



# CUBESAT AT MSU



– SPRING 2025 NEWSLETTER –

## MISSION UPDATES



### Desperado I

A IU system testing prototype to be used on Space Cowboy's upcoming test vehicle and as Xipiter's upcoming UAV payload

#### Weather Balloon Launch (4/12/25)

- Objectives:
  - Test radio communication
  - Validate GPS data transmission
  - Assess power systems for cubesat hardware
- Desperado I was successfully launched to 10,000+ ft and communication was established. Ultimately the connection was lost and the payload is still MIA.

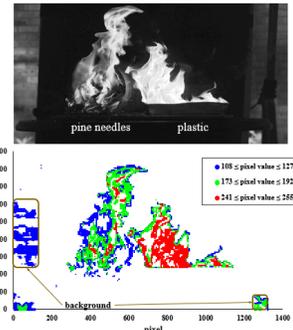
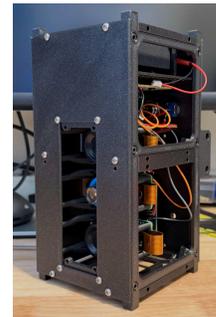


### 1-Mississippi

A 3U environmental hazard detection and the Magnolia State's first Satellite

#### Payload Research

- New housing structure developed and being tested
- Continual tests of wildfire, algae, and emission detection using the multispectral system
- Planned tests on board a personal drone and with the Raspnet Flight Research Laboratory next semester

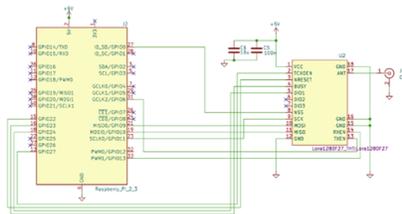


### ULL Collaborative CubeSat Mission

CubeSat at MSU will provide the University of Louisiana Lafayette with a communications payload to be a part of their CAPE-4 mission

#### Soundwave Payload

- Completed Circuit Diagram, Block Diagram, Link Budget, and Parts List
- Began Procurement and Software Development



#### Ground Station

- Completed Link Budget
- Prototype Station
  - Primary testing completed
- Design for final ground station created and being reviewed in collaboration with the MSU Electrical Engineering Department



## TIMELINE OVERVIEW

	Summer 2025	Fall 2025	Spring 2026	Fall 2026	Spring 2027	Fall 2027	Spring 2028	Fall 2028
<b>1-MS</b>	Mission Development		Payload Design	NASA Proposal	Procurement and Assembly		Assembly and Integration	
<b>Ground Station</b>	Final Design	Procurement	Assembly and Testing	Operation	ULL Mission Review		1-MS Operation	
<b>ULL Payload</b>	Procurement	Assembly	Testing with ULL	<b>Estimated CAPE-4 Launch</b>	Operation and mission review			



# CUBESAT AT MSU – Spring 2025 Newsletter –



## COMMUNITY OUTREACH

### Region II AIAA Student Conference

Published and presented research on the development of our portable ground station and testing in Greensboro, NC. *“Utilization of a Portable Ground Station to Conduct Site Surveys in the S-Band Frequency for CubeSat at MSU’s Mission”*

### New Hope Middle School “STEAM Night”

Led elementary through middle school aged students through a NASA rover activity and taught them about satellites.



### MSU Academic Insight

We showed current and prospective students who we are, what we do, and the opportunities available in the ASE department.

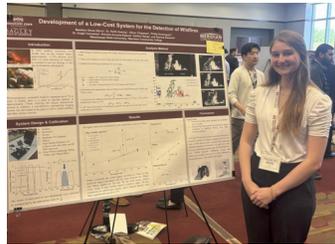
### Junior Auxiliary of West Point STEM Event

Volunteered with elementary aged students to talk about NASA missions, satellites, and ground station communication.



### MSU Undergraduate Research Symposium

Team leaders presented CubeSat research. Sloan Berry presenting research on our payload, *“Development of a Low-Cost System for Wildfire Detection”* won the Bagley College of Engineering Award for Cross-Disciplinary Research.



### Skill Workshops

Our team leads helped develop skills among our members including: Soldering, Abaqus, Solidworks 3D Modeling and Printing, and Raspberry Pi Coding.

### RHA “Jam on the Yard”

In the Junction, helped the residence hall association with marble run stations and tabling.

### The Reflector

The Desperado I launch was featured in the MSU newspaper

## FUNDING UPDATES

We would like to thank the **Bagley College of Engineering**, **National Space Club - Huntsville**, and the **Mississippi Space Grant** for their generosity in support of the CubeSat at MSU mission. We cannot express our gratitude enough and the impact the funding has had on our success already



## PERSONNEL

### **MSU Faculty Advisor**

Mr. Rob Wolz ([rrw72@msstate.edu](mailto:rrw72@msstate.edu))

### **President**

Sloan Berry ([msb686@msstate.edu](mailto:msb686@msstate.edu))

### **Chief Engineer**

Daniel Hurley ([djh578@msstate.edu](mailto:djh578@msstate.edu))

### **Communications Lead**

Eli Frazure

### **Structures Lead**

Kyler Colip

### **Secretary**

Jeremiah Clermont

### **Outreach Chair**

Nate Stephens

### **Software Manager**

Conner Davis

Thank you to all of our leadership and team members for their hard work and dedication this semester!