

CanSat Fly Back Competition

# **NOSHIRO SPACE EVENT 2008**

---

能代宇宙イベント 2008  
缶サットフライバックコンペティション

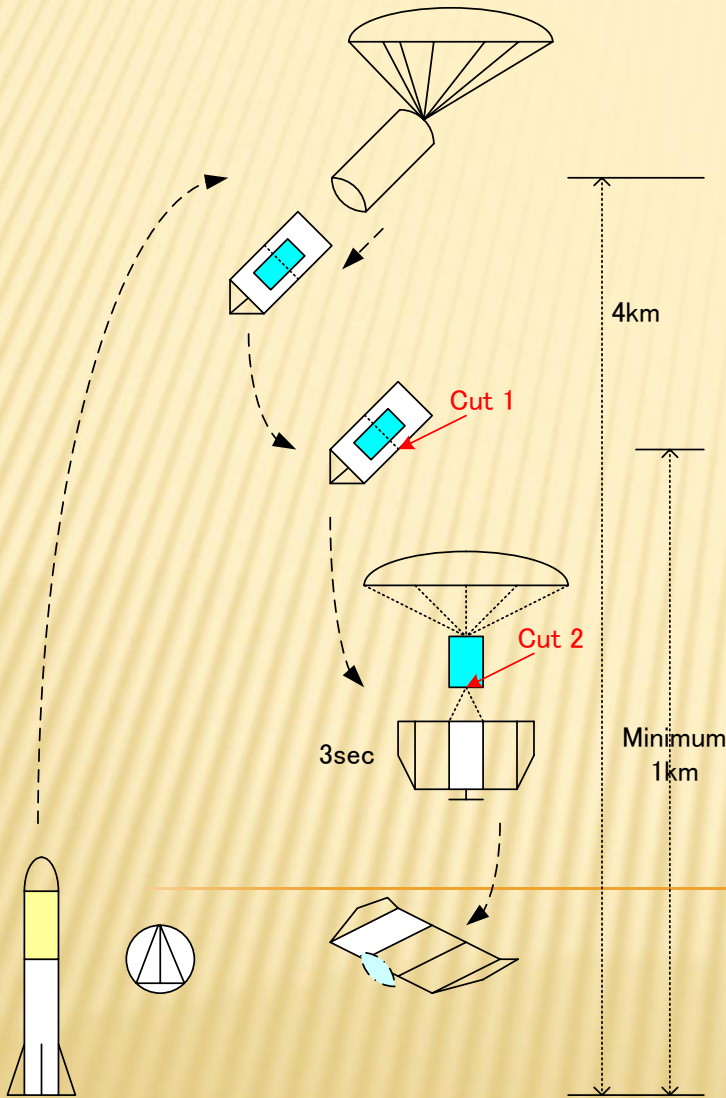
# CONTENTS

- ✘ Concept of operation
- ✘ Basic specification
- ✘ Structure
- ✘ Electronics
- ✘ Attitude control

---

- ✘ Navigation

# Concept of operation



- Step 1. Rocket flight and launch
- Step 2. CanSat separation
- Step 3. High speed, mass-driven descent
- Step 4. Parachute and wing deployment (1<sup>st</sup> stage deployment)
- Step 5. Parachute assisted descent
- Step 6. Parachute and mass separation (2<sup>nd</sup> stage deployment)
- Step 7. Active flight

