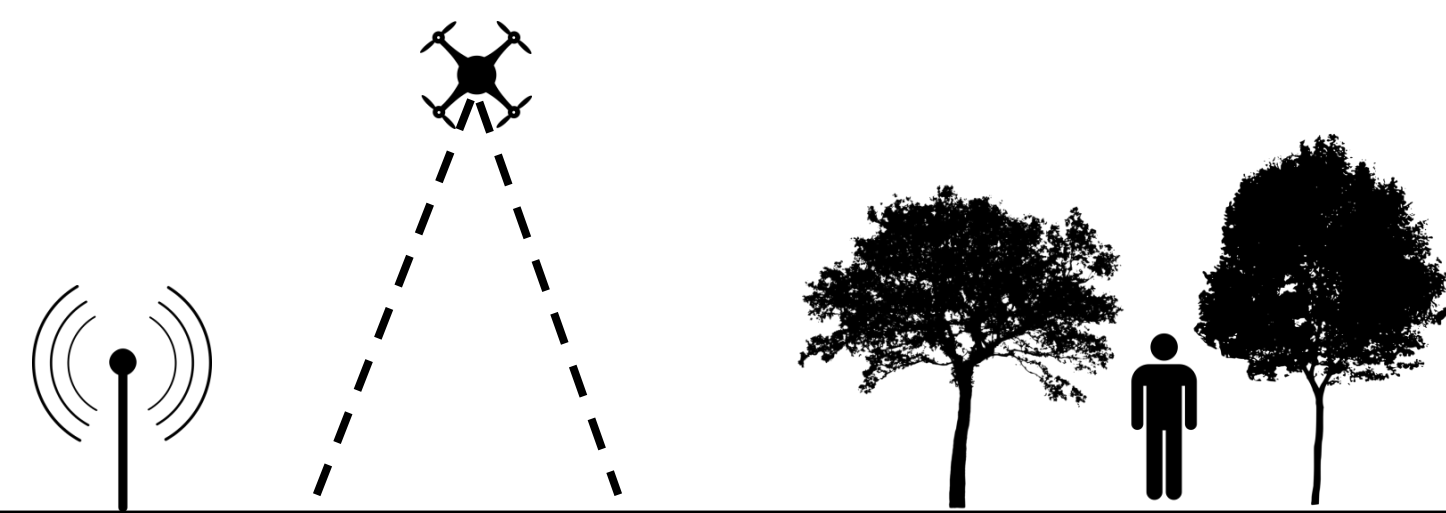


## Introduction

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 UAV capable of assisting search and rescue teams in finding targets.

