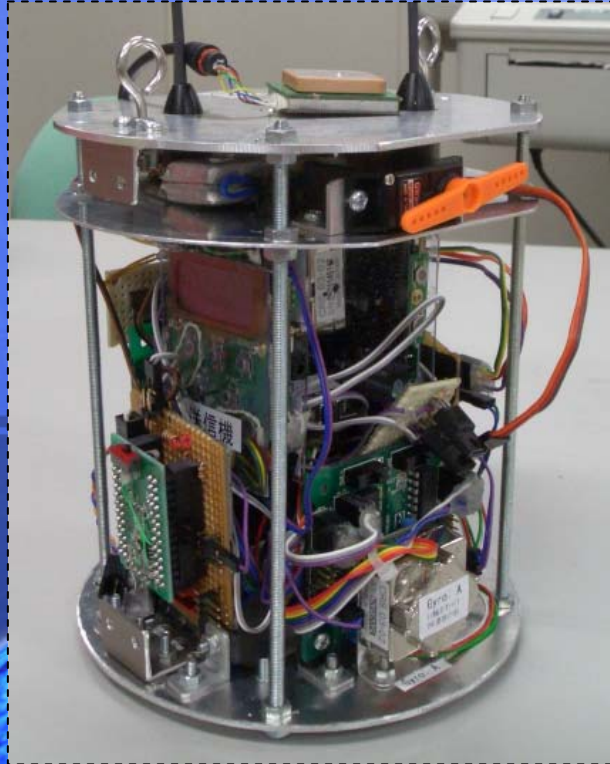


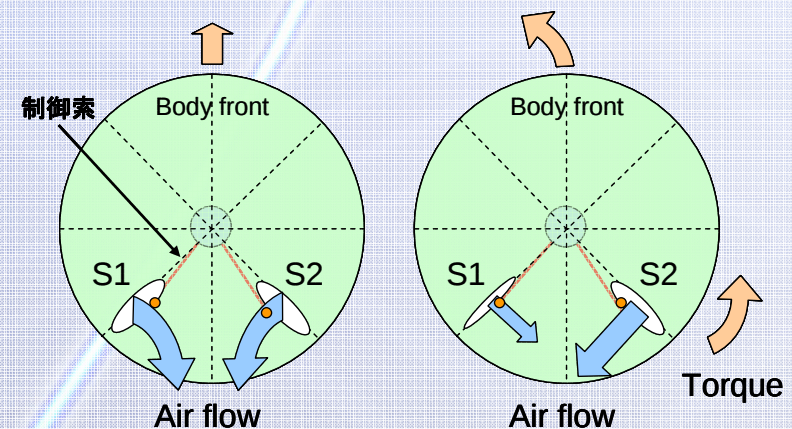


Kagawa University Open Class CanSat MICAN

Hideki YOSHIHARA
Takeshi YAMAMOTO
Akira ANDATSU

