

CLTP5

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18 Sep 2014



CONTENTS

- Time Frame
- My CanSat
- My Rocked
- Launch
- Data analyst
- Plan after CLTP5

DAY 1

- Welcome and self introduction
- We are starting and soldering...



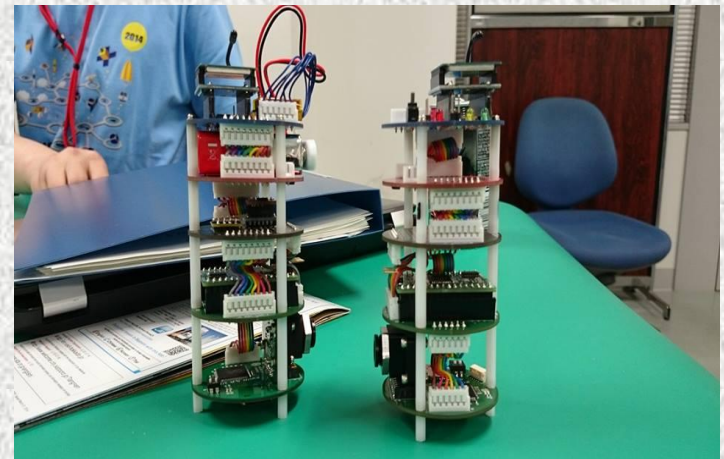
Time Frame



Time Frame

DAY 2

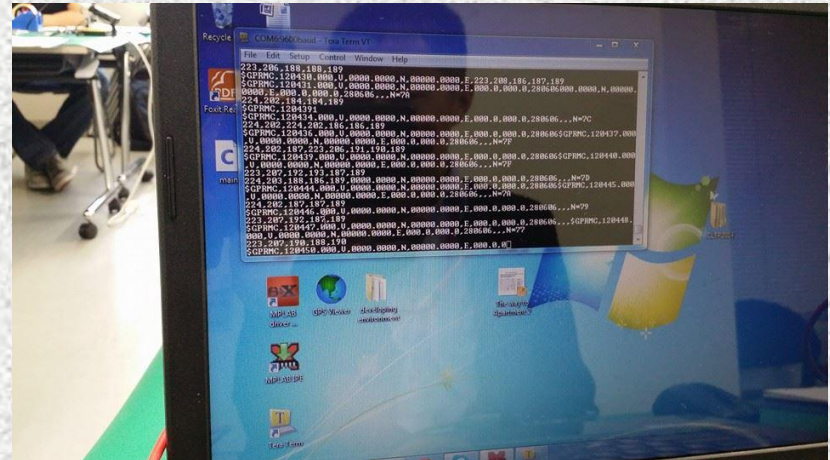
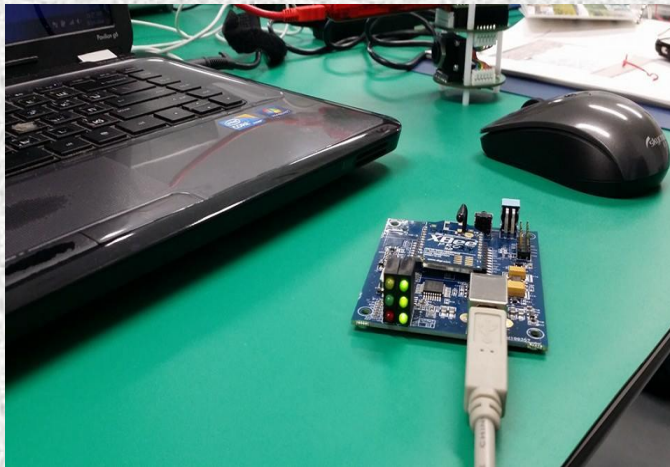
- Working
- Finishing basic structure of CANSAT