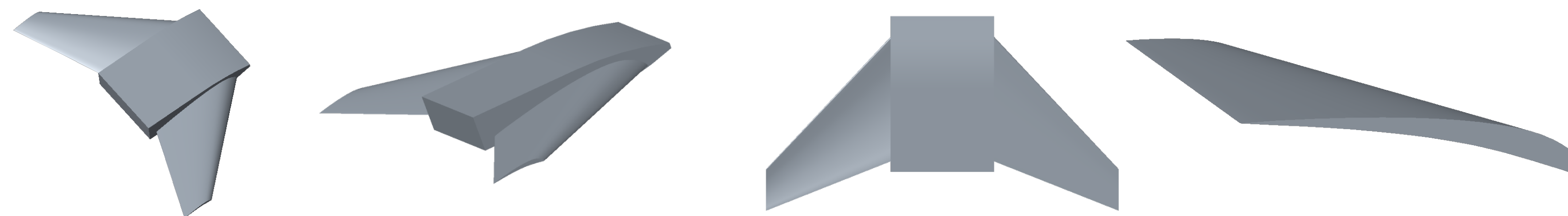


## Objectives

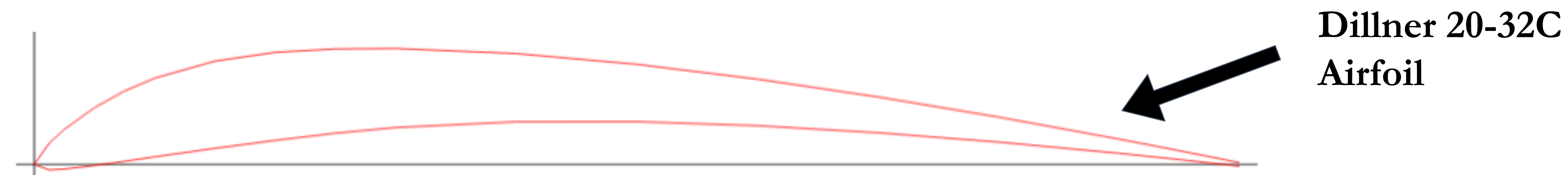
- Design a vehicle with the goals of increasing flight time, flight range, improving camera stabilization, and adding more user interface options
  - Minimum 20 min flight time
  - Minimum 1km flight range from ground source
  - Maximum 2kg weight
  - Automatic pathfinding
  - GPS module

## Mechanical Design

- Flying Wing Design

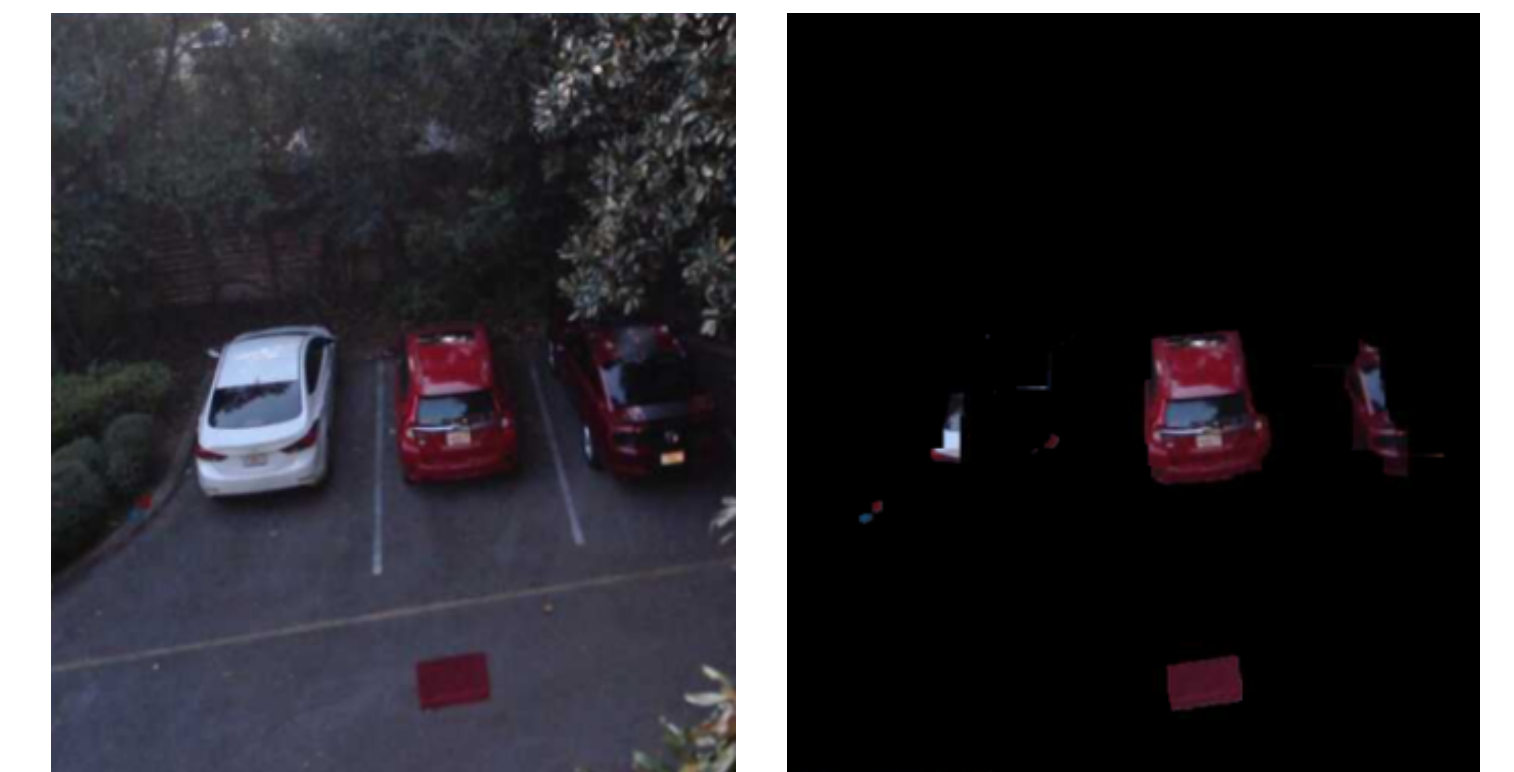


- Powered by a single rear pusher motor
- 20-32C Airfoil will be molded for wings - mimics avian wings