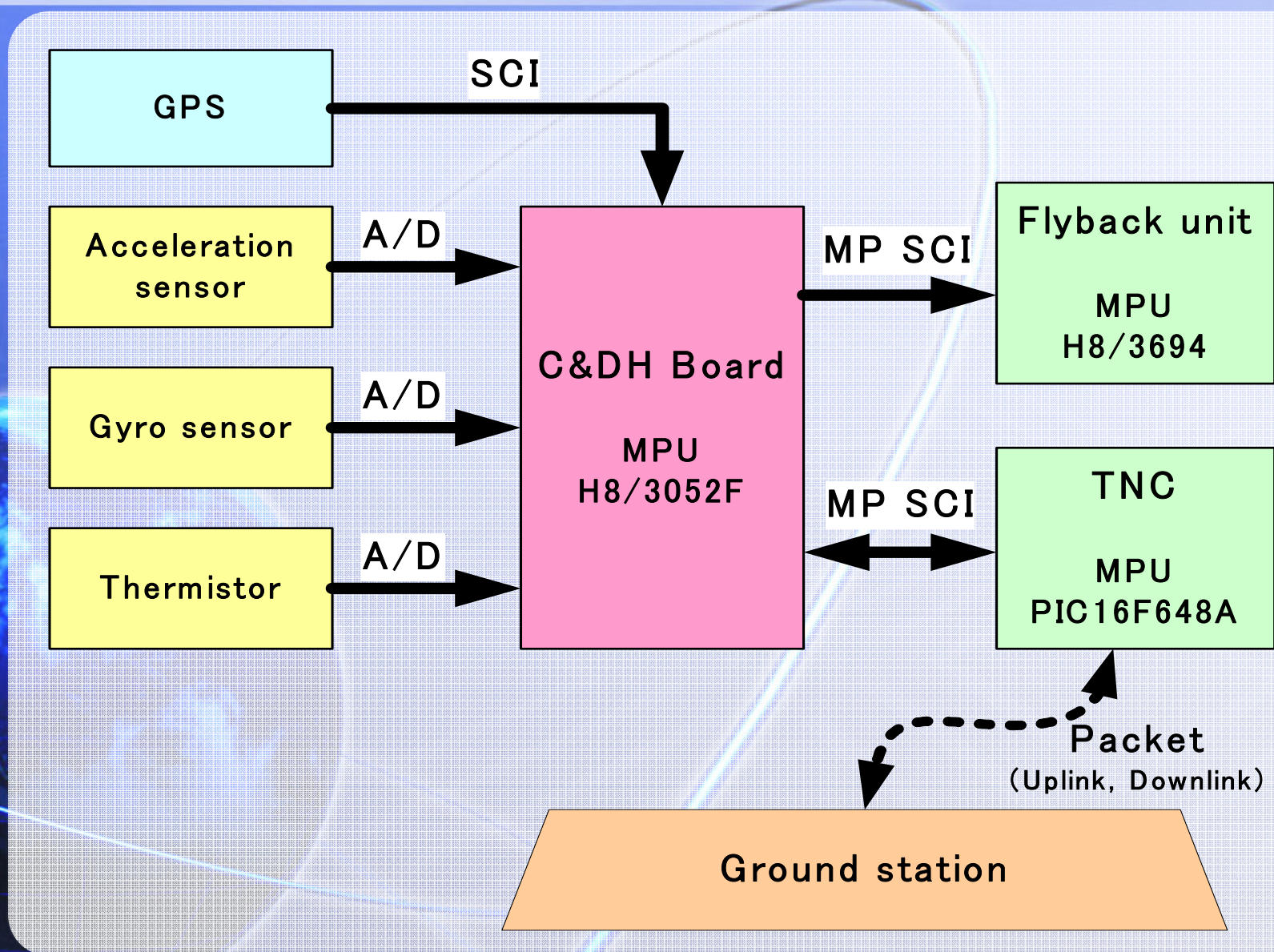
Mission and purpose

- Minimum success
 - Downlink sensor data
 - Recording telemetry data
- Mission success
 - Uplink command
- Extra success
 - Flyback