Time Frame

DAY 3

- Communication
- Ground station
- Test
- Camera setting



Time Frame

DAY 4

- GPS data acquisition and Parachute deployment test



Time Frame

DAY 5

- Shock
- Sine
- Vibration
- Thermal tests



Time Frame

DAY 6-7

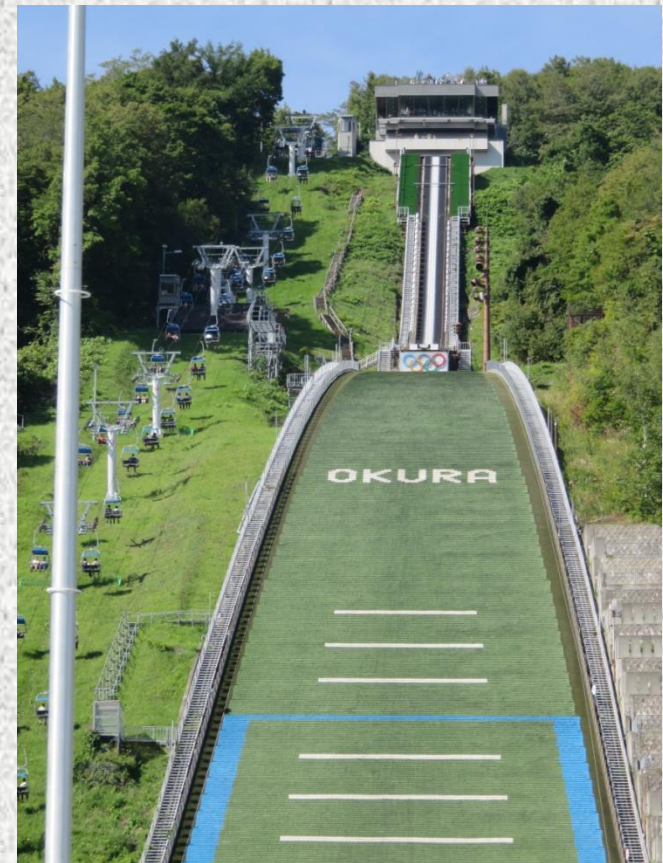
- Advanced mission
- Electronics shop and Autumn festival
- CanSat development



Time Frame

DAY 8

- City Tour
- In Akabira



Time Frame

DAY 9

- Rocket at Uematsu Electric Co.,Ltd
- Nice dinner



Time Frame

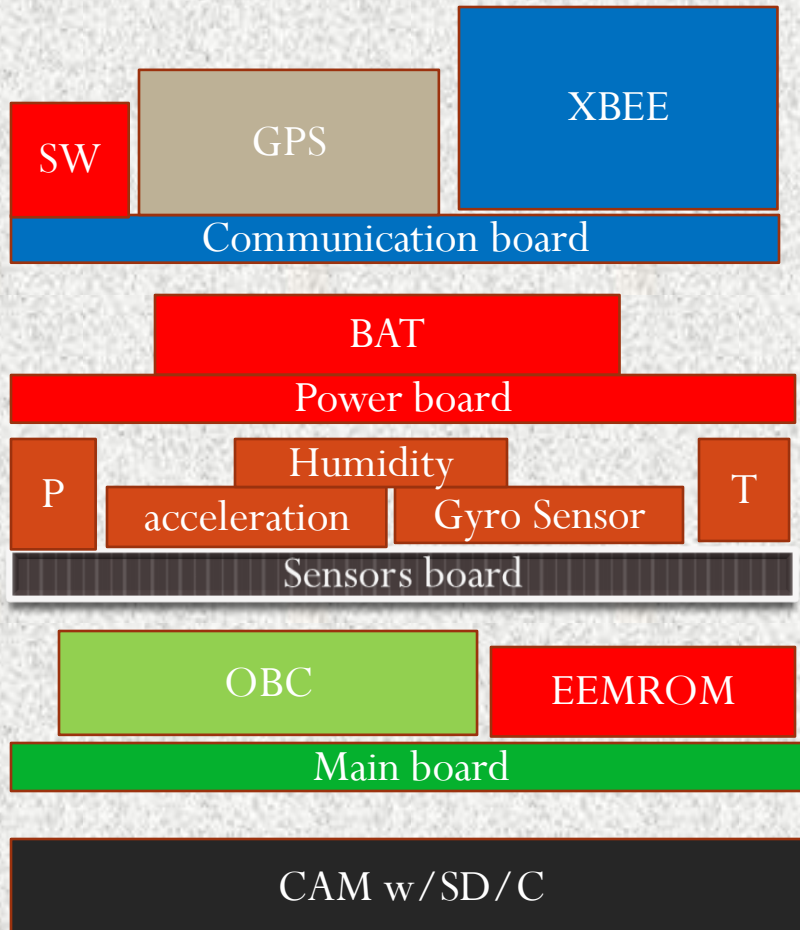
DAY 10

- Launch



HARDWARE DESIGN

CanSat



- Xbee PRO S2
- GPS G106
- 9V ALKALINE battery
- 3.3V regulator SPX3940M3-L-3-3
- ADT7410 temperature sensor
- MPL115A2 pressure sensor
- AS-3ACC-3 acceleration
- ENC-03R Gyro sensor
- HS12P Humidity sensor
- PIC16F077AFF Microcontroller
- 24LC1025 EEPROM
- Camera module CANCEM Ver 1.0
- 2GB mini SD card

