Challenge of ARES Project

The First Japanese Student Team Developing Mars Rover

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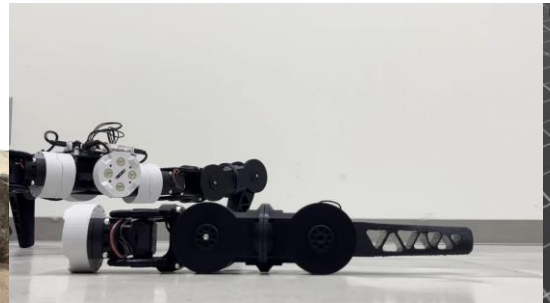
Mars Rover Robot international competition – ARES Project

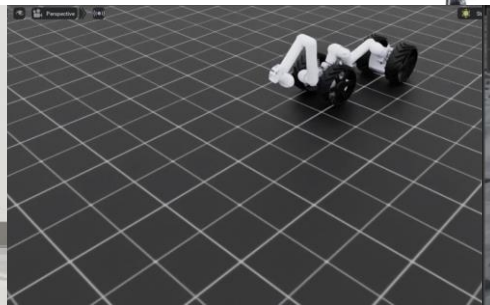
Al Danishi (Project Manager) PhD candidate 2nd Grade

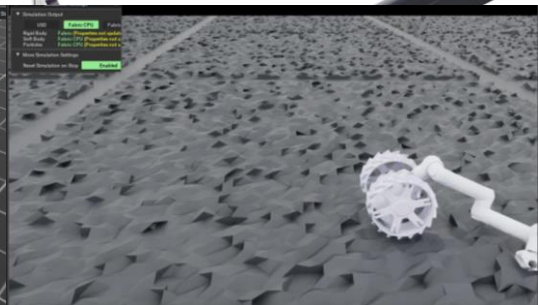
Department of Mechanical and Aerospace Engineering,

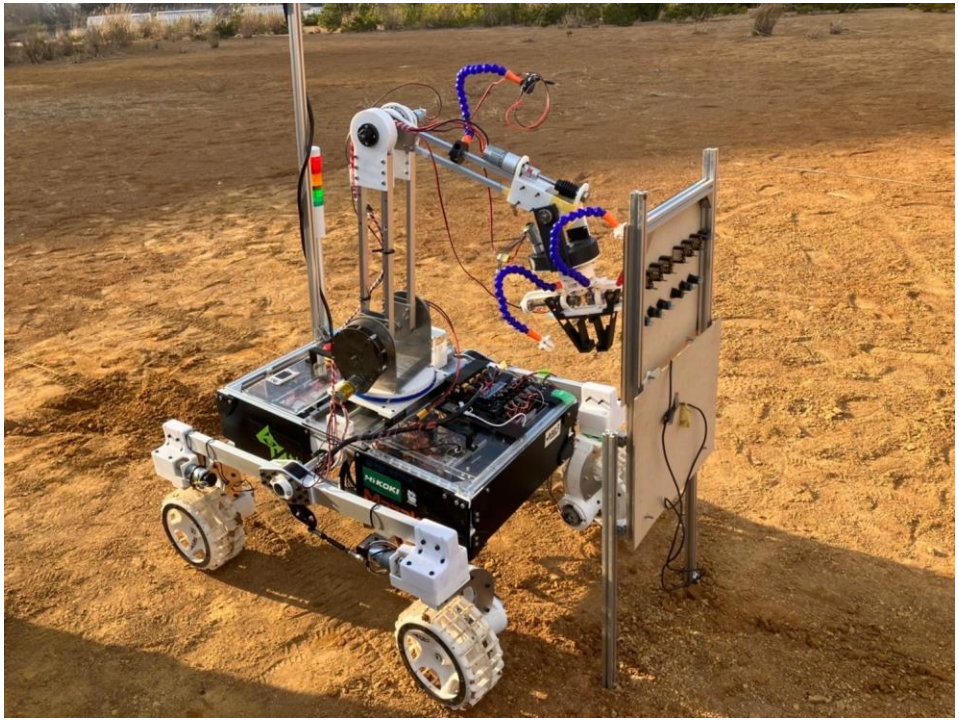
TOHOKU University.

