ARLISS2009

Matunaga-Lab A-team

Members

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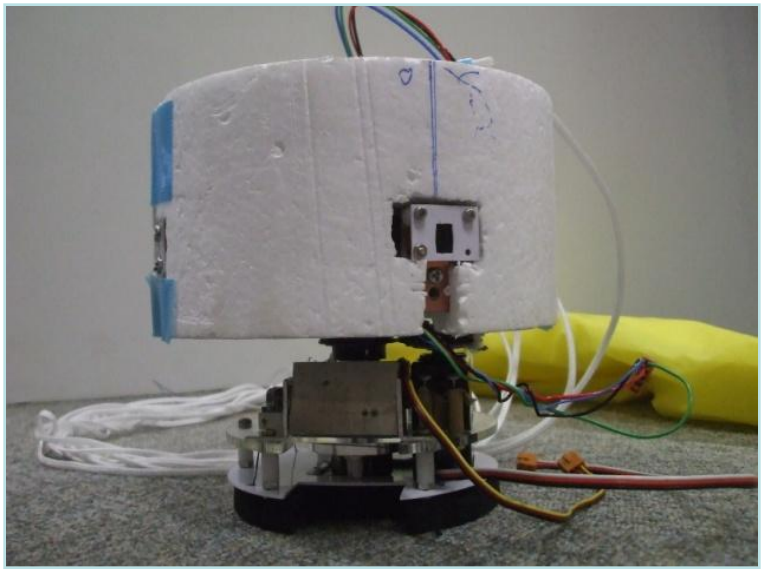
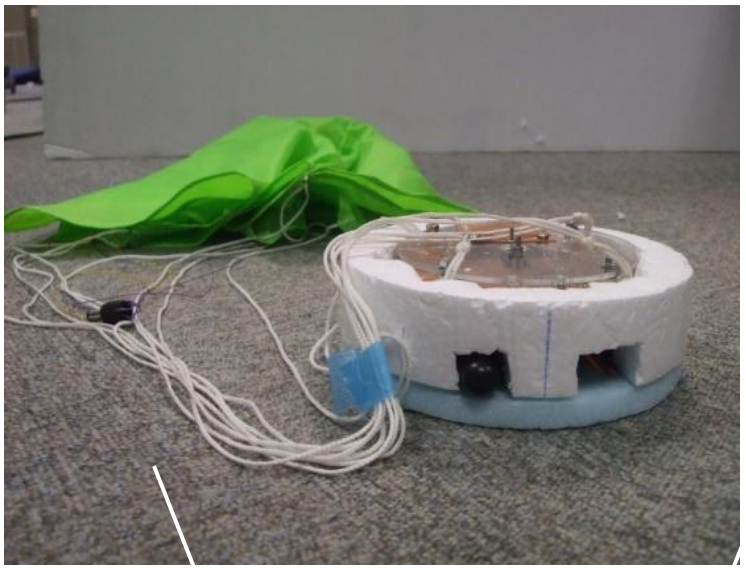
Our CanSat & Mission

