

ARLISS2011

Team Oken 15/9/11

P R E S E N T A T I O N
Yoshinori Mikawa(D2) Qiao Kun(D1) Junichi Takisawa(M2)
Kensuke Otsuki(M1) Ryuhei Hamaguchi(M1)
Atsushi Yamamoto(B3) Satomi Asai(B2)

Outline

We tried 2 missions.

- 1. “Korekiyo” – relays GPS data of the transmitters**
- 2. “Echizen” – twinkles with LED’ s**

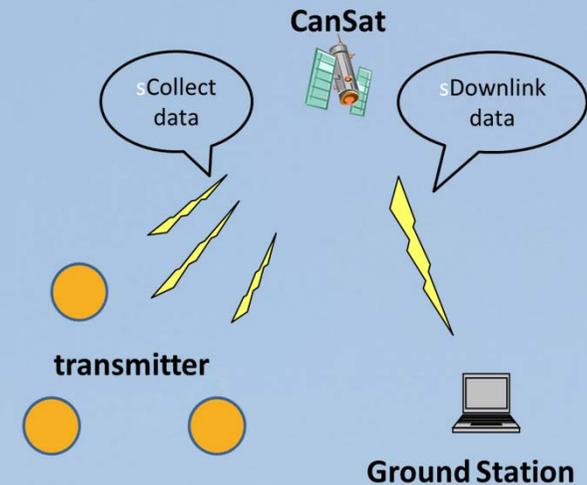
Outline

We tried 2 missions.

1. **“Korekiyo” - relays GPS data of the transmitters**
2. **“Echizen” - twinkles with LED’ s**

Mission 1 ~ Korekiyo

- **Collection of GPS data**
 - **CanSat collects GPS data from several different ground transmitters.**
 - **CanSat relays those GPS data to the central ground station to inform their coordinates.**
- **Practical application**



Disaster-relief activity



Prevention loss of CanSats

Prevent loss of any CanSat
We can know the place of each CanSat
Equip the transmitter onto each team's CanSat

Korekiyo success criteria

Minimum Success

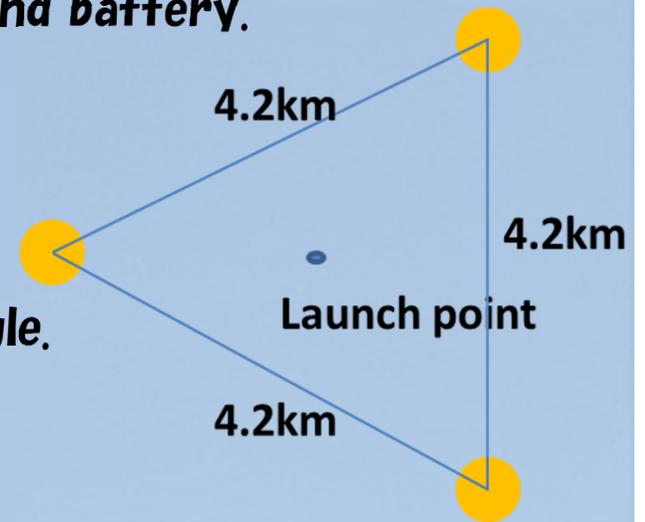
- 1. The CanSat collects the GPS data of at least one transmitter and the data is downlinked to the ground station.**

Full Success

- 1. The CanSat collects the GPS data of at least two transmitters which are 4km distant from each other and the data is downlinked to the ground station.**
- 2. At least one transmitter survives for more than 24 hours.**

Korekiyo system overview

- **CanSat has very simple system.**
 - Only mainboard, GPS, transceiver, SDCard, FP, and battery.
- **The transmitter is small.**
 - $\Phi 62\text{mm}$ – can be equipped into the CanSat.
 - We placed three transmitters as regular triangle.



Parachute

GPS

Battery

Transceiver



1st launch

□ Result

- *FP was not come off, so CanSat' s transceiver did not be activated.*
- *On the other hand, we confirmed all the three transmitters survived for 24 hours (full- 1 success)*



FP is not come off.

Parachute has two holes.

□ Assignment

- *We changed FP structure -*
 - before : FP string is tied in the rocket*
 - after : FP string is tied in the parachute string itself*

2nd launch

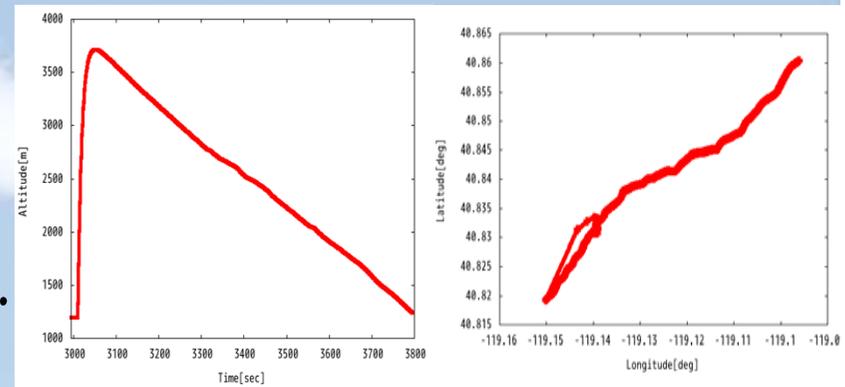
□ Result

- FP was come off.
- CanSat collected all the three transmitters GPS data and downlinked to the ground station.
- Downlinked GPS data of each transmitter is same as the GPS data recorded in each transmitter.
- We succeeded full success finally!



