ARLISS2010
Comeback Competition Report

Team I2 Tohoku University

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Background

Black Rock Desert

ARLISS

There are uneven ground.

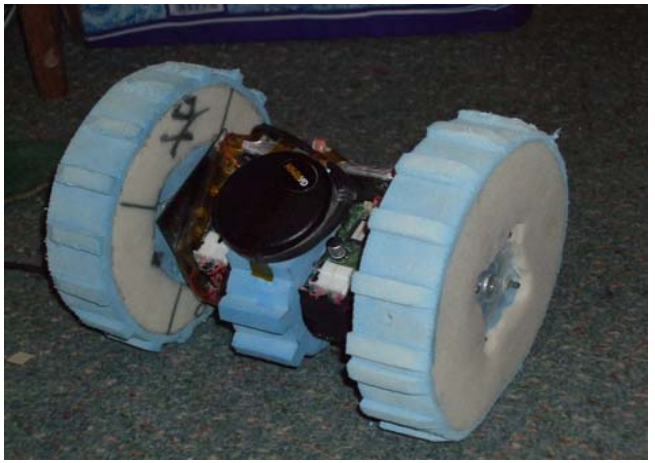
Small rover easily stacks.

The larger wheels are
the easier they can get over tracks.

Size is limited.

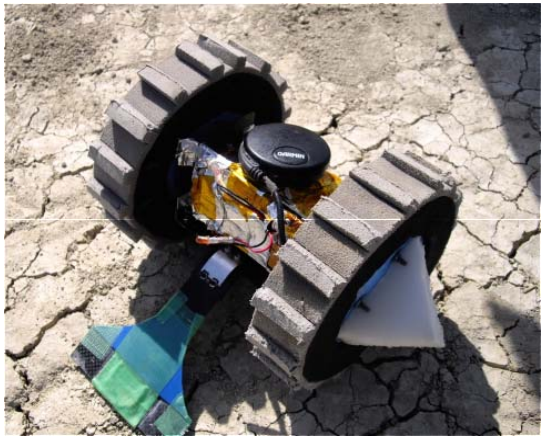
Expand wheels

Our Research Group



2007

- Wheels with Sponge
  φ146 → **φ170**

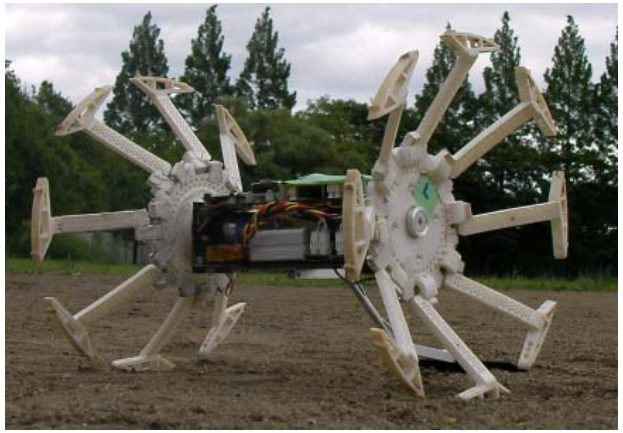


2008

- Wheels with Sponge
  φ146 → **φ180**
- We won!

2009

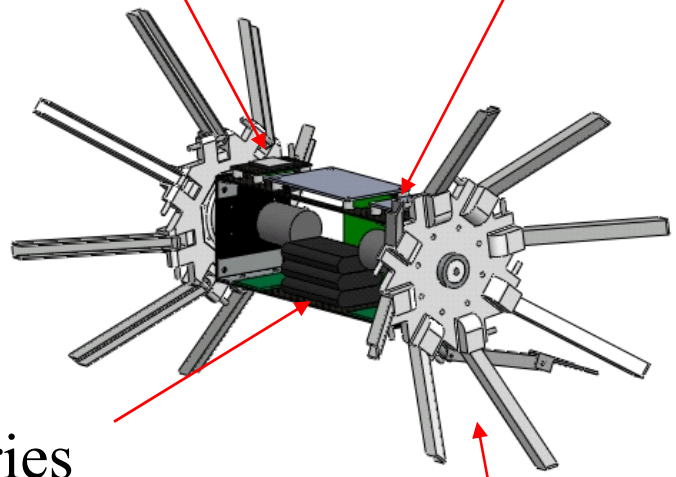
- Mechanical Expandable Wheels
  φ146 → **φ240**
- Legs broken…