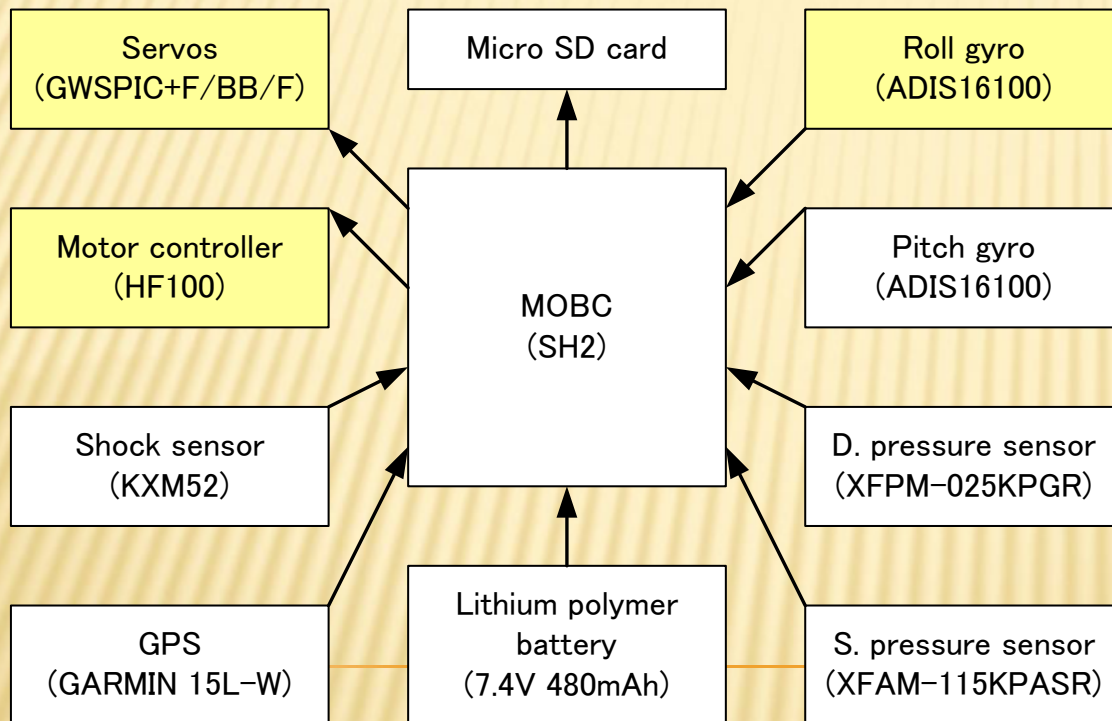
# Basic Specification

- ✘ Five sections unfolding wing
  - + Surface area 0.09m<sup>2</sup>
  - + Chord 0.24 m
  - + Wingspan 0.41m
  - + Thickness to chord ratio 0.08 at 0.23 c
- ✘ Guidance and control system
  - + Gyro sensors (pitch and roll)
  - + Two differential servos controlling elevons
  - + GPS for guidance
- ✘ Single, centrally mounted, propeller with geared motor
- ✘ TOTAL MASS : 195g(craft) + 365g(seperation system)