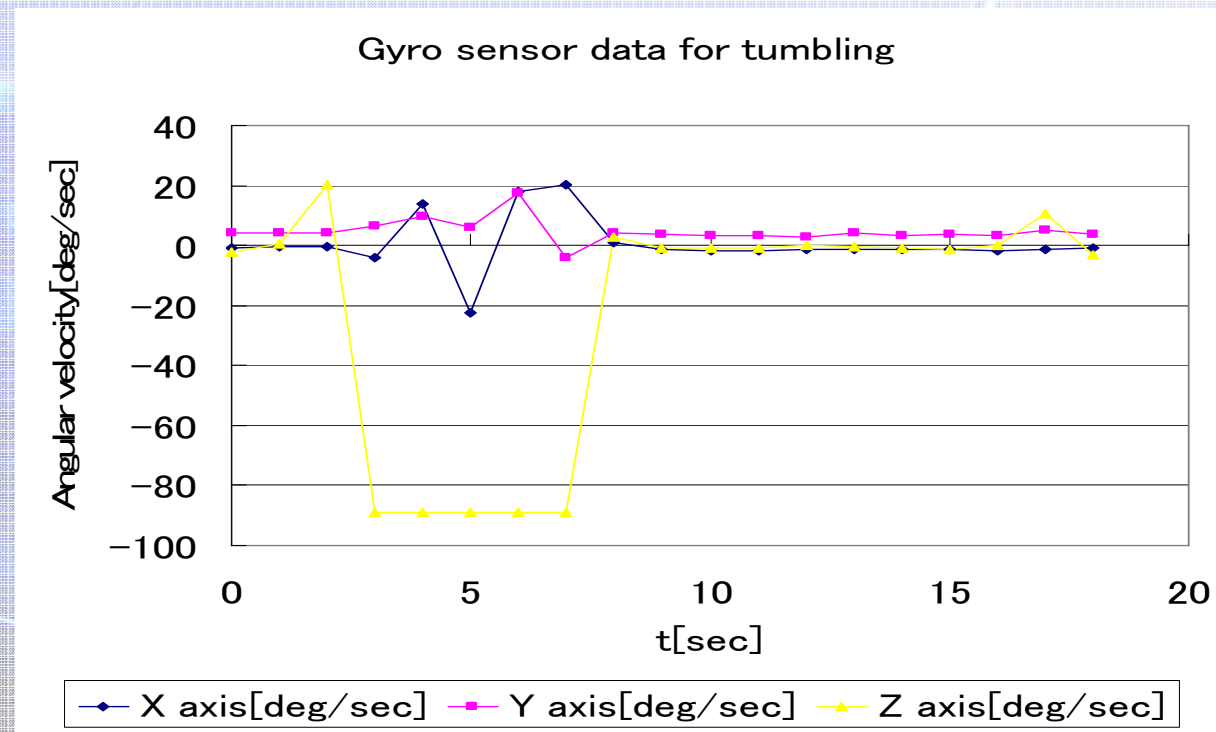
Testing Bus-system for pico-satellite

Structure of the system



Module test – Gyro sensor

- Gyro data is changing largely at release of the cansat from the rocket.
- It is zero when the cansat is performing stable fly,
- It is highly changing when the cansat is tumbling.

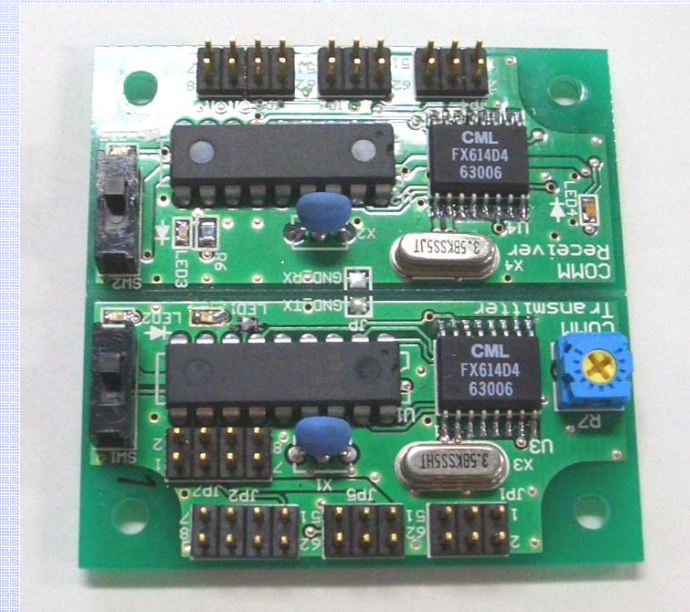


Result – Action Flow

- MICAN have Redundancy system
 - Release sensor switch when release from rocket
 - Acceleration sensor when launch rocket
 - GPS re-positioning
 - Emergency Command from Ground Station
- 1st launch result
 - Telemetry data down link started by acceleration sensor when setting the rockets
 - But in fact, We had expected starting this when launch.
- 2nd launch result
 - Normally start, No fault.
(now analyzing detail...)

Result – Communication Sys.