CanSat

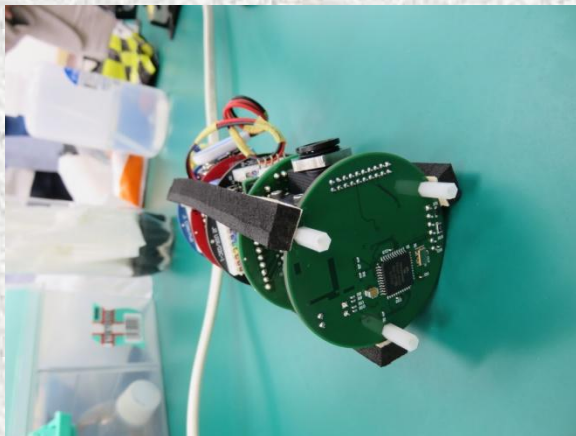
HARDWARE DESIGN

- Top side

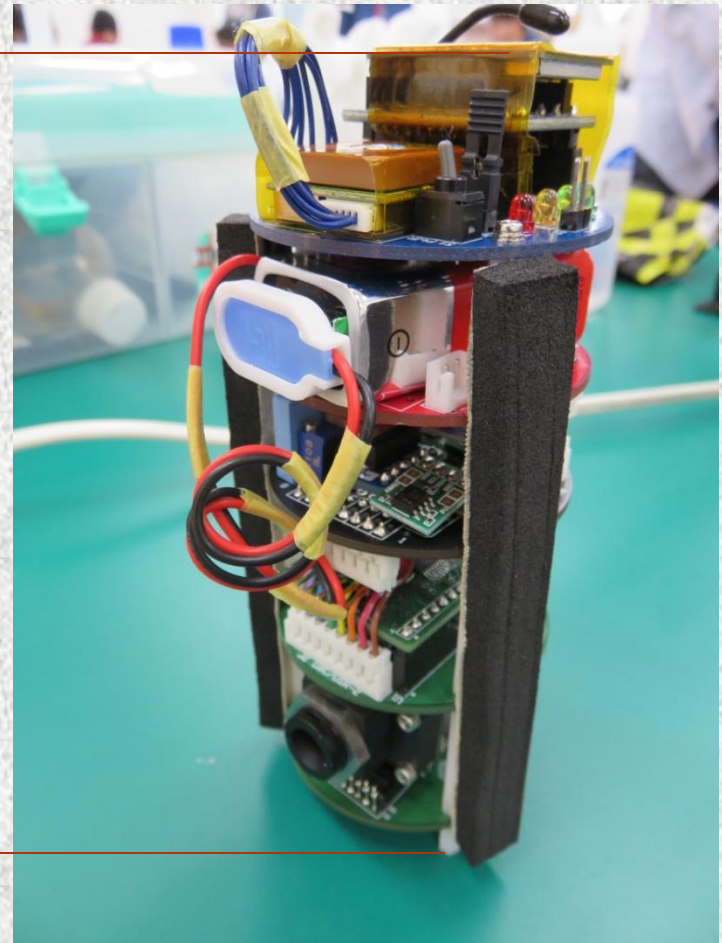


D=6 cm

- Bottom side



H=14 cm



CanSat

SOFTWARE

- C programming language

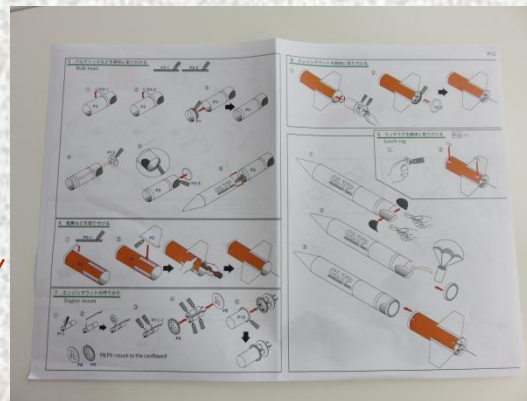
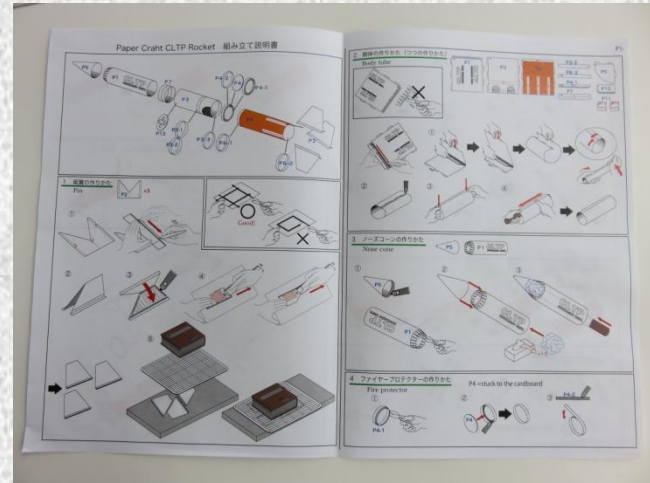