RL(Isaac) sim2real, Planetary exploration rover(robot)









01

ARES Project

Challenge International Mars Rover Competition

University Rover Challenge (URC)

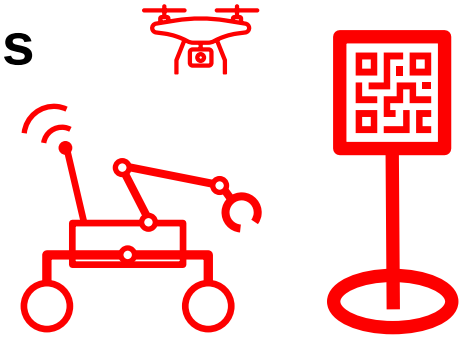
https://engineering.usu.edu/mae/students/senior-projects/fall2018-spring2019/university-rover-manipulation

- Student Mars Rover contest
- Every year in The United States Utah Mars Desert Research Station **(MDRS)**
- Compete in the performance of the Mars Exploration Rovers developed

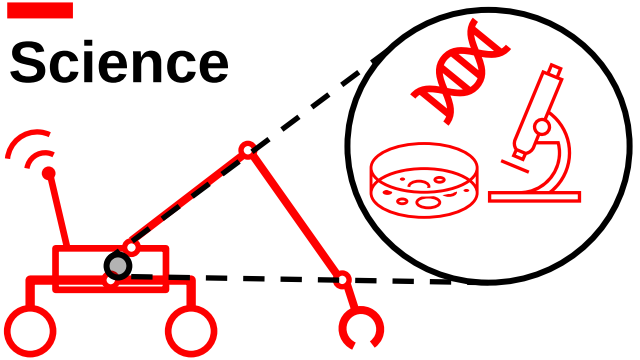
URC

4 Mission

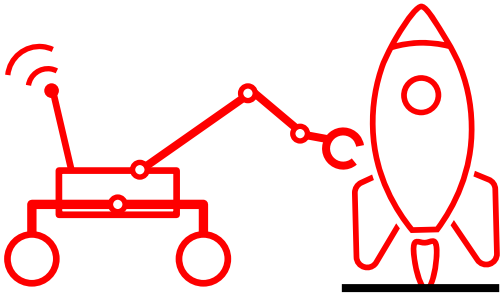
Autonomous Navigation



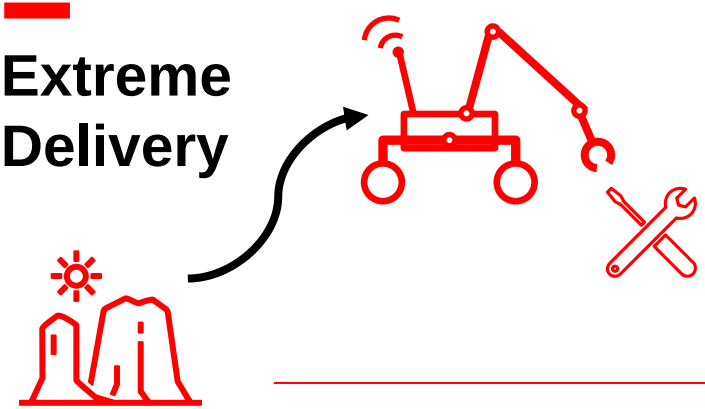
Science



Equipment Servicing



Extreme Delivery

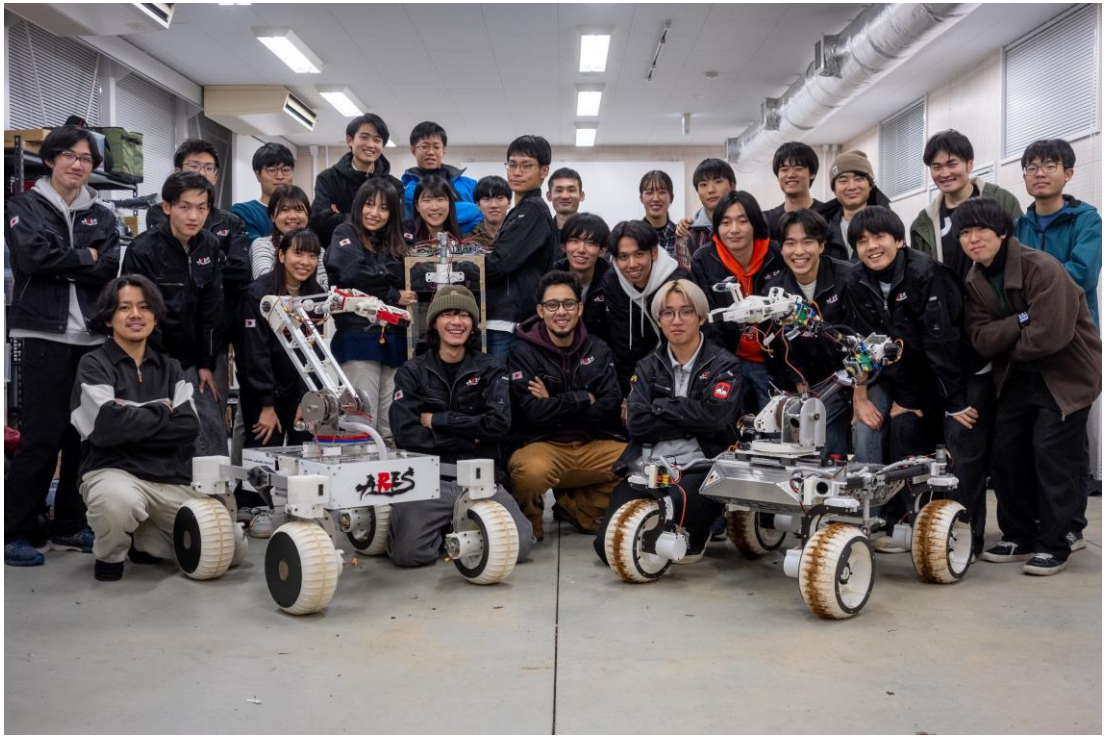


About Us

- Started with only 3 member
- No fund, No sponsor, No University support
- Started with passion to URC, Space Exploration

About Us

- Japan's first student team to develop a Mars rover
- More than 40 students, mainly from Tohoku University and Keio University
- Aiming to participate in the Student Mars Rover Contest