- Same type as our developing satellite TNC.
- TNC Spec
 - MPU : PIC16F648A
 - Protocol : Ax.25
 - Bit rate : 1200bps
- 1st launch result
 - Uplink couldn't path for CanSat
 - It was because of the transceiver radio interferometry



Downlink data

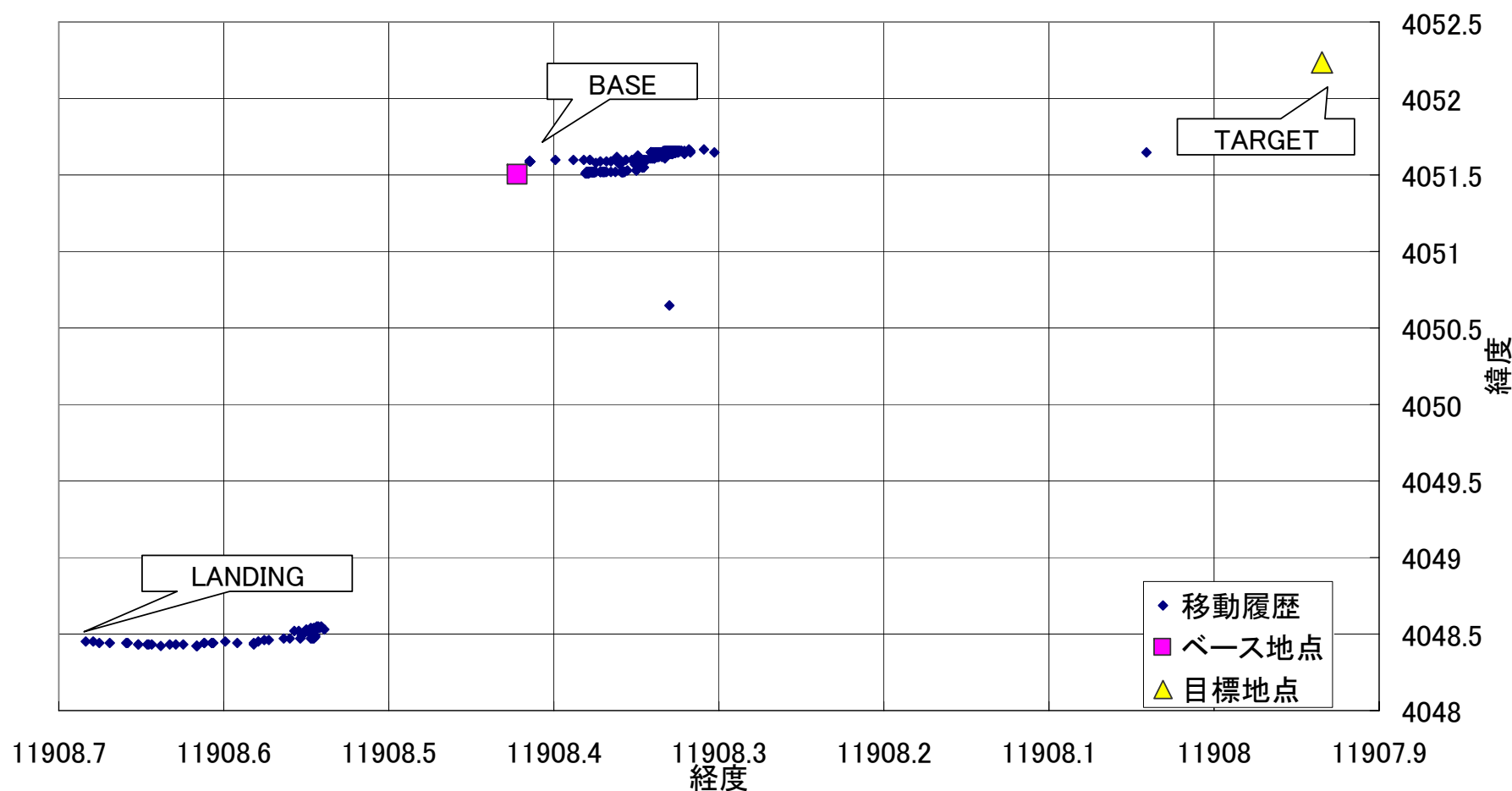
Time, Latitude, Longitude Altitude, Angular velocity,
Acceleration velocity, Temperature, System condition

