

Project Scope

Project Description:

The objective of this project is to develop a lightweight UAV to directly increase the flight time while maintaining quality surveillance capabilities. Multiple light-weighting processes will be used to complete this task.

Key Goals:

The key goals of this project are what the team aims to accomplish by the end of the project:

- Increase the flight time of the UAV.
- Keep the UAV lightweight compared to market ready UAV's.
- Develop the UAV with multiple light-weighting techniques.
- The UAV can be easily transported and operated.
- The UAV will have quality surveillance recordings.

Markets:

The markets for this project are those that the lightweight UAV can be used in. These markets include primary and secondary markets. The lightweight UAV is mainly designed to be used in the primary markets, but the members of the secondary markets also have an interest in the product. The primary market of this project are farmers and members of the agricultural community. Secondary markets for this project include the US Military, infrastructure companies, hobbyists, land surveyors, and teaching facilities.

Assumptions:

- The UAV will be operated in Earth's atmosphere.
- The flight conditions are typical of the climates in the United States.
- The UAV is remotely controlled.
- The UAV is category 1, as defined by the DoD.
 - A category 1 UAV has a maximum gross takeoff weight within 0-20lbs, normal operating altitude less than 1,200ft AGL (above ground level), and an airspeed less than 100 knots.
- The UAV will be flown in clear airspace.
- The UAV will follow all state and federal laws.

Stake Holders:

The stake holders for this project are those that are directly influenced by the work done to develop the lightweight UAV. These parties have invested resources or control of the outcome of the lightweight UAV. For this project, the stakeholders are:

- Northrop Grumman
- Dr. Shayne McConomy
- Dr. Lance Cooley
- Senior Design Team 518