Our Team

Tohoku Team

Rover R&D

Tokyo Team

Robotic Arm R&D

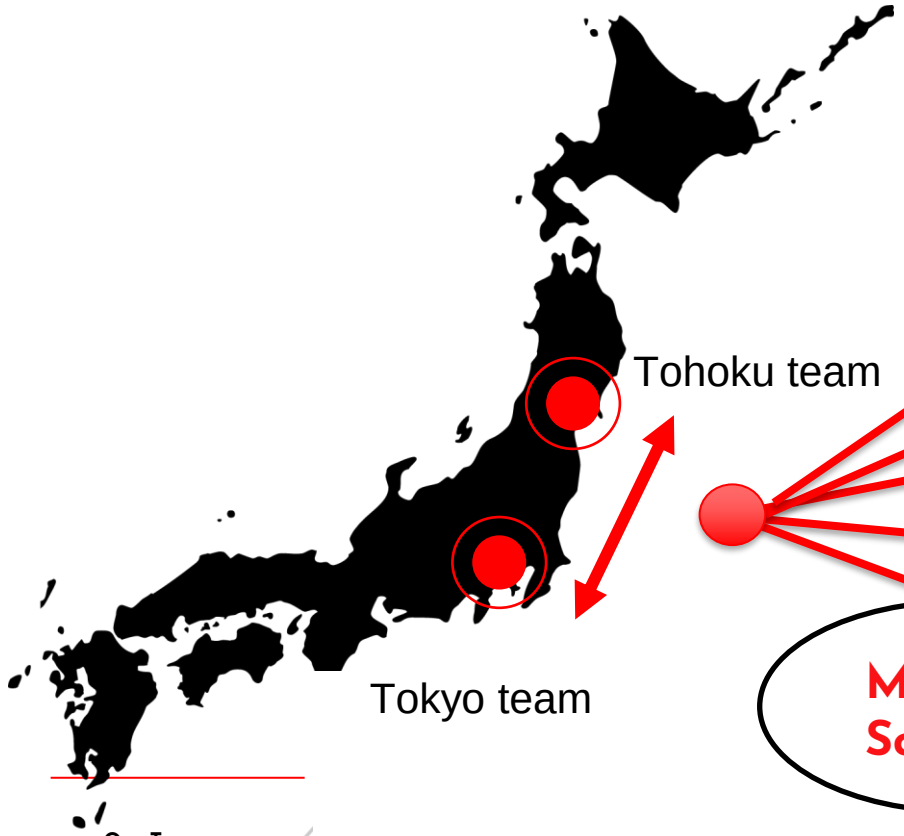
Science Team

Science mission modules

PR Team

Contact between sponsors

Multidisciplinary Students from wide rage Universities in Japan



Electronic Engineering

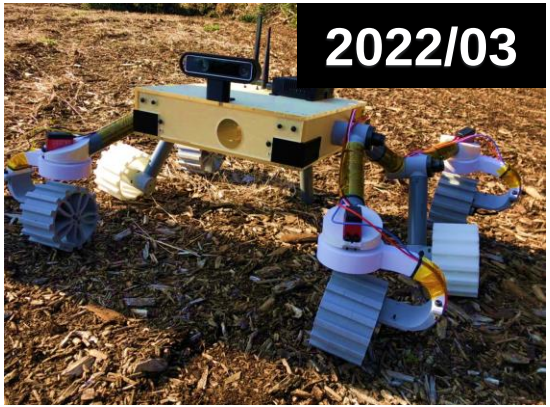
