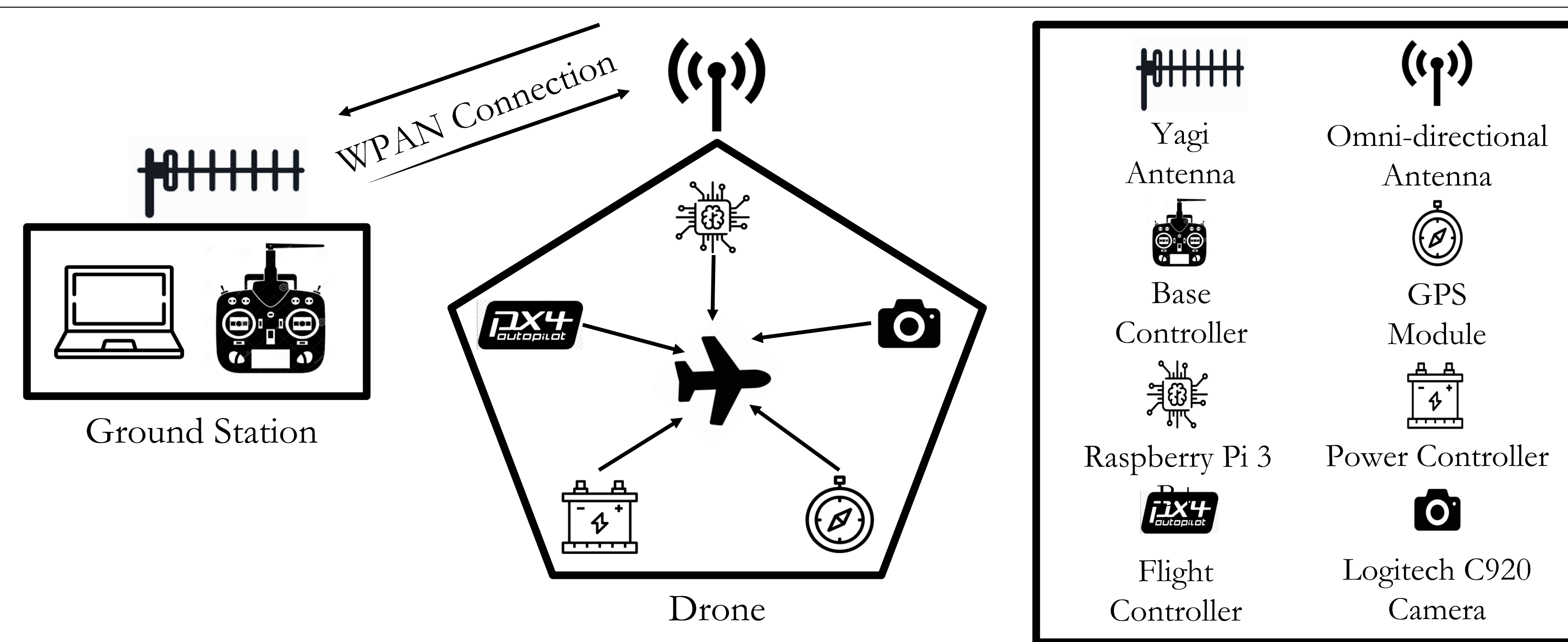


Object Detection

A neural network will be used to detect targets in hazardous environments where the drone will be deployed. The model used for this purpose will be the YOLOv3 (You Only Look Once) retrained only to find "persons".



Electrical Design



Summary

- Accomplished:
 - Construction of the wings and fuselage
 - Theoretical range and battery life calculated
 - Phase 1 & 2 of range testing – target met
 - Design of personalized power converter
 - Ordered all parts
- Future work:
 - Assemble electronics
 - Begin final testing with all components assembled
 - Refine prototype

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