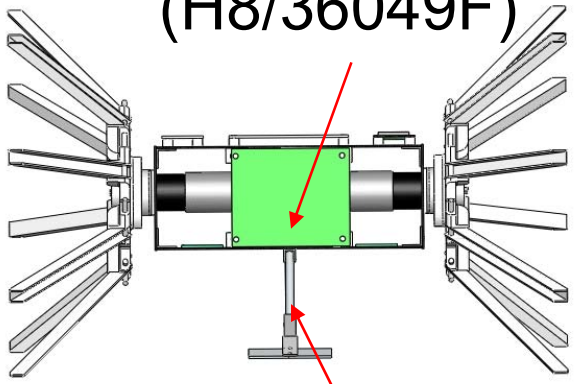
Features of our cansat

GPS module
for rover's localization

Xbee-Pro
for communication (1.6km)



Micro Computer
(H8/36049F)

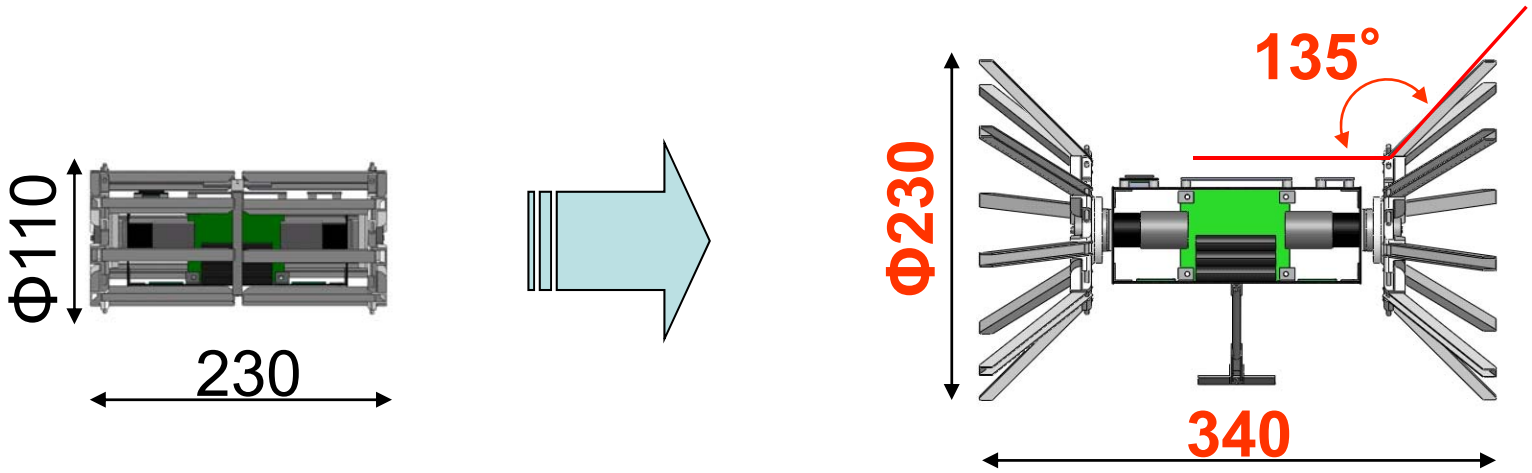


Batteries
supplies 11.1 V

Expandable Wheel

Digital Compass
for navigation