Mechanical Engineering

Geology

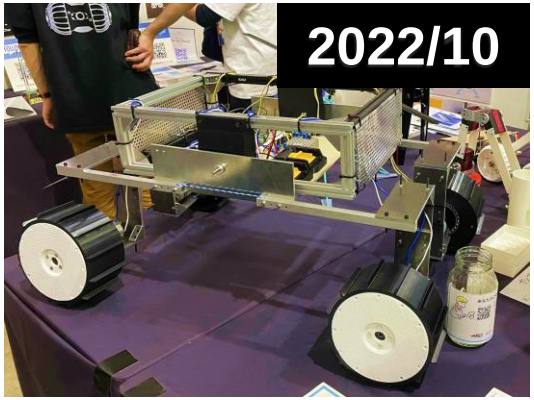
Astrobiology

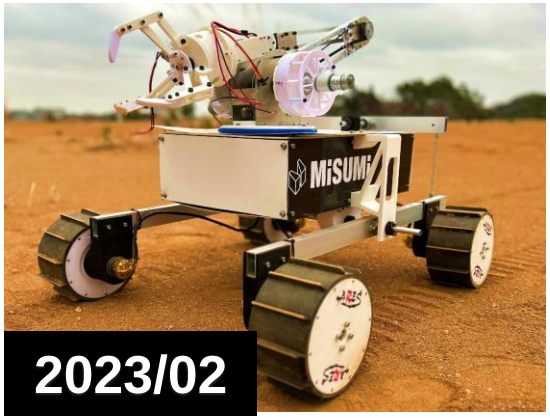
Medical Science


ARES
Rover

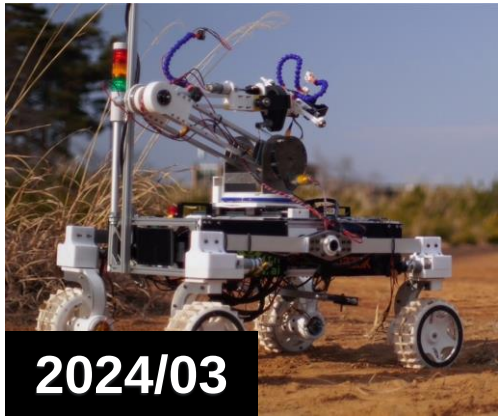

2022/03


2022/06
ARES


2022/10


MiSUMi
2023/02


2023/07