Our CanSat is consist of Two Satellites



Tom



Jerry

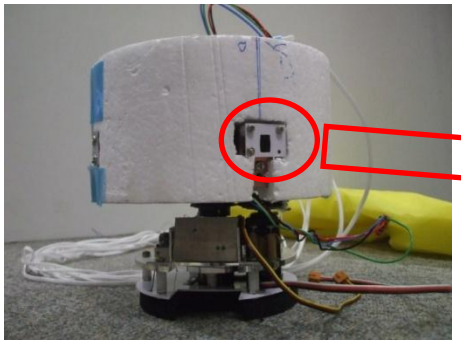
Mission

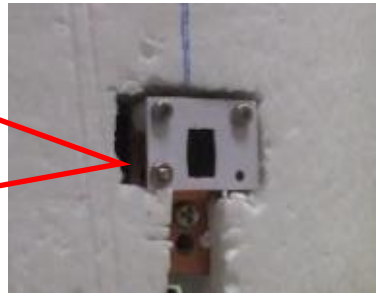
『Tom』 shoots 『Jerry』 with camera

Requirement & Design

- 『Tom』must Know direction of itself

Hand made Sun Sensor used for this requirement





Sun Sensor

Get out-put of Sun direction

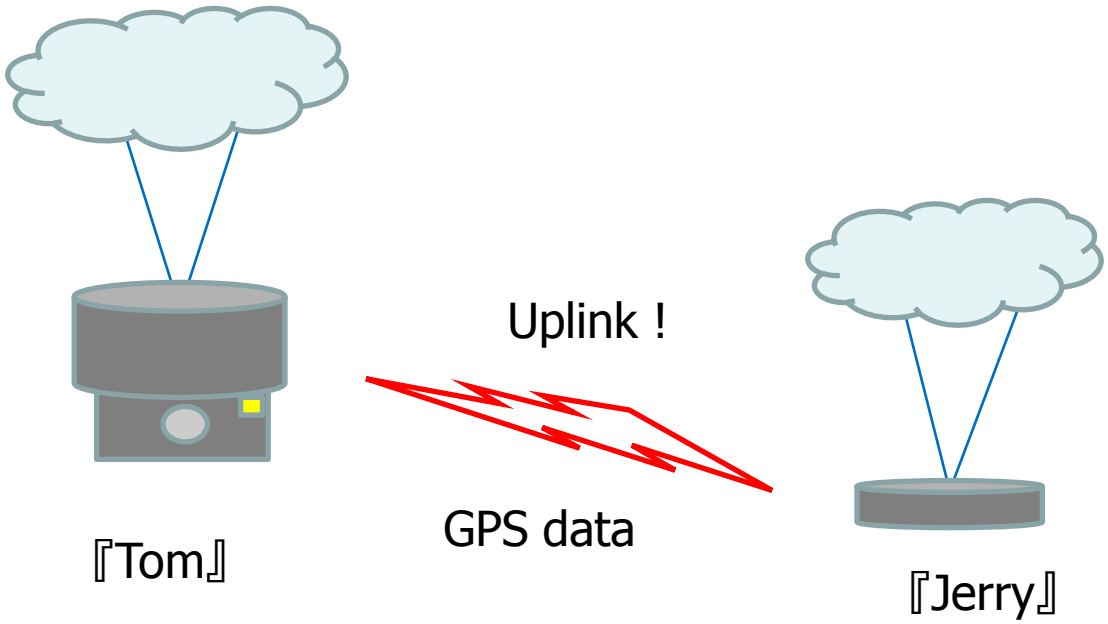
The Position of the Sun determined by time