DESIGN

Rocked

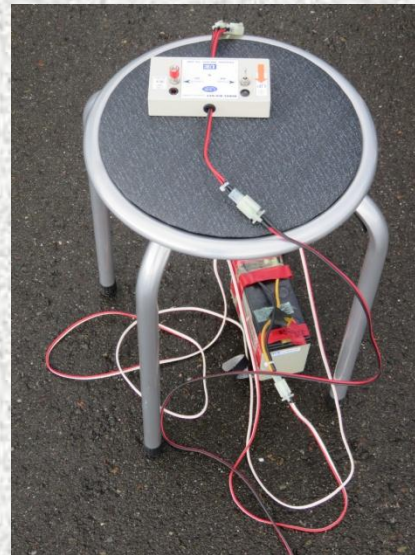


$h=84\text{ cm}$
 $M=$



LAUNCH

Launch



DATA ANALYST: FIRST LAUNCH

- \$GPGGA,071728.920,4334.7612,N,14159.9727,E,1,09,1.2,67.4,M,28.4,M,,0000*6C
- X=534,Y=594,Z=492, GYR1 = 415, GYR2 = 464, Humi = 58,8%

• Launch time: from 07:21:04 to 07:21:18. for 14 sec, 8 frame data

	GPS DATA									Sensor Data						
	Time (UTC)	Latitude	Longitude	satellite		Altitude			X	Y	Z	GYR1	GYR2	Humi		
\$GPGGA	72104.921	4334.775 N	14159.98 E	1	8	1.6	66.3 M	28.4 M	0000*61	486	568	474	204	529	85	7%
\$GPGGA	72106.921	4334.772 N	14159.98 E	1	7	1.5	69.6 M	28.4 M	0000*63	477	534	519	607	0	15	9%
\$GPGGA	72108.921	4334.773 N	14159.99 E	1	10	1.1	70.8 M	28.4 M	0000*63	502	552	555	144	280	67	2%
\$GPGGA	72110.921	4334.773 N	14159.99 E	1	7	1.4	62.8 M	28.4 M	0000*66	508	528	552	527	317	40	2%
\$GPGGA	72112.921	4334.773 N	14159.99 E	1	7	1.4	55.5 M	28.4 M	0000*6C	529	557	534	211	319	42	4%
\$GPGGA	72114.921	4334.772 N	14159.99 E	1	9	1.1	55.1 M	28.4 M	0000*6E	510	533	552	393	305	48	7%
\$GPGGA	72116.921	4334.773 N	14159.99 E	1	10	1.1	54.3 M	28.4 M	0000*66	486	544	558	408	476	55	5%
\$GPGGA	72118.921	4334.772 N	14159.99 E	1	10	1.1	56.4 M	28.4 M	0000*6D	509	516	572	369	522	70	9%

DATA ANALYST: SECOND LAUNCH

DATA

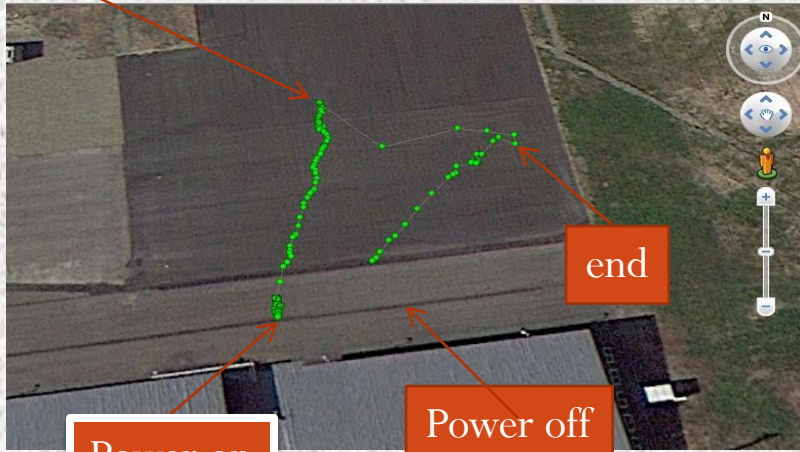
•Launch time: from 04:00:18 to 04:00:36. for 18 sec, 10 frame data