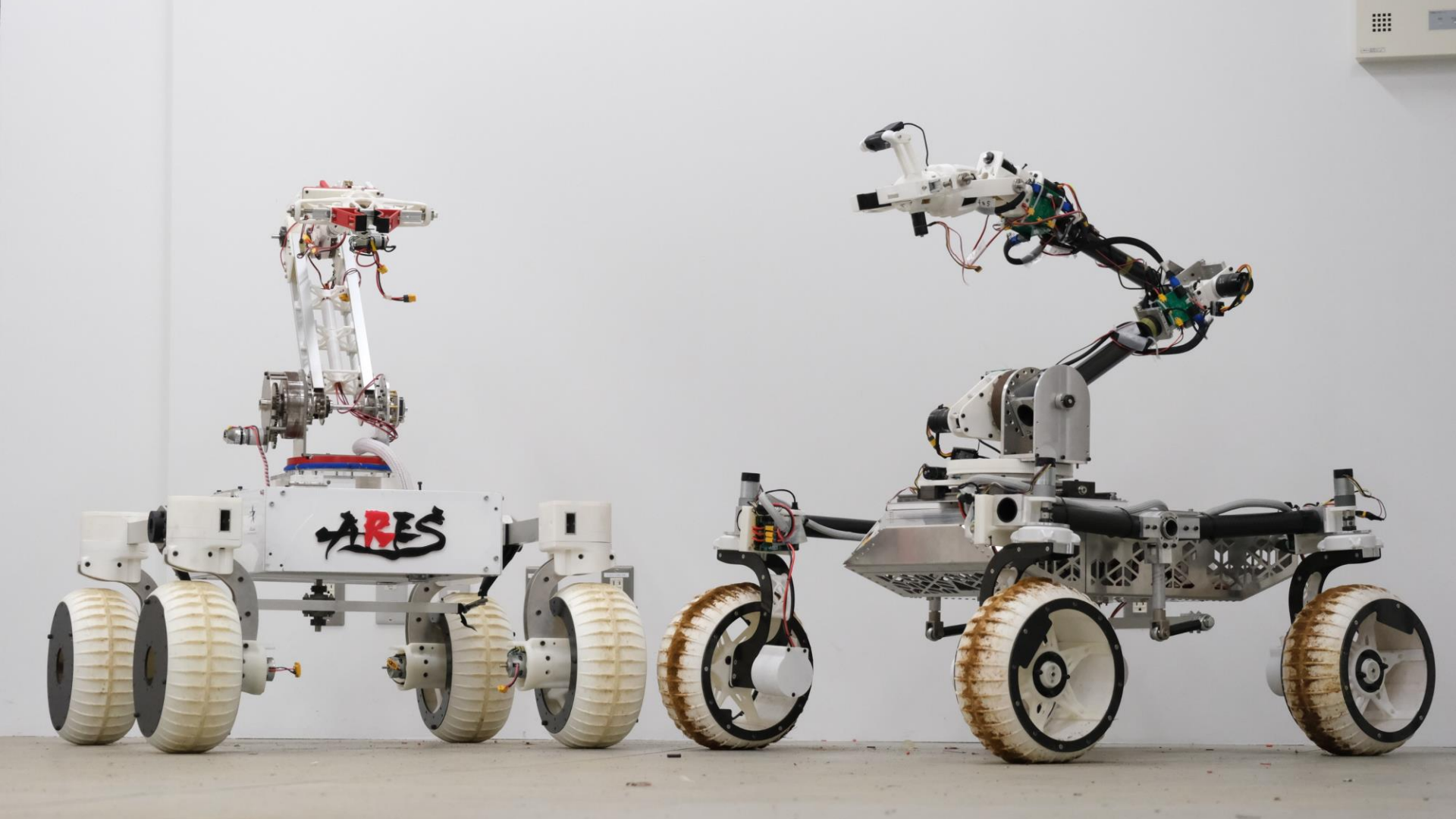

2024/03

ARES 7

2024/05

ARES 8

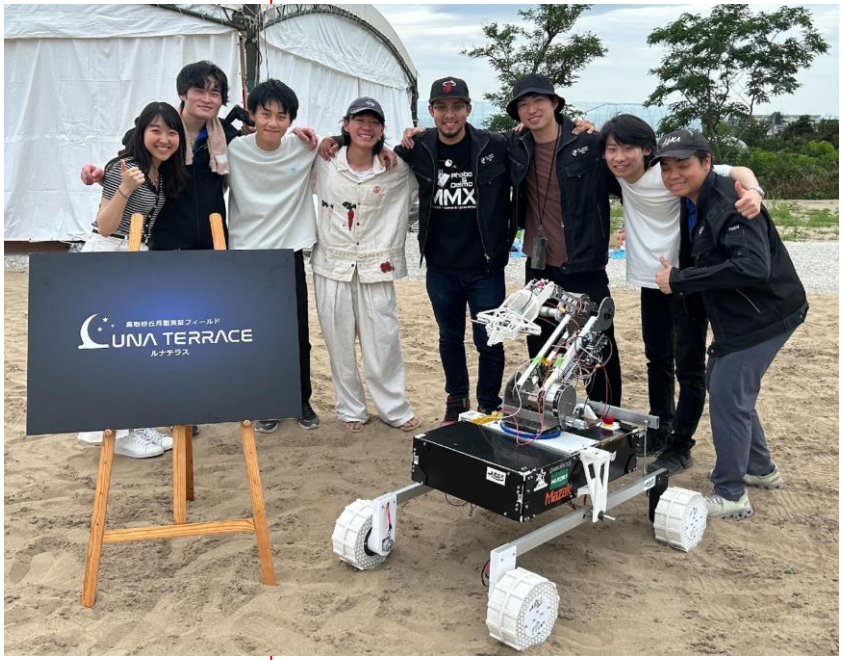
2024/12


ARES

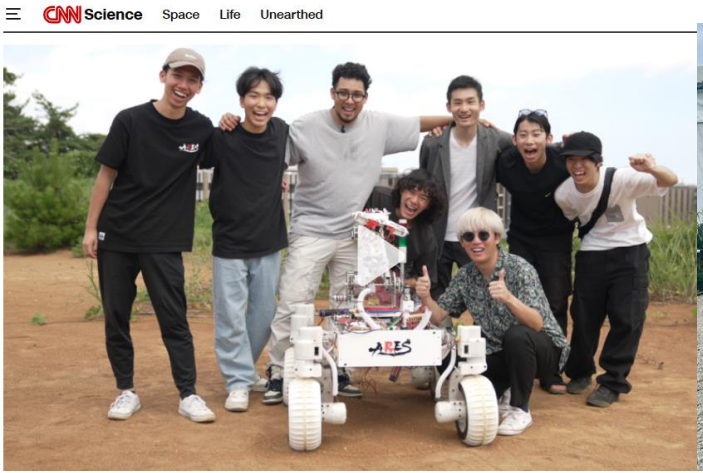
02
Activity Report

Mobility Test at “Lunaterrace,” in the Tottori Sand Dunes

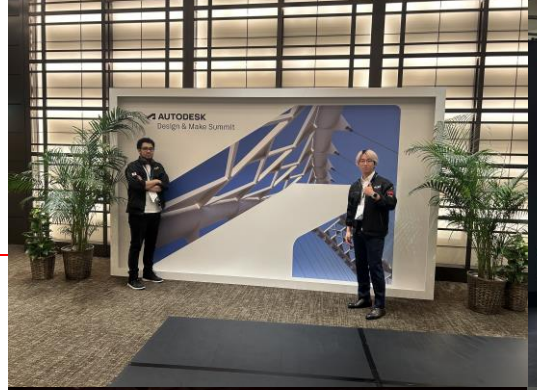