Uplink data

Command

Result - Flyback

- Trajectory (Flyback) at 1st flight

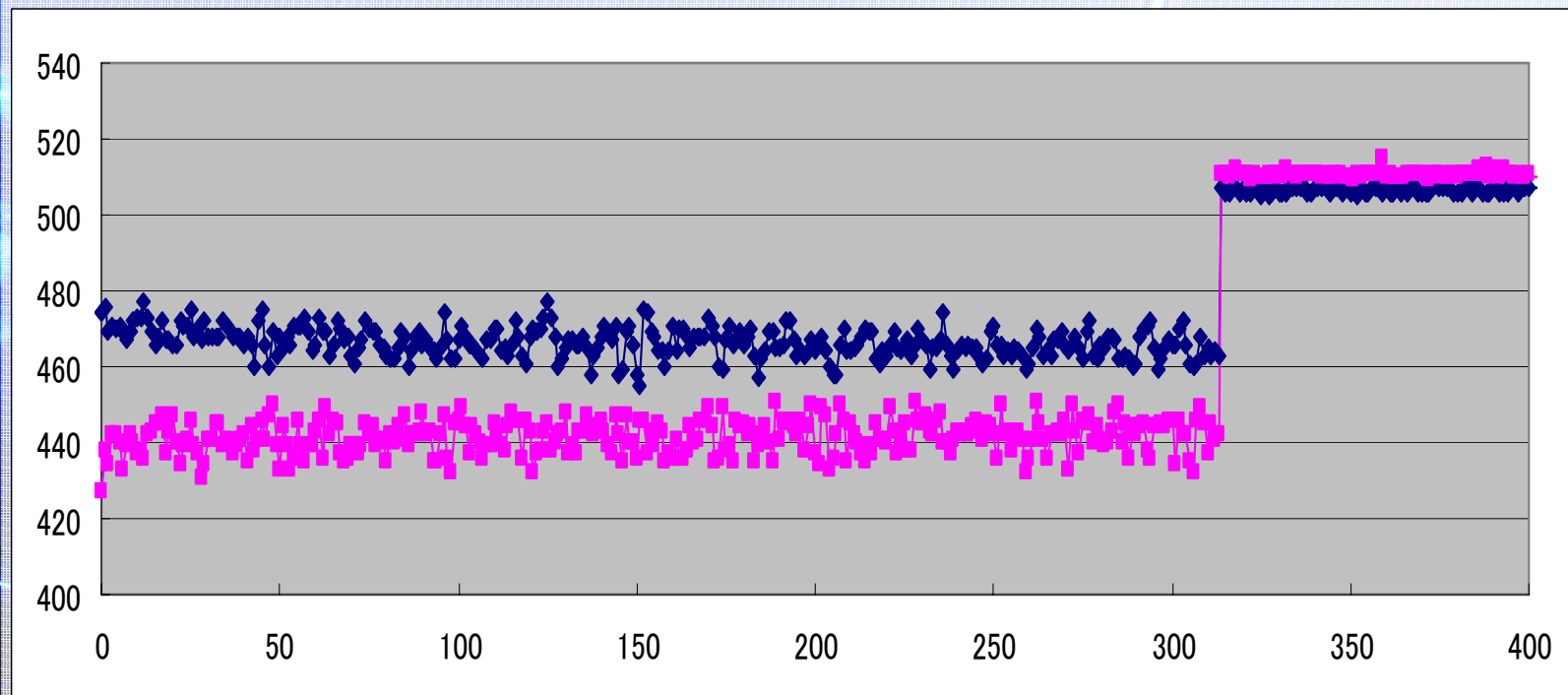


Result – Flyback

- 1st flight
 - About 6900m(4.3miles) far from target
 - Couldn't flyback control
- 2nd flight
 - About 7000m(4.4miles) far from target
 - Couldn't flyback control