	Time (UTC)	Latitude	Longitude	altitude	Altitude		x	y	z	G1	G2	Humi		
sGPGGA	35201.94	4334.758 N	14159.97 E	0	0	100.9 M	0M	0000*63	501	519	557	444	454	28%
sGPGGA	35202.94	4334.758 N	14159.97 E	0	0	100.9 M	0M	0000*60	502	512	558	444	454	28%
sGPGGA	35203.94	4334.758 N	14159.97 E	0	0	100.9 M	0M	0000*61	502	525	556	445	454	28%
sGPGGA	35204.94	4334.758 N	14159.97 E	0	0	100.9 M	0M	0000*66	502	514	558	444	454	28%
sGPGGA	35205.94	4334.758 N	14159.97 E	0	0	100.9 M	0M	0000*67	501	516	556	445	454	28%
sGPGGA	35206.94	4334.758 N	14159.97 E	0	0	100.9 M	0M	0000*64	502	503	564	445	454	28%
sGPGGA	35207.94	4334.756 N	14159.97 E	4	8.5	44.8 M	28.4 M	0000*67	502	522	554	445	454	28%
sGPGGA	35209.94	4334.756 N	14159.97 E	4	8.5	44.3 M	28.4 M	0000*69	503	524	555	444	454	28%
sGPGGA	35211.94	4334.755 N	14159.97 E	4	8.5	43.6 M	28.4 M	0000*64	501	522	552	445	454	28%
sGPGGA	35213.94	4334.76 N	14159.97 E	5	7.3	47.2 M	28.4 M	0000*64	502	523	559	445	454	28%
sGPGGA	35215.94	4334.766 N	14159.97 E	5	7.3	57.3 M	28.4 M	0000*66	502	522	572	447	455	28%
sGPGGA	35217.94	4334.765 N	14159.97 E	5	7.3	60.2 M	28.4 M	0000*60	501	518	558	445	454	28%
sGPGGA	35219.94	4334.77 N	14159.97 E	5	7.3	70.4 M	28.4 M	0000*68	503	523	558	445	454	28%
sGPGGA	35221.94	4334.771 N	14159.97 E	5	7.3	76.1 M	28.4 M	0000*66	501	522	557	446	454	28%
sGPGGA	35223.94	4334.774 N	14159.97 E	5	7.4	76.2 M	28.4 M	0000*6C	501	523	553	444	454	28%
sGPGGA	35225.94	4334.773 N	14159.97 E	6	3	74 M	28.4 M	0000*66	502	522	557	445	454	28%
sGPGGA	35227.94	4334.772 N	14159.97 E	6	3	73 M	28.4 M	0000*6F	502	522	558	445	454	28%
sGPGGA	35229.94	4334.772 N	14159.97 E	5	7.4	73 M	28.4 M	0000*62	502	521	556	446	454	28%
sGPGGA	35231.94	4334.773 N	14159.97 E	5	7.4	73 M	28.4 M	0000*6A	502	522	561	445	454	28%
sGPGGA	35233.94	4334.772 N	14159.97 E	4	7.4	73 M	28.4 M	0000*69	502	520	554	445	455	28%
sGPGGA	35235.94	4334.772 N	14159.97 E	5	7.4	73.1 M	28.4 M	0000*6E	502	524	552	444	454	28%
sGPGGA	35237.94	4334.772 N	14159.97 E	6	3	73 M	28.4 M	0000*6F	502	520	558	444	454	28%
sGPGGA	35239.94	4334.772 N	14159.97 E	6	3	72.9 M	28.4 M	0000*6E	503	525	558	445	454	28%
sGPGGA	35241.94	4334.772 N	14159.97 E	5	7.4	72.9 M	28.4 M	0000*62	501	520	554	444	454	28%
sGPGGA	35243.94	4334.772 N	14159.97 E	6	3	72.7 M	28.4 M	0000*6D	502	521	557	444	454	28%
sGPGGA	35245.94	4334.772 N	14159.97 E	5	7.4	72.6 M	28.4 M	0000*68	502	521	556	444	454	28%
sGPGGA	35247.94	4334.772 N	14159.97 E	6	3	72.5 M	28.4 M	0000*6B	502	521	554	445	454	28%
sGPGGA	35249.94	4334.772 N	14159.97 E	5	7.5	72.6 M	28.4 M	0000*67	499	522	557	446	456	28%
sGPGGA	35251.94	4334.772 N	14159.97 E	5	7.5	72.6 M	28.4 M	0000*6E	501	523	555	445	454	28%
sGPGGA	35253.94	4334.772 N	14159.97 E	5	7.5	72.7 M	28.4 M	0000*6C	503	515	559	444	455	28%
sGPGGA	35255.94	4334.772 N	14159.97 E	5	7.5	72.8 M	28.4 M	0000*64	500	530	553	445	454	28%
sGPGGA	35257.94	4334.772 N	14159.97 E	5	7.5	72.8 M	28.4 M	0000*66	502	522	561	445	454	28%
sGPGGA	35259.94	4334.772 N	14159.97 E	6	3	72.9 M	28.4 M	0000*68	504	520	554	444	454	28%