Mechanical Expandable Wheel



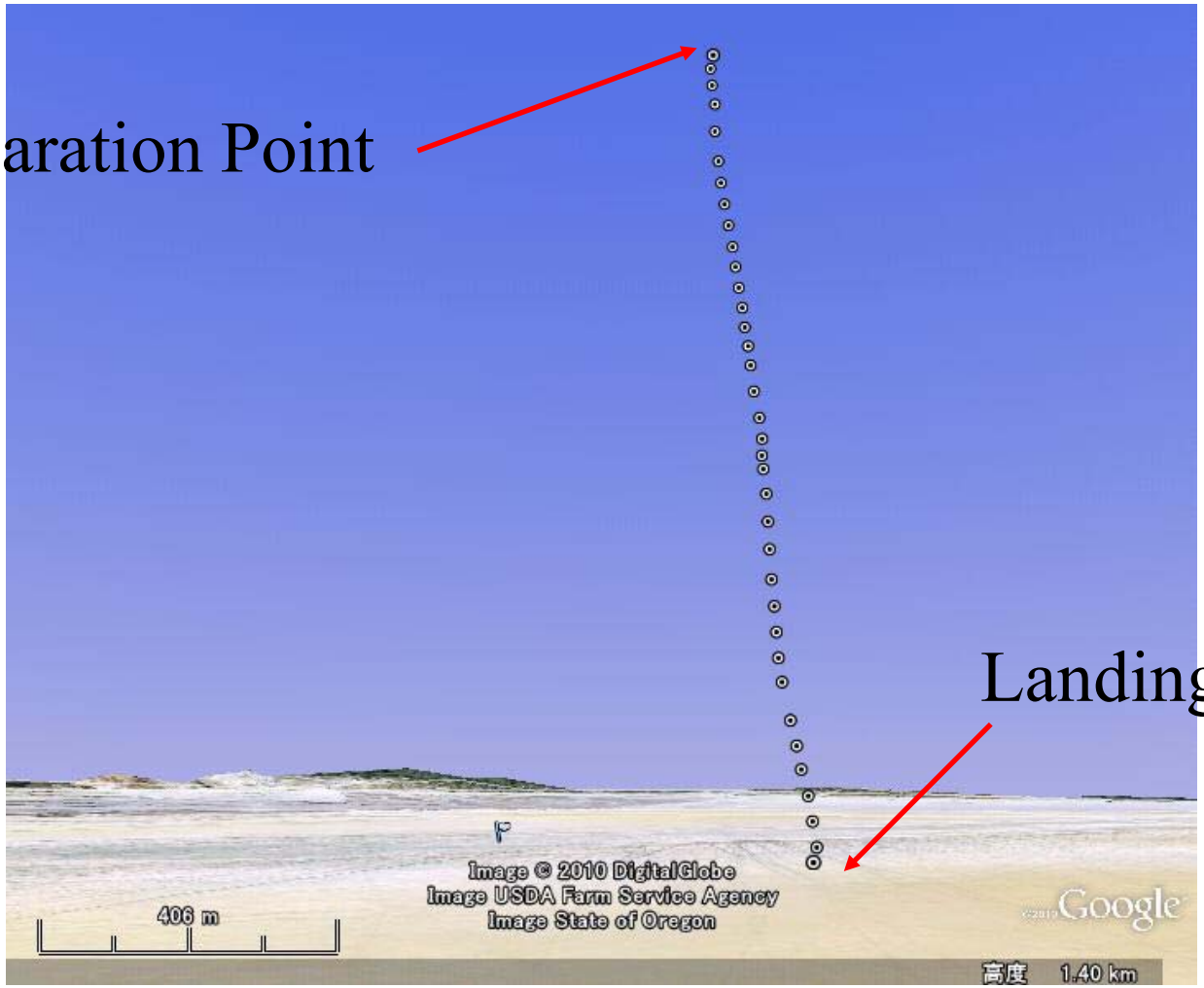
Open legs 135°

- Enlarge wheel diameter and tread dramatically!!
- Run steadily!

This year

- Improve strength of legs.
- Increase friction force at contact points.

First Launch -13th Sept.-



Our rover completely worked along my program.