- Participated in the **opening ceremony**
- conducted the **ARES-5 mobility test**

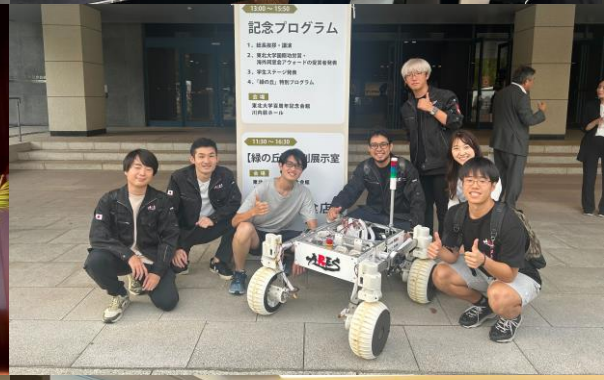


CNN
TV Tokyo
Yahoo news
NHK　“Teremasa”
Apple CM etc



Exhibition, Presentation

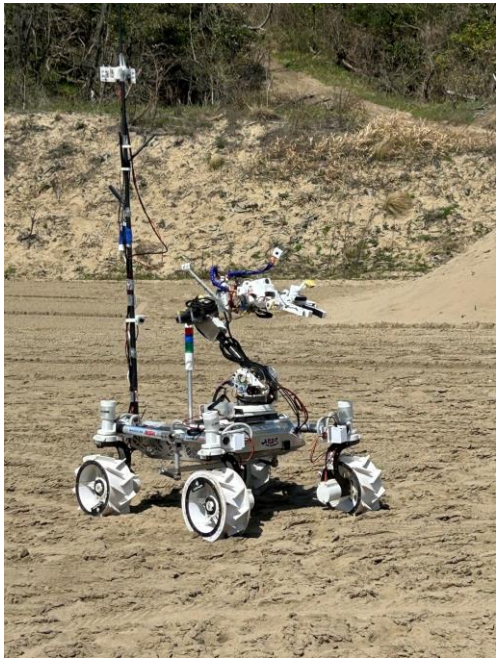




Munakata Children's University "Spring Extracurricular Class"