sGPGGA	35301.94	4334.772 N	14159.97 E	6	3	73 M	28.4 M	0000*6D	503	521	556	444	454	28%
sGPGGA	35303.94	4334.772 N	14159.97 E	6	3	73 M	28.4 M	0000*69	502	521	557	445	455	28%
sGPGGA	35305.94	4334.772 N	14159.97 E	5	7.5	72.9 M	28.4 M	0000*62	505	516	558	445	453	28%
sGPGGA	35307.94	4334.772 N	14159.97 E	6	3	72.9 M	28.4 M	0000*64	501	519	556	445	455	28%
sGPGGA	35309.94	4334.772 N	14159.97 E	5	7.5	72.9 M	28.4 M	0000*62	503	535	552	445	454	28%
sGPGGA	35311.94	4334.772 N	14159.97 E	5	7.6	72.8 M	28.4 M	0000*61	501	521	556	445	454	28%
sGPGGA	35313.94	4334.772 N	14159.97 E	5	7	72.7 M	28.4 M	0000*67	501	517	552	444	455	28%
sGPGGA	35315.94	4334.772 N	14159.97 E	6	3	72.6 M	28.4 M	0000*64	504	528	547	445	453	28%
sGPGGA	35317.94	4334.772 N	14159.97 E	5	7.6	72.6 M	28.4 M	0000*67	500	529	558	445	454	28%
sGPGGA	35319.94	4334.772 N	14159.97 E	5	7.6	72.5 M	28.4 M	0000*6A	501	528	562	445	453	29%
sGPGGA	35321.94	4334.772 N	14159.97 E	5	7.6	72.6 M	28.4 M	0000*63	490	520	561	478	430	30%
sGPGGA	35323.94	4334.772 N	14159.97 E	6	3	72.5 M	28.4 M	0000*6B	505	509	566	484	421	27%
sGPGGA	35325.94	4334.772 N	14159.97 E	6	3	72.3 M	28.4 M	0000*60	508	492	584	404	449	26%
sGPGGA	35327.94	4334.772 N	14159.97 E	6	3	72.2 M	28.4 M	0000*6B	511	519	524	472	444	28%
sGPGGA	35329.94	4334.772 N	14159.97 E	6	3	72.2 M	28.4 M	0000*68	500	526	549	448	454	28%
sGPGGA	35331.94	4334.772 N	14159.97 E	5	5.1	72.3 M	28.4 M	0000*63	499	533	559	452	454	28%
sGPGGA	35333.94	4334.772 N	14159.97 E	6	3	72.3 M	28.4 M	0000*64	502	528	553	445	455	28%
sGPGGA	35335.94	4334.772 N	14159.97 E	6	3	72.8 M	28.4 M	0000*62	497	512	556	490	453	28%
sGPGGA	35337.94	4334.772 N	14159.97 E	5	4.4	72.9 M	28.4 M	0000*6F	502	538	560	444	455	28%
sGPGGA	35339.94	4334.772 N	14159.97 E	6	3	72.9 M	28.4 M	0000*61	503	515	555	451	436	29%
sGPGGA	35341.94	4334.772 N	14159.97 E	5	7.7	73 M	28.4 M	0000*66	498	520	558	451	463	29%
sGPGGA	35343.94	4334.772 N	14159.97 E	5	7.7	73 M	28.4 M	0000*65	495	510	546	485	456	28%
sGPGGA	35345.94	4334.772 N	14159.97 E	5	7.7	72.9 M	28.4 M	0000*60	502	521	557	444	453	28%
sGPGGA	35347.94	4334.772 N	14159.97 E	5	7.7	72.8 M	28.4 M	0000*68	485	565	554	452	474	29%
sGPGGA	35349.94	4334.772 N	14159.97 E	5	7.7	72.8 M	28.4 M	0000*6E	501	525	554	446	455	28%
sGPGGA	35351.94	4334.772 N	14159.97 E	5	7.7	73 M	28.4 M	0000*6E	496	523	562	474	491	28%
sGPGGA	35353.94	4334.771 N	14159.97 E	6	3	72.9 M	28.4 M	0000*65	491	532	555	419	475	28%
sGPGGA	35355.94	4334.771 N	14159.97 E	5	7.7	72.8 M	28.4 M	0000*65	500	523	555	515	467	28%
sGPGGA	35357.94	4334.771 N	14159.97 E	6	3	73.1 M	28.4 M	0000*6C	492	530	547	489	384	31%
sGPGGA	35359.94	4334.771 N	14159.97 E	6	3	73 M	28.4 M	0000*63	500	520	555	444	455	28%
sGPGGA	35401.94	4334.771 N	14159.97 E	6	3	72.1 M	28.4 M	0000*61	501	520	555	444	454	28%
sGPGGA	35403.94	4334.771 N	14159.97 E	6	3	72 M	28.4 M	0000*6F	506	517	554	447	457	28%
sGPGGA	35405.94	4334.771 N	14159.97 E	6	3	71.5 M	28.4 M	0000*6E	504	522	550	444	455	28%
sGPGGA	35407.94	4334.771 N	14159.97 E	6	3	70.7 M	28.4 M	0000*6C	502	520	556	444	454	28%