□ Appendix

- Right figure shows GPS altitude and coordinate data of the CanSat.





Thank you very much!

Outline

We tried 2 missions.

1. "Korekiyo" - relays GPS data of the transmitters
2. "Echizen" - twinkles with LED's

Mission2~Echizen

□ **The night launch!**

- **CanSat twinkles with LED' s.**
- **CanSat senses a laser beam from the ground station and shows eye-catching performance!**



Echizen success criteria

Minimum Success

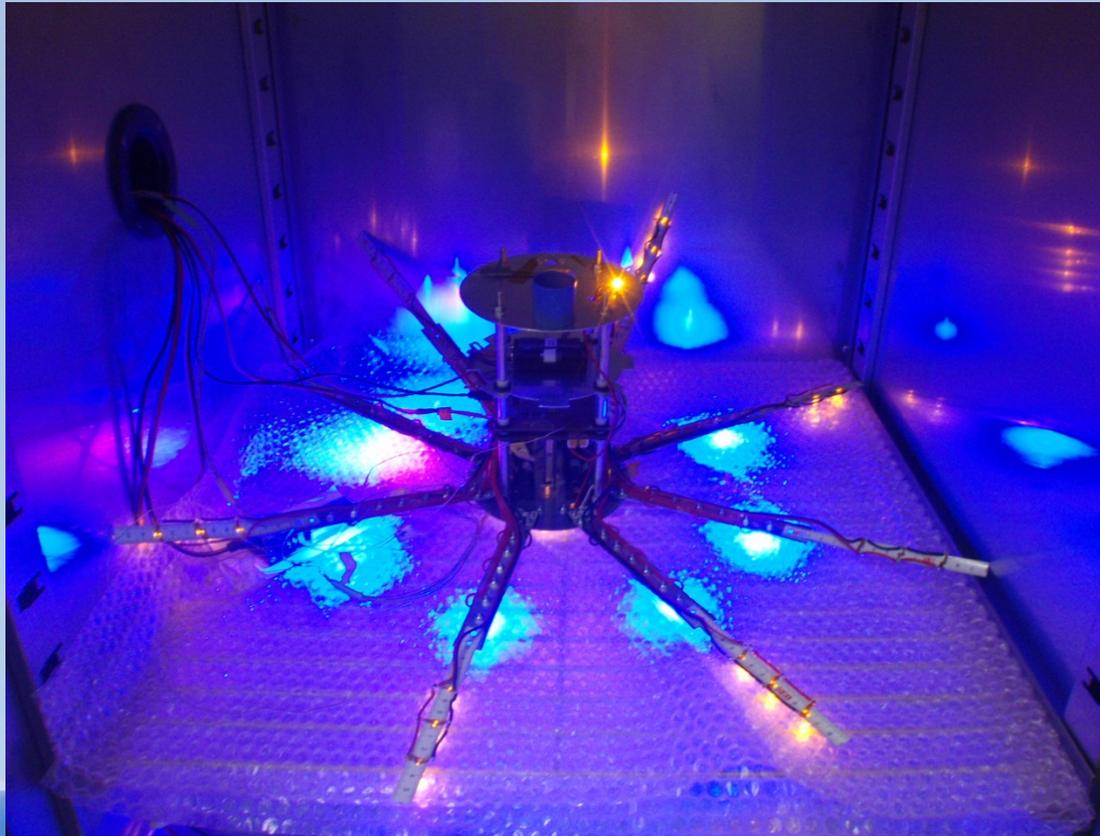
- *Before our CanSat's landing on the earth, more than 1 person see our CanSat's light.*

Full Success

- *We irradiate our CanSat with a laser and the state of the light of our CanSat changes.*

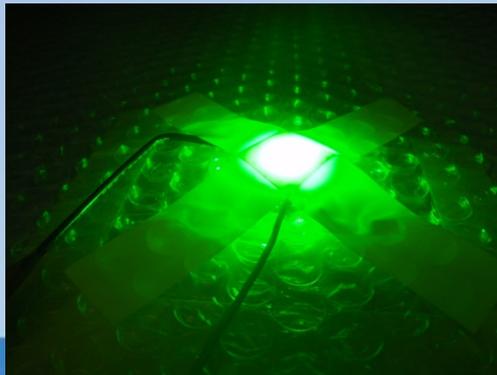
Echizen system overview

- Main structure is same as “Korekiyo”
 - “Echizen” is “Korekiyo” with 8 arms
- Echizen has **50 LEDs** and **3 photosensors**.



Launch

- ***Our CanSat twinkled like a green star!***
- ***However, FP was not come off, so CanSat emitted only one LED and couldn't detect the laser.***
- ***It's regretting imaging of the 50-LED's performance.***
- ***However, we are very appreciate for you because of cheering up this mission.***



A night sky with a star trail and a road at night. The sky is dark with a trail of stars. The road is illuminated by a bright light source, possibly a car headlight, and the surrounding landscape is dark.

Thank you very much!