



# CUBESAT AT MSU



– FALL 2024 NEWSLETTER –

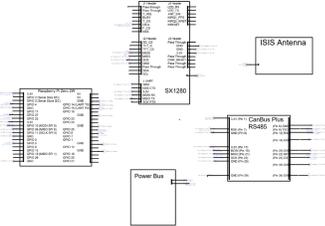
## MISSION UPDATES

### CAPE-4 Collaborative Mission

CubeSat at MSU will provide the University of Louisiana Lafayette with an experimental communications payload to be a part of their CAPE-4 (Cajun Advanced Picosatellite Experiment) mission.

#### Soundwave Payload

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



#### Ground Station

- Completed Link Budget for ULL Mission
- Prototype station constructed to conduct facility testing
  - Primary on campus testing completed
- Design for final ground station created

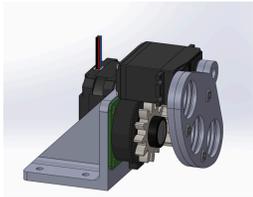


### 1-Mississippi

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

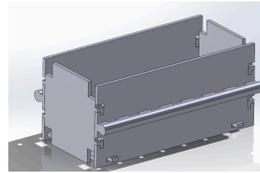
#### Payload Research

- New housing structure developed and being tested



#### Blackout 1

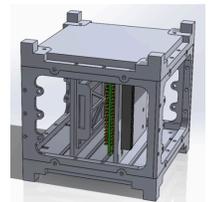
- Completed design for 3U mounting system for a Raptor Class 30 Unit RC Helicopter
- Developing an internal shelving system for payload and necessary testing equipment



### Desperado I

A 1U system testing prototype to be used on Space Cowboy's upcoming test vehicle

- Construction and Assembly is complete
- Facing delays from Space Cowboys, we have shifted the mission to be launched with a weather balloon to conduct the system testing we planned originally.



## LOOKING FORWARD

### Spring 2025 Timeline:

		JANUARY	FEBRUARY	MARCH	APRIL
CAPE-4	Soundwave Payload	Procurement	Software Development		Deliver payload to ULL
		Assembly		Testing and Integration	
1-MS	Ground Station	Site Survey	Assembly		
		Procurement		Testing and Operation	
1-MS	Blackout 1	Prototyping	Testing and Integration		Launch
		Assembly			
Desperado I		Procurement and Certification		Testing and Integration	
		Software Development			

### Goals/Upcoming Tasks:

- CAPE-4 Collaboration:** Deliver completed payload to ULL, construct final full-scale ground station
- 1-Mississippi:** Complete Blackout 1 drone test flight, continue payload research
- Desperado I:** Launch weather balloon test with scale ground station



# CUBESAT AT MSU – Fall 2024 Newsletter –



## COMMUNITY OUTREACH

### ASE Department 90th Anniversary

We hosted an interactive CubeSat ground station demonstration and participated in the reception at the Raspet Flight Laboratory. Many of our members gave presentations on their research outside the club, helped as guides for guests, and actively participated in events throughout the day.



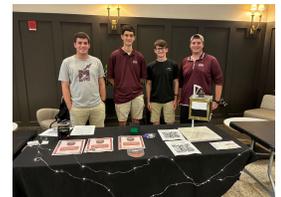
### Homecoming Banner

Submitted a “SHOWTIME” themed banner hung on Davis Wade Stadium for the 2024 homecoming football game.



### Engineering Expo

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



### Pie an Executive Fundraiser

On the drill field, we raised money along with Women of Aerospace, Xipiter, Space Cowboys, and AIAA.



### Student Association Costume Carnival

We took “Selfies with a Satellite” at the Halloween Carnival for local kids in Starkville.



### End of Year ASE Party

CubeSat and AIAA co-hosted the ASE end of year party!

### MSU Basketball Game

CubeSat was halftime entertainment at the first home women’s basketball game!

## FUNDING UPDATES

We would like to thank the **Bagley College of Engineering** and the **National Space Club - Huntsville** 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))

### **Research Advisor**

Dr. Keith Koenig

### **Instruments Lead**

Eli Frazure

### **Structures Lead**

Zach Barbre

### **GNC Lead**

Bentley Hillis

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