DATA

GPS DATA ANALYST

LAUNCH

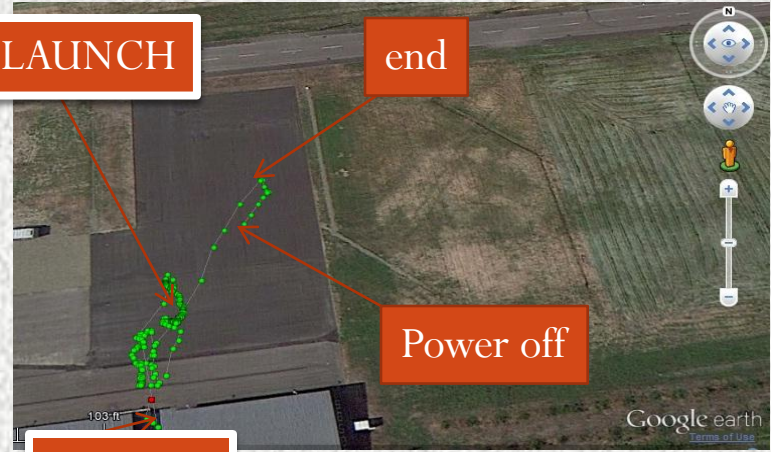


Power on

end

Power off

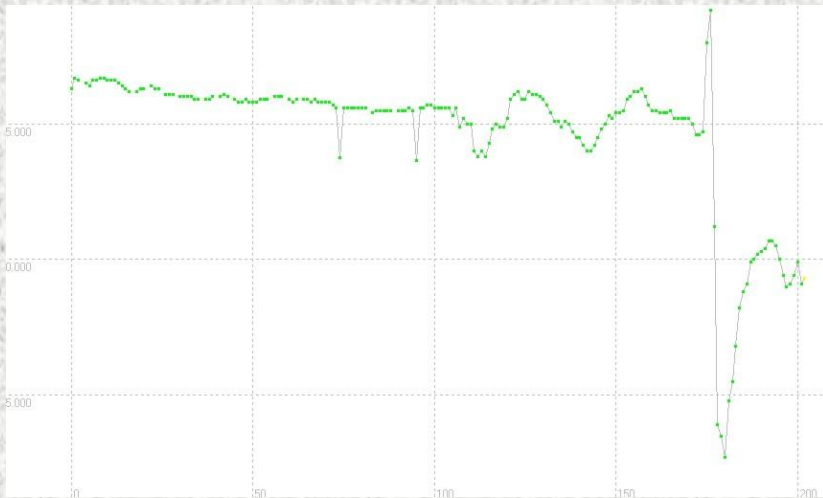
LAUNCH



