

Overview and Outcome of ARLISS2025

~A Rocket Launch for International Student Satellites~

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Noah's Ark



Agenda

1. What is CanSat ?
2. What is ARLISS ?
3. Outcomes from “Noah’s Ark”





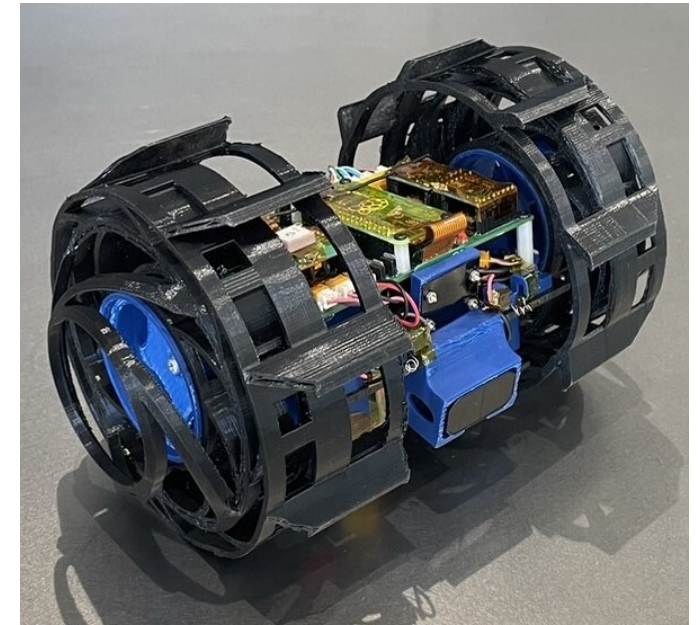
What is CanSat ?

➤ CanSat

CanSat is a can-sized satellite with sensors and communication units mounted inside for missions.

➤ Class/Regulation

Class	Mass limit	Diameter limit	Height limit	Launch cost
CanSat Class	≤ 350 g	≤ 66 mm	≤ 240 mm	200USD/launch
Open Class	≤ 1050 g	≤ 146 mm	≤ 240 mm	600USD/launch



TMU NAVi

For detailed regulations, please refer to the following documents

https://drive.google.com/file/d/13G7HJoZm9cLF9uplTEE2_r9McmcZBIcN/view?usp=drive_link

A Rocket Launch for International Student Satellites

What is ARLISS?

Acronym: **A** Rocket **L**aunch for **I**nternational **S**tudent **S**atellites

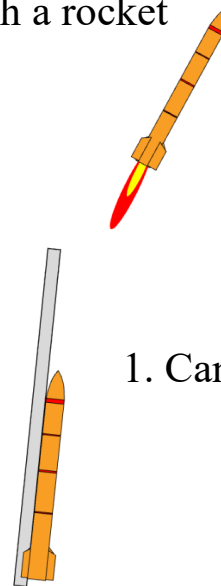
Annual suborbital **CanSat** launch demonstration

Founded 1999, run by UNISEC(Dr. Nakasuka) & AERO-PAC

Location: Black Rock Desert, Nevada, USA

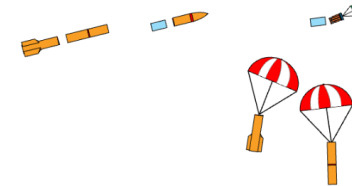


2. Launch a rocket



1. CanSat on a rocket

3. Reach an altitude of 3,000 m



4. Release of CanSat

5. Parachute open.

6. Deceleration



7. Landing



8. Parachute disengagement and mission start

What is ARLISS?

Mission & Objectives

- Hands-on: design, build, test, launch, recover
- Cultivate system-level thinking, problem-solving, teamwork

Competitive awards

- Accuracy(distance from goal)
- Best Mission Award
- Technical System Award
- Overall Winner



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Mission

To verify the accuracy of driving without using GPS, and to use LiDAR to detect and reach the destination.

After landing, the rover gets its position once with GPS, and then it moves only with sensor and wheel data.

