Robust and Resilient Autonomy for Advanced Air Mobility

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Credits: NASA / Lillian Gipson

NASA Student Launch Project

Student Launch is a research-based, competitive, experiential exploration activity. It strives to provide **relevant, cost-effective research and development** of **rocket propulsion systems**. This project offers multiple challenges reaching a broad audience of **middle and high schools, colleges, and universities** across the nation.


Ezekiel Hopkins

Brandon Nguyen

Tyshon Jenkins

Payload Operating System

- The camera system will capture pictures and practical data that can be transmitted back to a transceiver.
- After landing, the transceiver will receive commands from NASA every two minutes.
- Images must be captured with a timestamp no more than 30 seconds apart.
- Commands:
  - Orienting the camera: turn left or right.
  - Change color modes.
  - Taking pictures.
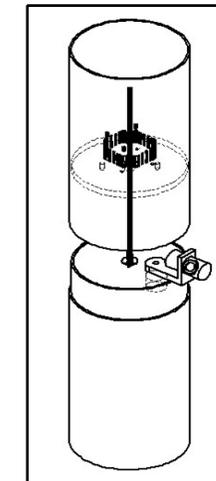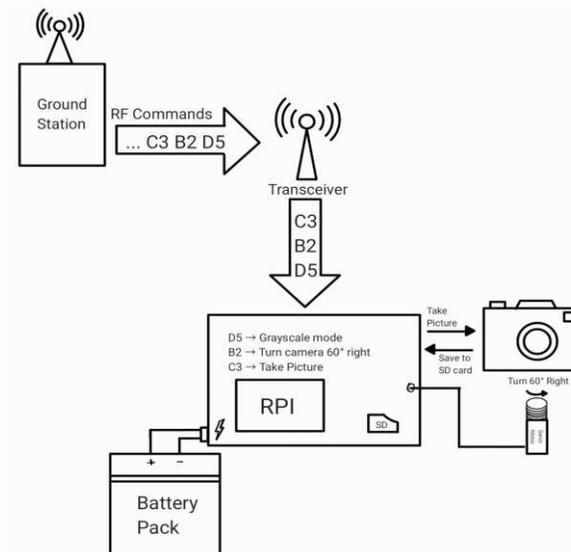
Designing a Quadcopter

A team of **undergraduate students** were **mentored by** the **ACCESS Lab graduate students** to design and implement a quadcopter followed by kill switch and parachute systems for emergency management situation in case of faults in the system.

Autonomy Certificate

- We developed an **Autonomy Certificate** for the NC A&T graduate and undergraduate programs. The initial offering was Fall 2022.

- The **graduate** certificate has 3 tracks including:
  - Track 1: Smart Transportation and Autonomous Vehicles
  - Track 2: Intelligent Control Systems
  - Track 3: Cyber Physical Systems

- The **undergraduate** certificate has 3 tracks including:
  - Track 1: Smart Transportation and Autonomous Vehicles
  - Track 2: Smart Manufacturing and Automation
  - Track 3: Unmanned Aerial Vehicles

K-12 Teacher Workshop

Goal: Assist in the "mentorship" of **Guilford County Schools** (GCS) teachers leading to
- quality STEM instruction provided to students in all K-12 science classrooms
- fun and exciting afterschool STEM project/activities

Focus:
- **Introduce a foundation** for competitive after-school robotics programs (*FIRST* LEGO League and *FIRST* Tech Challenge) for students at 12 participating feeder schools where they can reconnect with other students, rediscover the excitement of solving project-based challenges.
- **building coaching capacity** within **GCS schools by introducing new coaches to STEM and the particulars of successfully leading FLL/FTC teams** through a season of fun, excitement, and STEM education.