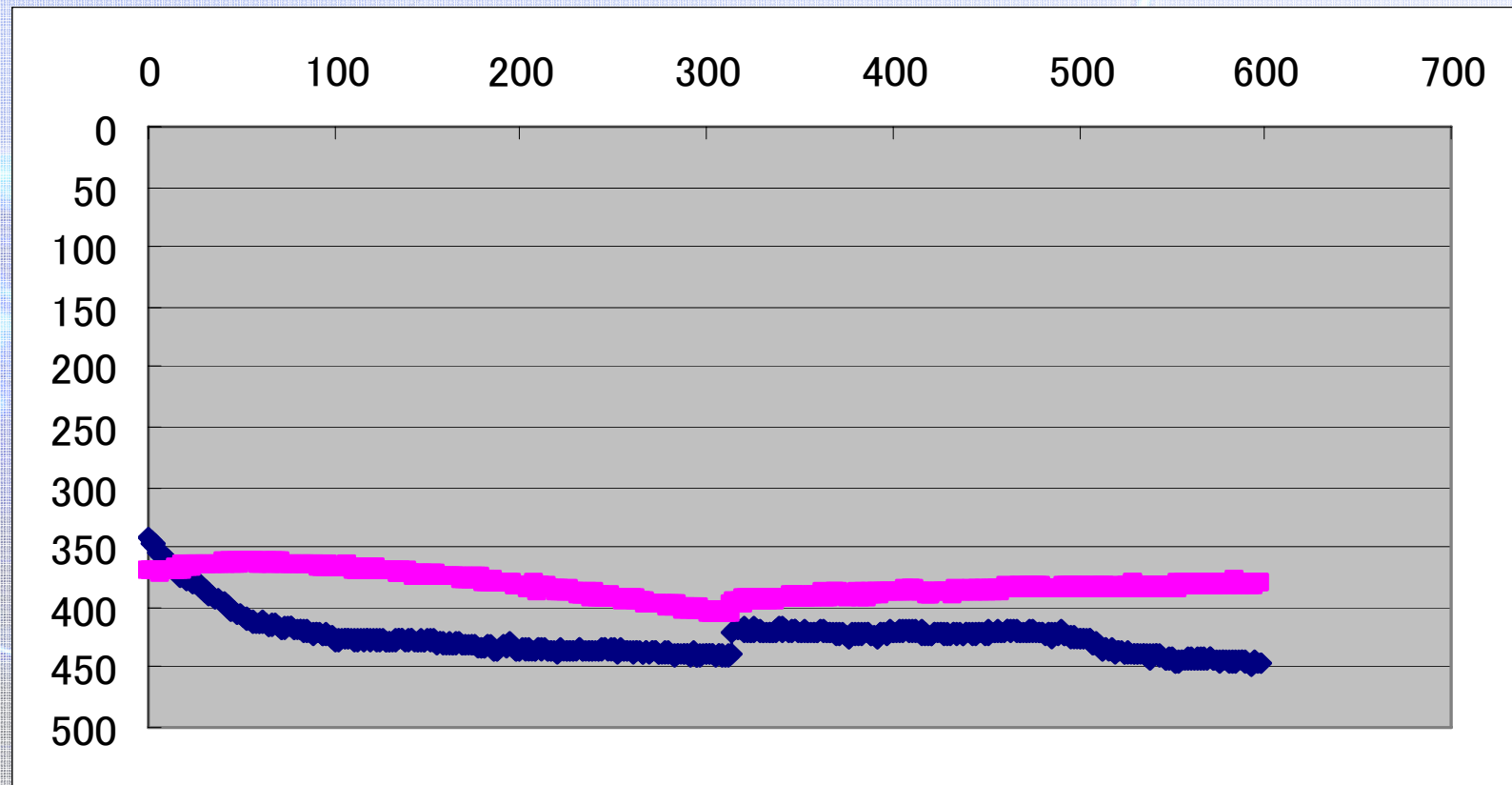
2nd trial Result – Acceleration sensor

- It is constant when the cansat is stable flying, and it is nearly zero after the landing
- It is highly changing when the cansat is tumbling, that is also noted from gyro sensor data