LiDAR detects the goal's shape and distance for precise arrival.

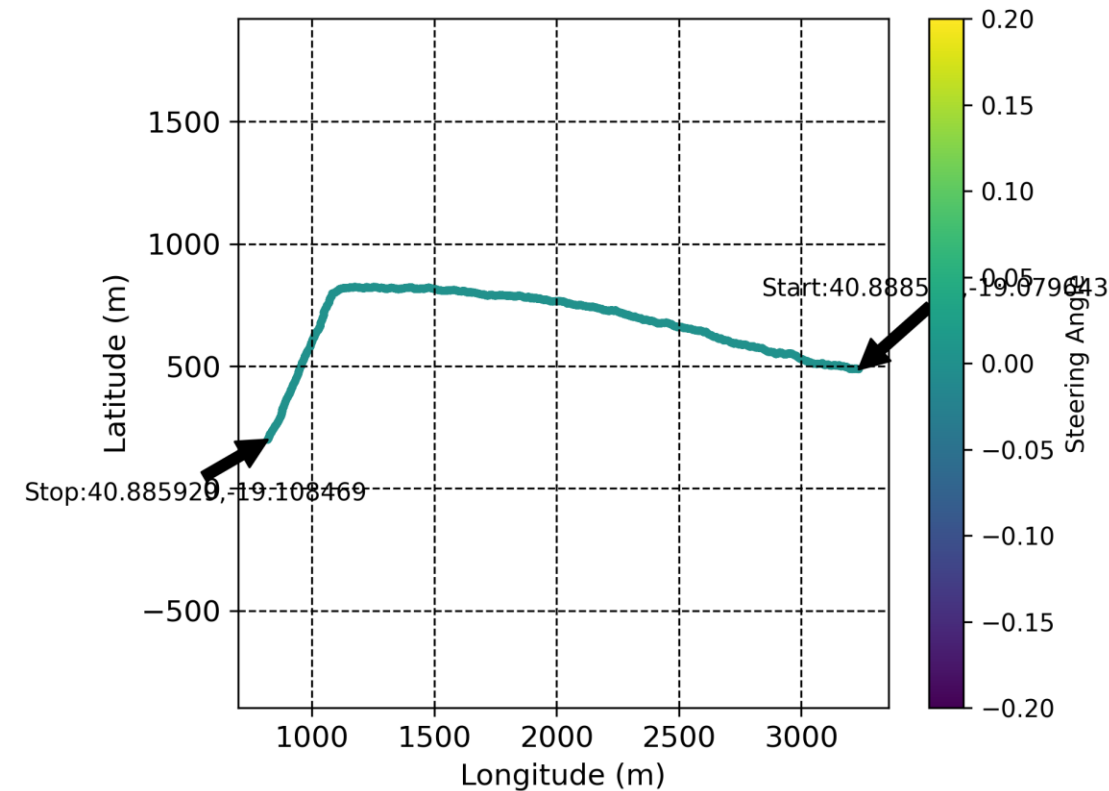
First Launch

- Communication was lost at an altitude of 2,758 meters.
- Communication was unavailable, but all other functions were operating normally.



First Launch

- The rover stopped at a point 842 meters from the goal due to a dead battery.
- All driving was conducted without using GPS.