First Launch -13th Sept.-

The rover cut the parachute and started navigation in the air.
The parachute flew away…
The rover free-fell and crashed…

After First Launch

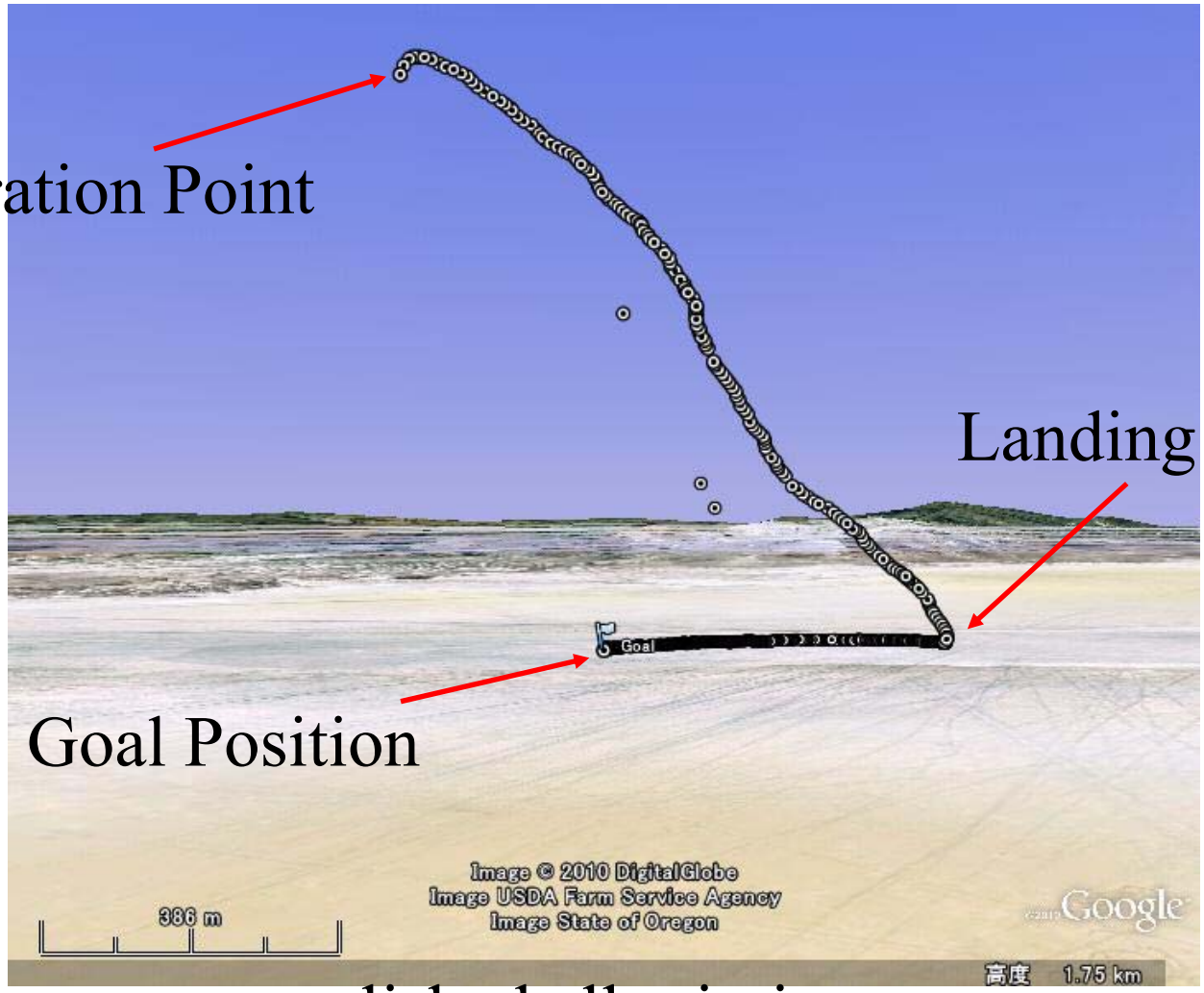
Fortunately, motors and most of electronics survived.
Tokyo Univ. team found our parachute! Thank you!!!

Our rover perfectly came back!!