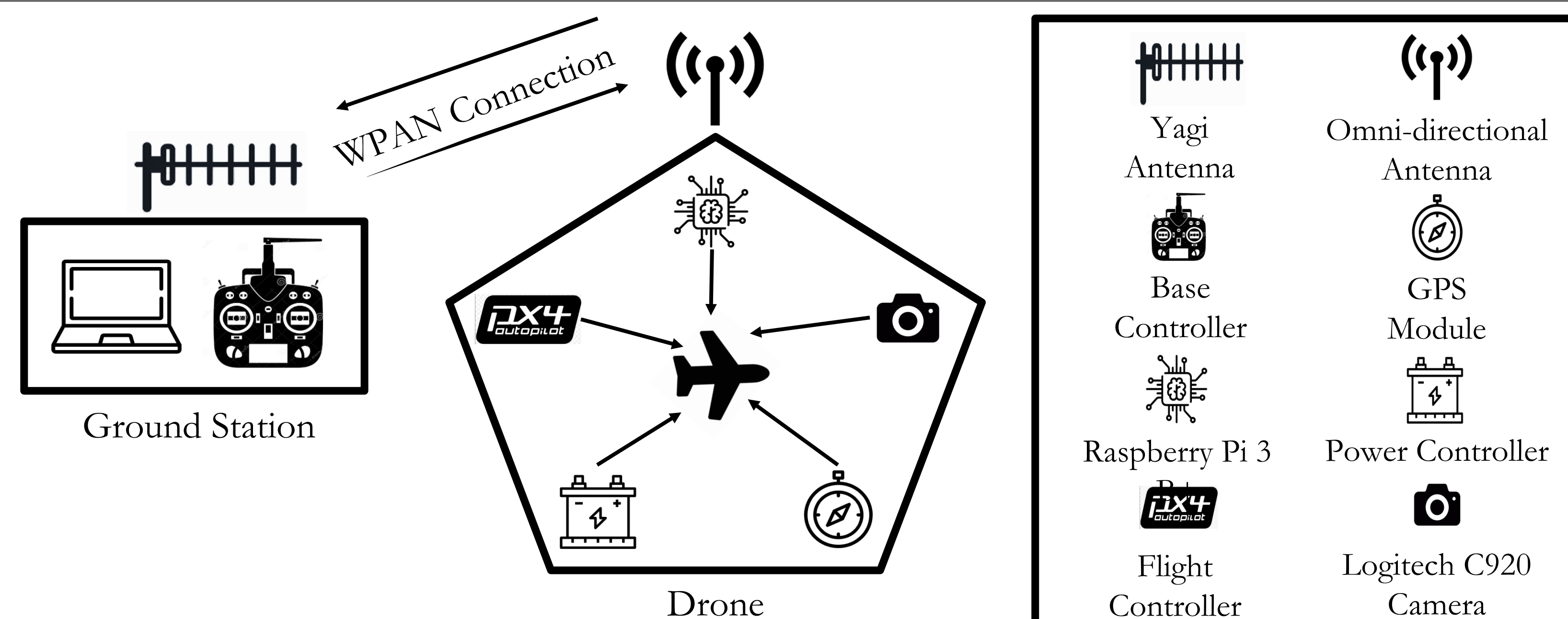


## Object Detection

A color filtering algorithm on a range of HSV values was used to filter out pixels of interest on the video feed coming from the drone.



## Electrical Design



## Summary

- Accomplished:
  - Completed concept selection
  - Calculated flight time ~ 69 minutes
  - Calculated range ~ 14km
  - Began ordering parts
- Future work:
  - Create wings using a hot wire foam cutter and chosen airfoil shape
  - Assemble wings and fuselage and begin testing via hand tossing
  - Test communications and image processing

## Acknowledgements

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