For The Second Launch

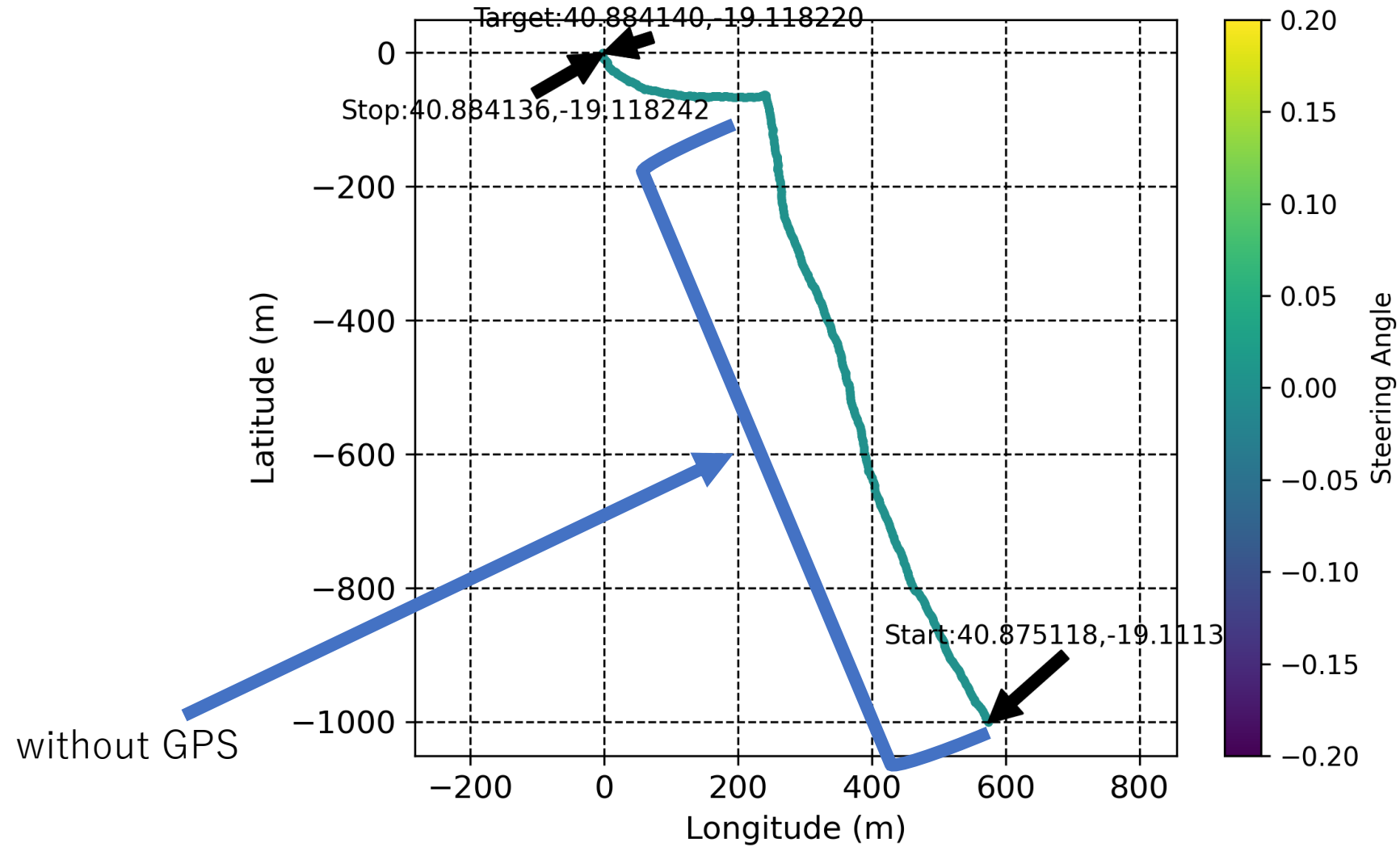
- To ensure proper communication, we secured the im920sl with a glue gun.
- To conserve battery power, we adjusted rover's driving to minimize weaving.

Second Launch

- The Rover drove to a point 251 meters from the goal without GPS.
- It then used GPS to move toward the goal, detected the goal using LiDAR, and stopped.
- **Result : 2.84m**



Travel Path



Success Criteria

Minimum Success	The pressure sensor that determines release from the carrier operates normally. The rover separates normally from the parachute and travel at least 5 meters toward the goal using acceleration sensors and other equipment.	Success
Full Success	The rover drives without using GPS and measure the distance from the point deemed the goal to the actual goal coordinates. The Rover detects the goal using LiDAR.	Success
Extra Success	The rover reaches 0 meters from the goal.	Failure

Future Outlook

- Achieve the 0m goal using LiDAR
- When driving without using GPS, apply corrections using this driving record.

Thank you for listening