Second Launch – 16th Sept. -

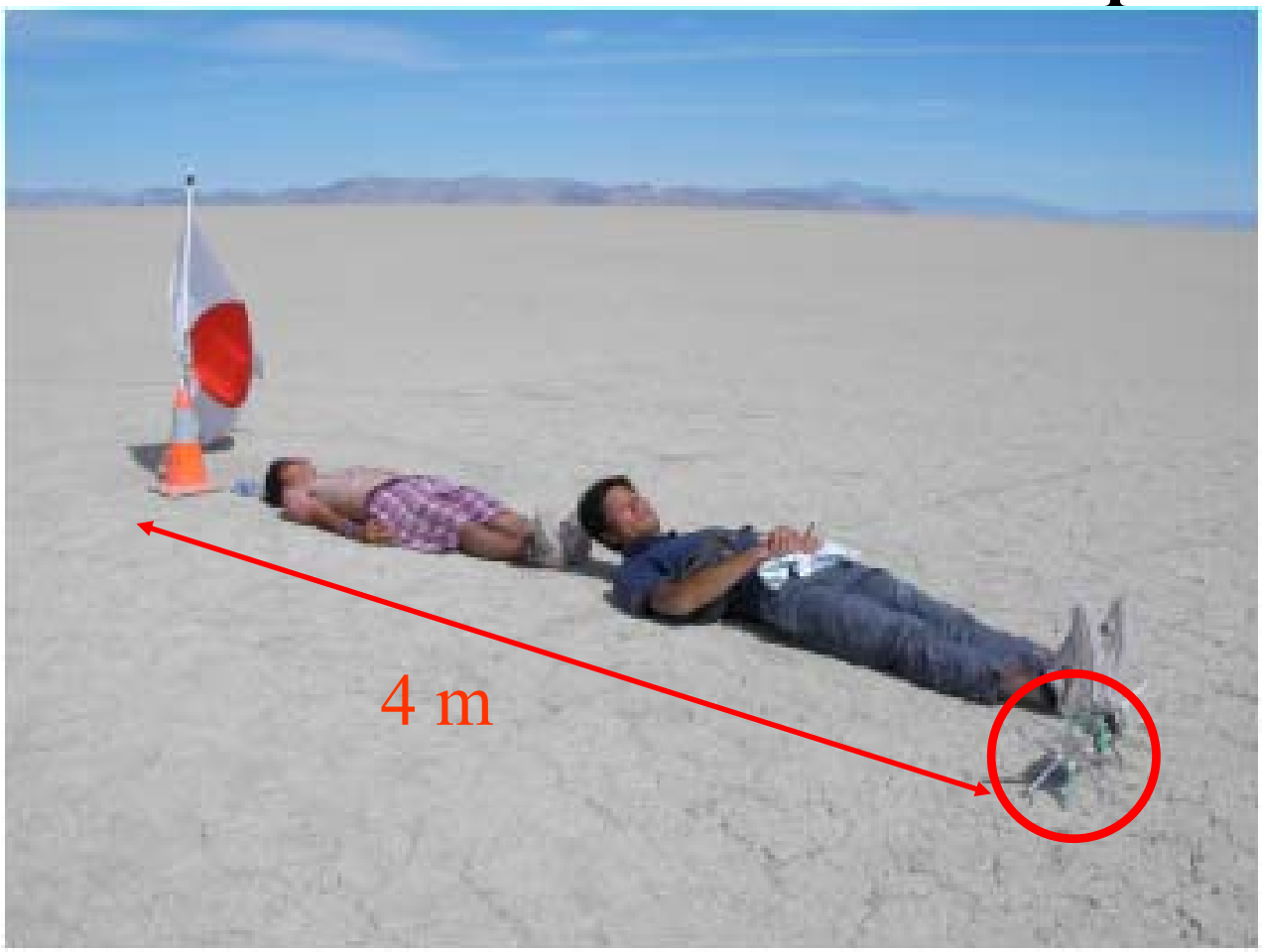
Video Clip

Second Launch – 16th Sept. -



Our rover accomplished all mission sequences, and reached the goal position!!!

Second Launch – 16th Sept. -



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and reached the goal position!!!

Thank you David and Charles for nice flights!