https://news.yahoo.co.jp/articles/982d1124e14628a29b7b0b959b262b7217ee8175

Tottori Rover Challenge – Won Grand Prize



2025/03

03

URC2024


URC2024
First Japanese Student
Team to compete

URC2024

15 Country, 102 teams

38 teams are selected to Finals

23 members from ARES to URC

URC2024

Results in competition

Spirit Award

Science Mission Presentation Excellence Award

Huge damage to Rover

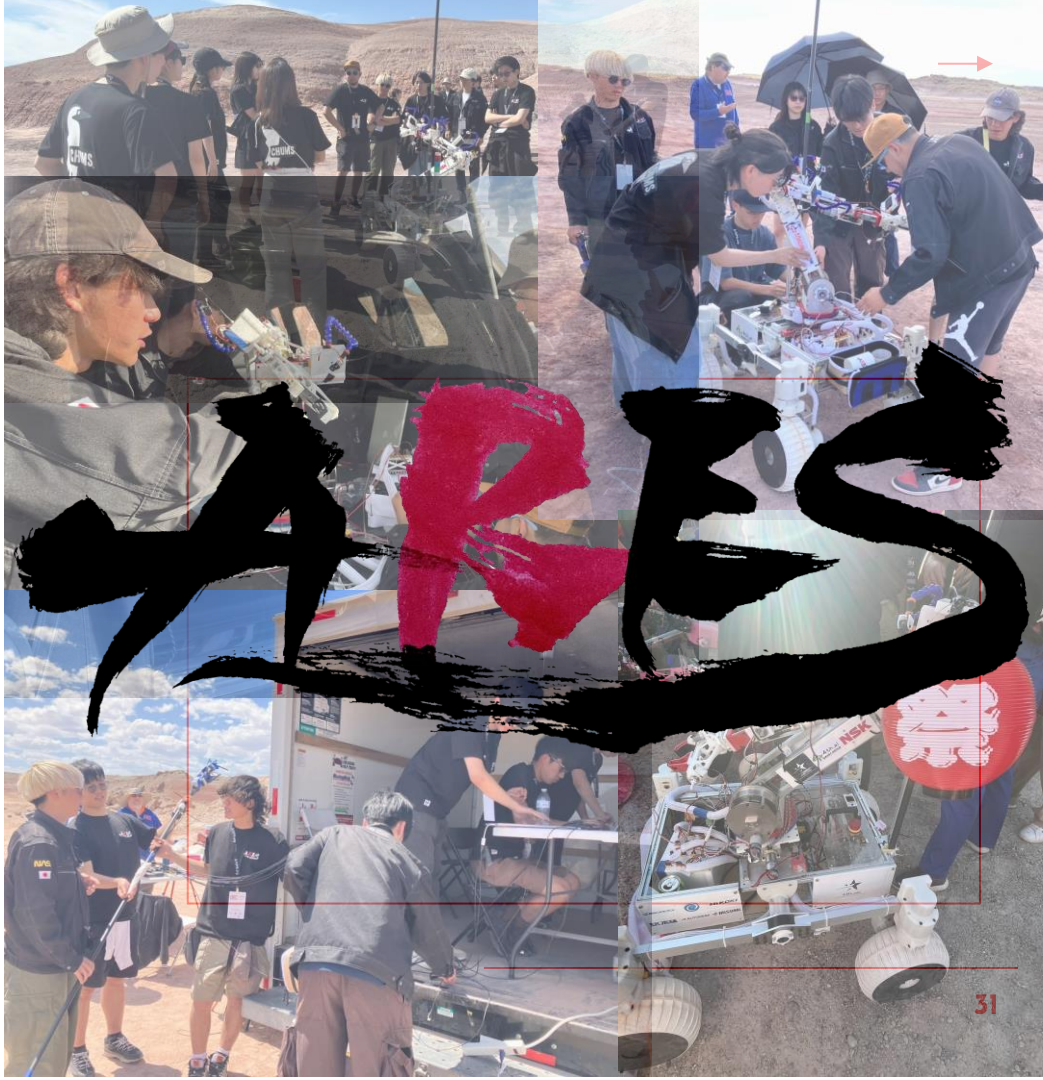
We acquired significant insights into technical development and team management.


URC2025
Try for grand prize

04
Future Aim

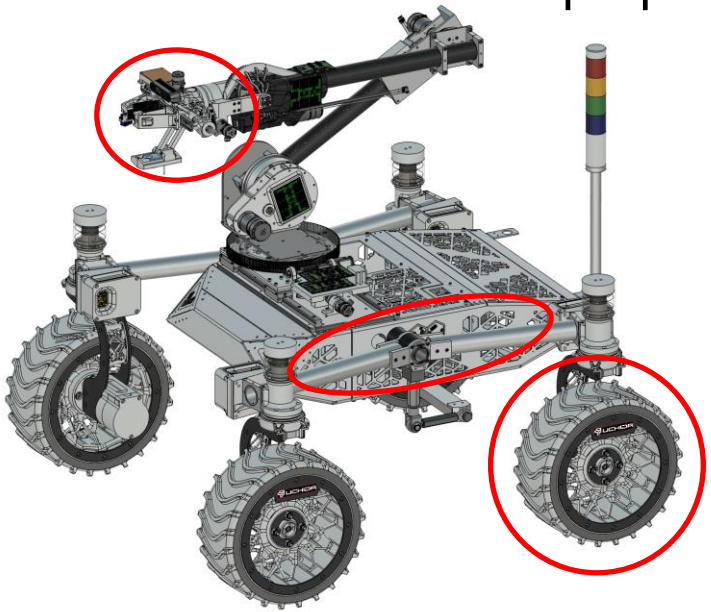
Future

- Boosting student rover development in Japan
- We are determined to win the world championship
- Try real space missions