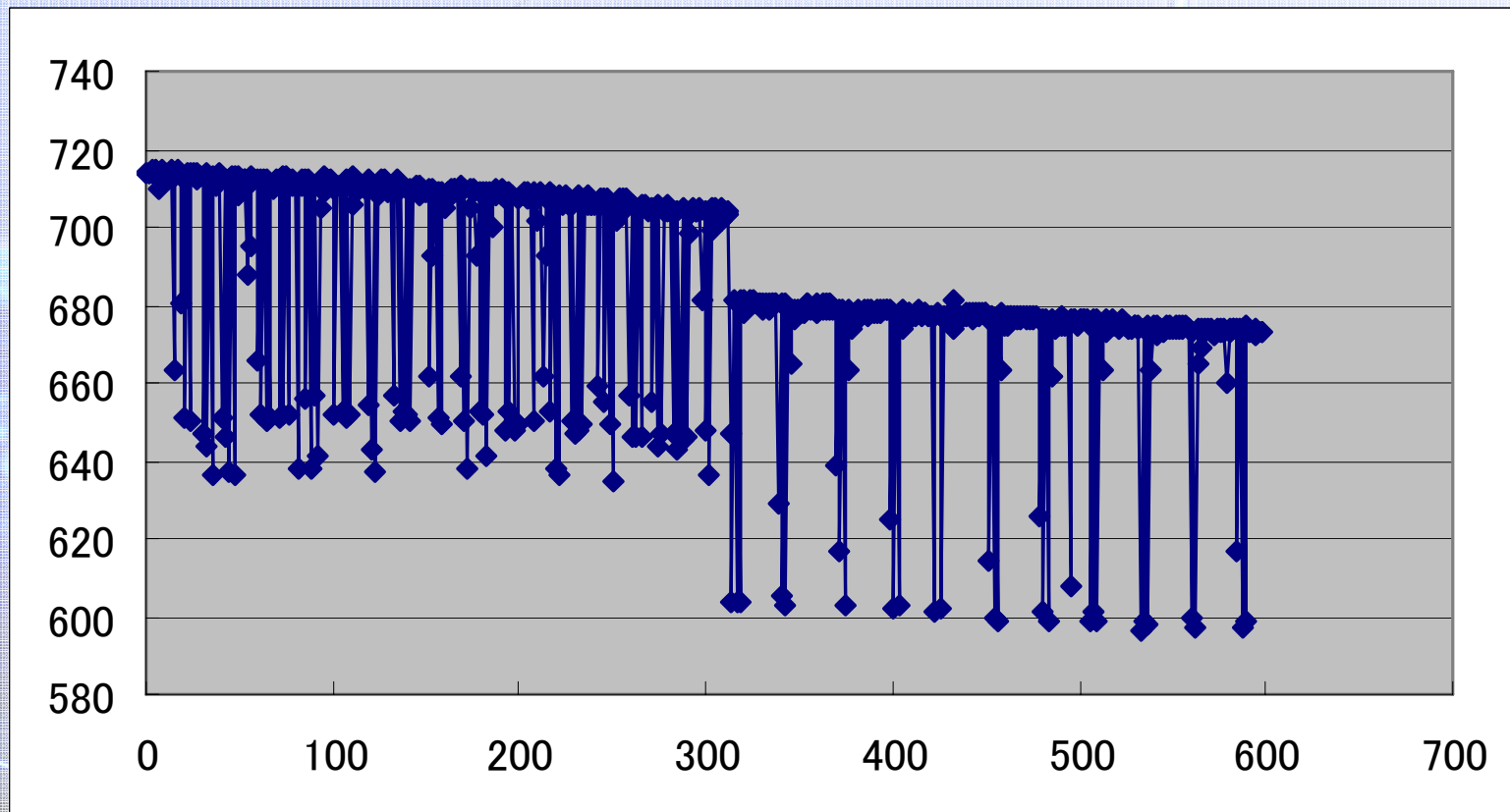
2nd trial Result – Thermo sensor

- Sensor raw data (need to analyze)
 - When cansat was released, temperature decreased.



2nd trial Result – Voltage

- Battery voltage is gradually decreased.
- Especially decreasing when the servo moter is actuating.



Thank you!

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