Direction of『Tom』determined

Requirement & Design

- 『Tom』must know『Jerry's』 GPS data

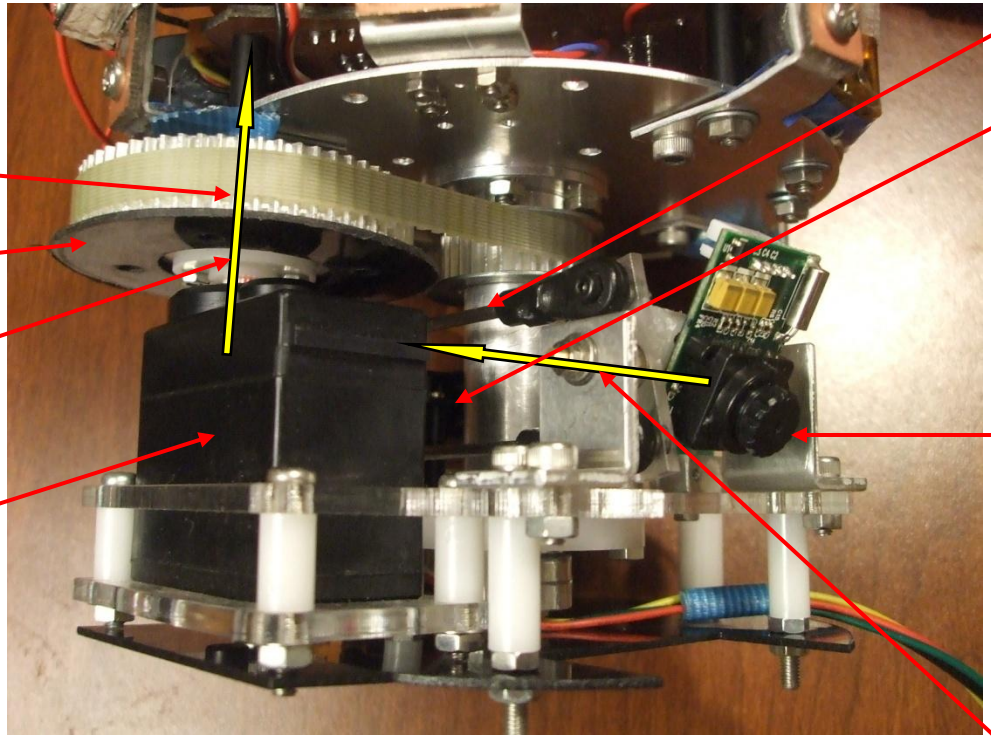
『Jerry』uplink the GPS position to『Tom』



Requirement & Design

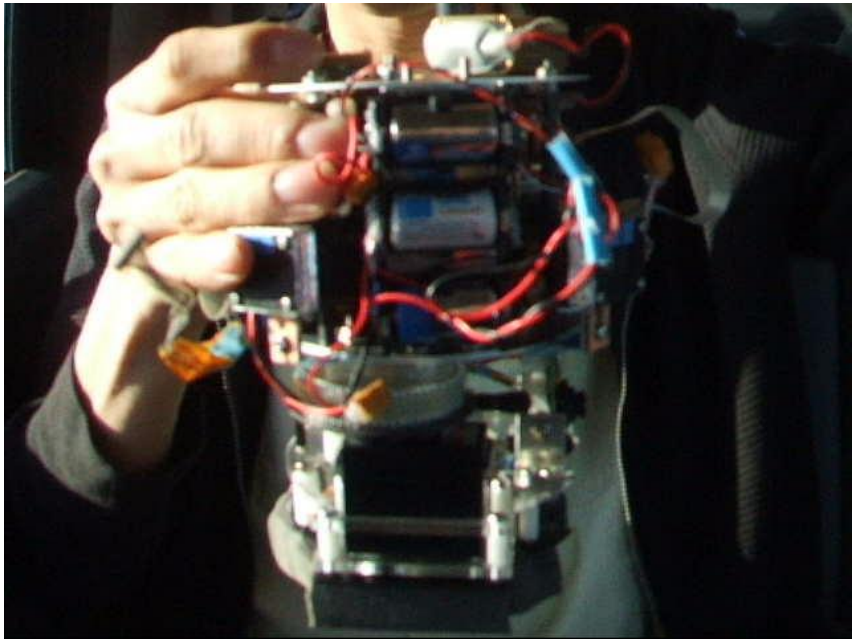
- 『Tom』must have camera rotation mech.

We designed following mechanism



Demo

Movie of camera rotation



1st flight

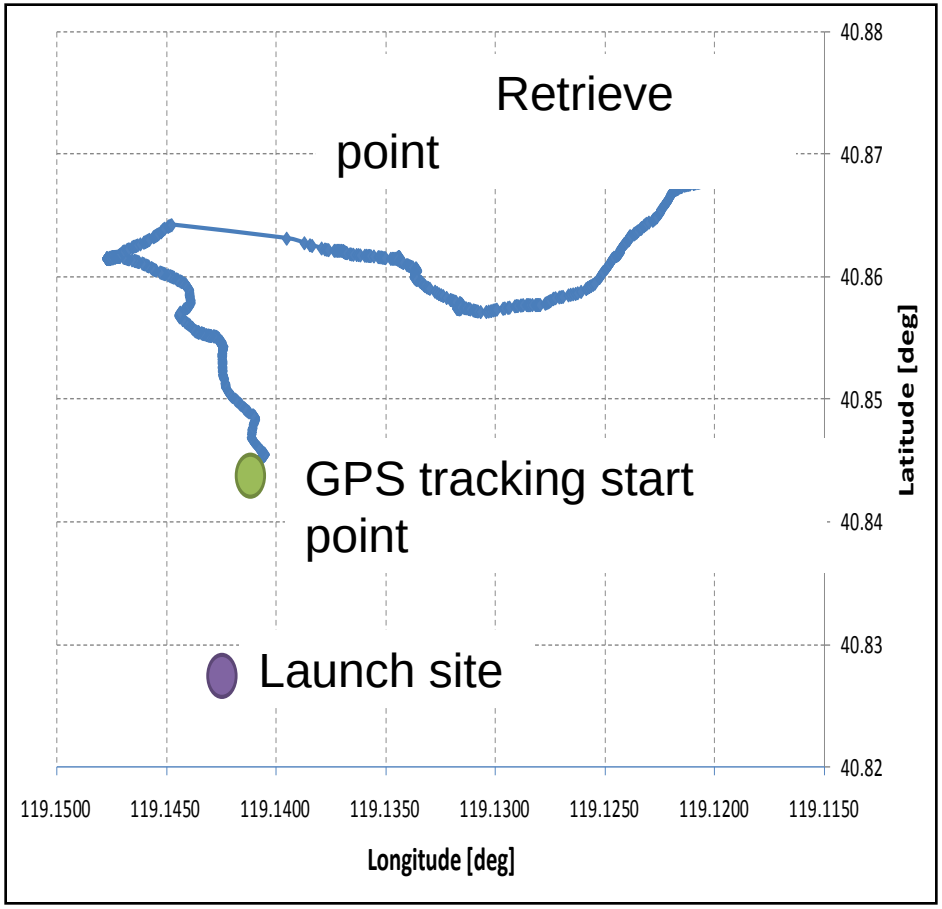
Result of 1st flight

Success

- 『Tom 』got sensor data
- 『Tom』communicated with GS
- Rotation system worked
- Separation system worked

failure

- 『Jerry』didn't work
- Camera didn't work



Plot of GPS data

2nd flight

Result of 2nd flight

Success

- 22 Pictures(640×480picel)
- 『Jerry』 uplinked data to 『Tom』(1time)
- 『Tom』&『Jerry』 got their sensor data
- Rotation,Separation system worked

failure

- 『Jerry』 is not in these pictures
- 『Tom』 froze 5min after launch

Example of pictures

Success dgree(2nd flight)

- Minimum success ○
  - separation system
  - saving sensor data
  - camera rotation system
  - getting pictures
- Middle success △
  - communication Tom with Jerry succeeded 1 time
  - Sun sensor worked
- Full success ×
  - attitude determination failure
  - taking a picture of launch site was failure
- Advanced success ×
  - Taking a picture of『Jerry』was failure

Additional flight

We could take a third flight fortunately. (But it is not success. GPSR was broken)

Thank you !