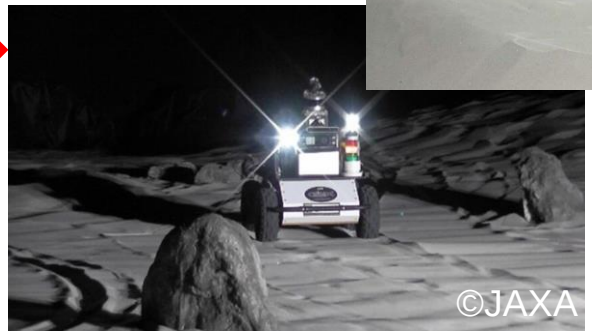


For actual space mission

- Single component can reach actual space
- Real test with research propose



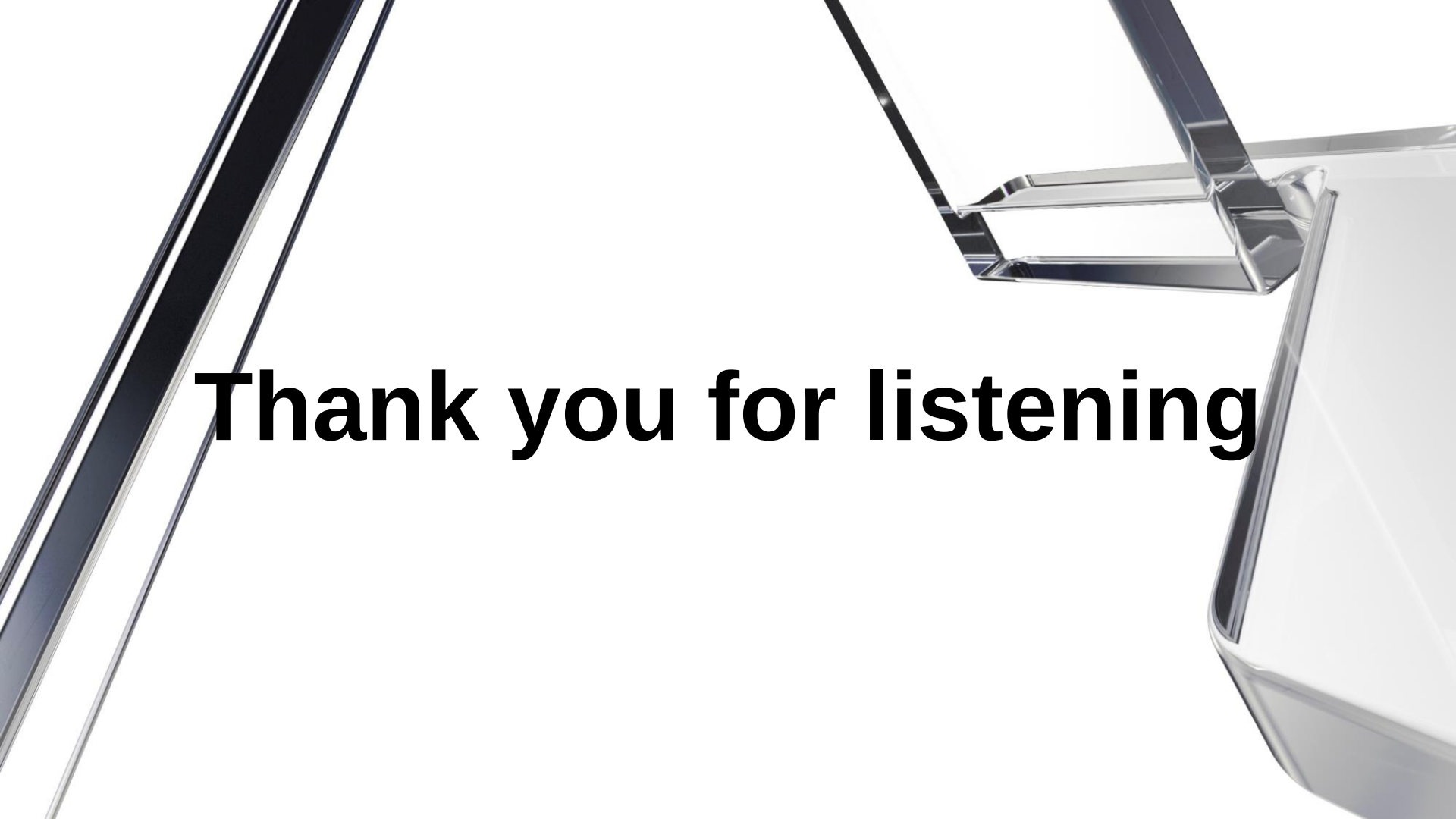
https://www.webcg.net/articles/-/45519



https://www.drone.jp/news/2024060911222790349.html#google_vignette

Future Space exploration

By taking on **Japanese student’s first challenge** ourselves, we will boost the student planetary explorer field **and further develop Japan's space development in the future**.


Thank you for listening