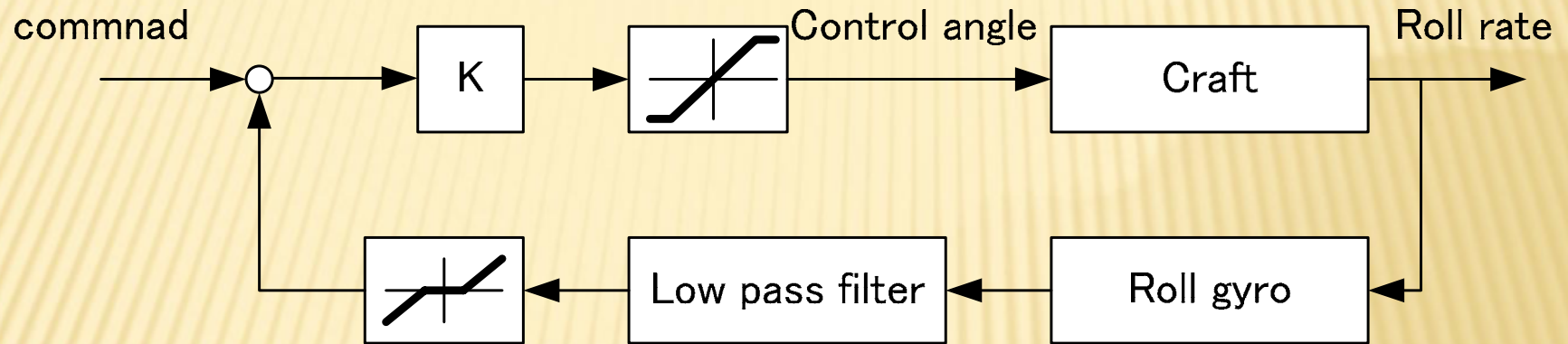
# Structure



# Electronics

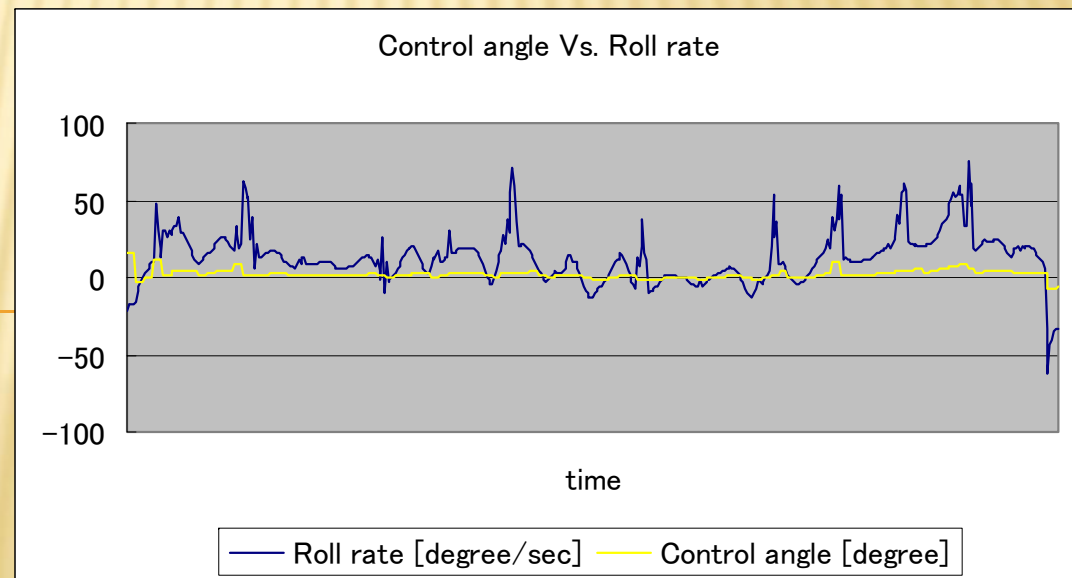


# Attitude control

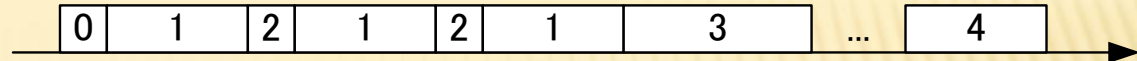


[Video of ground test](#)

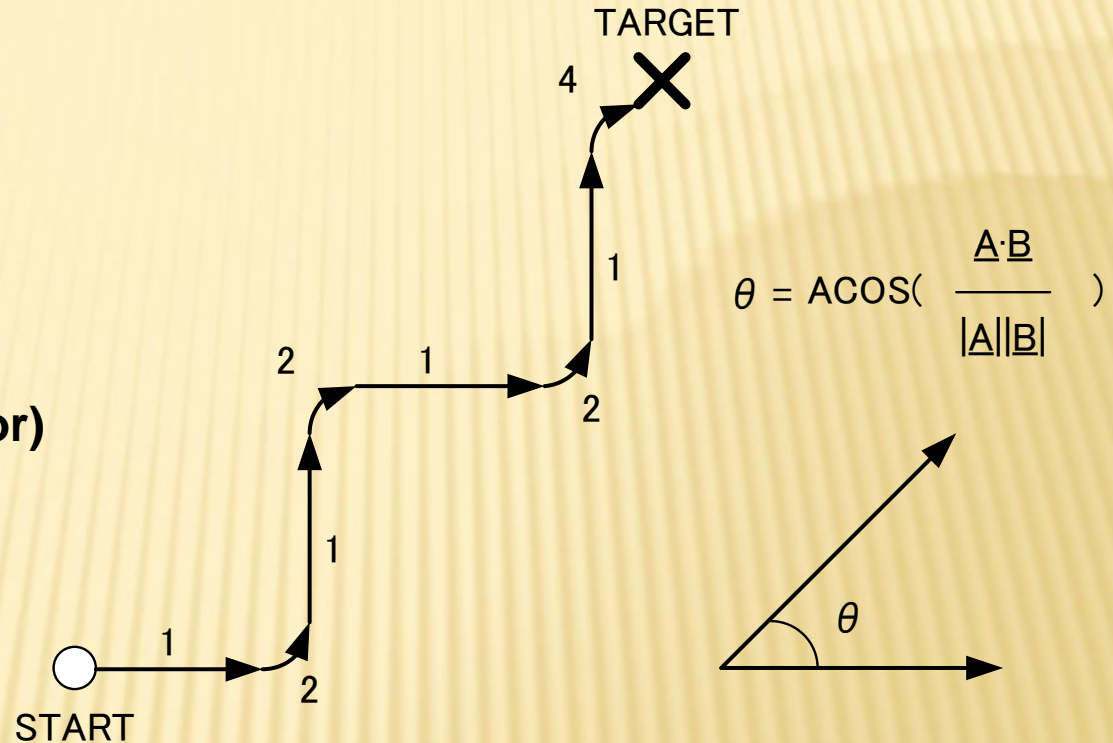
[Video of control flight](#)



# Navigation



- 0 : Initial mode**
- 1 : Straight flight**
- 2 : Turning flight**
- 3 : Circulation flight(GPS error)**
- 4 : Target mode(spin mode)**



## NOSHIRO event result

1. First try : Too close to the target → Target mode without flight mode
2. Second try : Left wing was broken before flight → Crash!

## Work to do

1. Navigation function check ( On the ground? )
2. Check the field condition ( Wind, Vibration, ... )