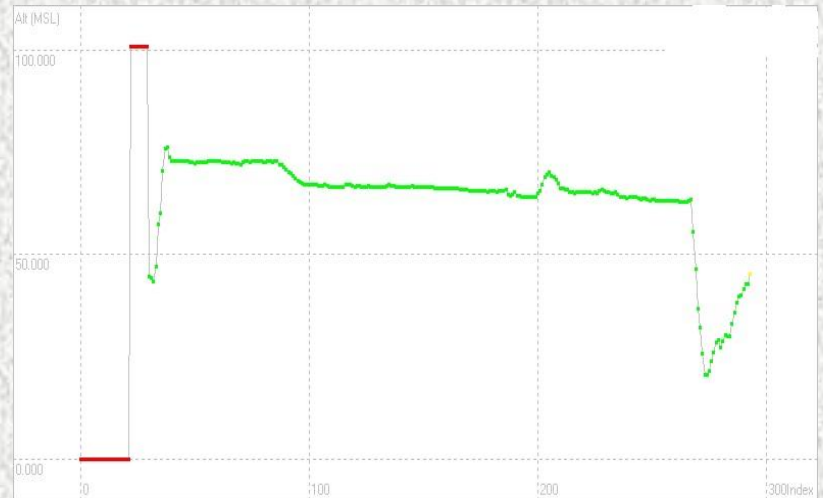
end

Power off

Power on



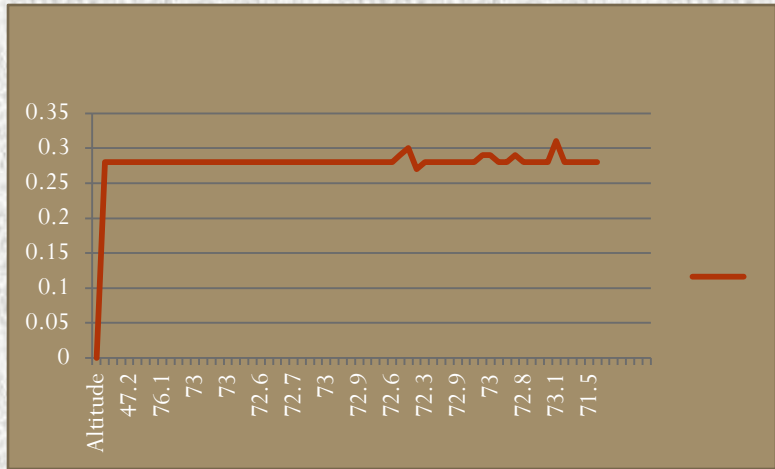
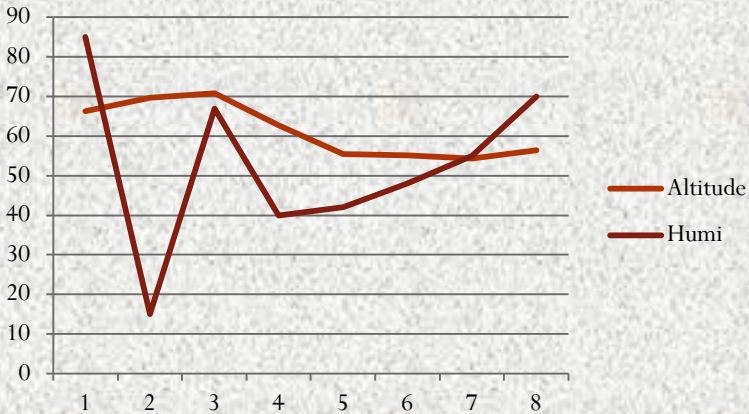
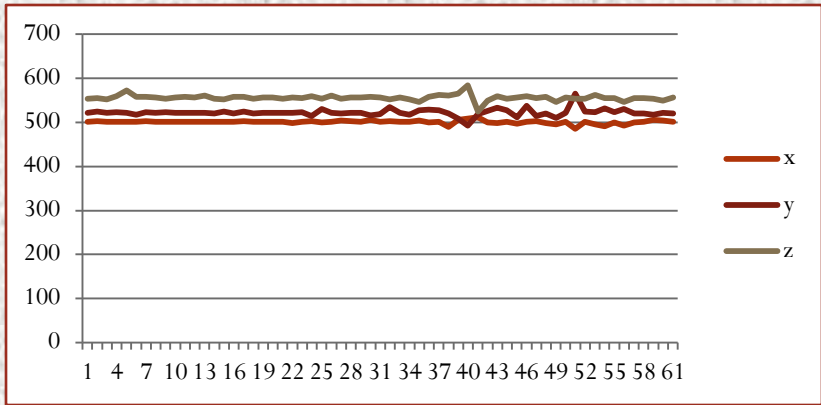
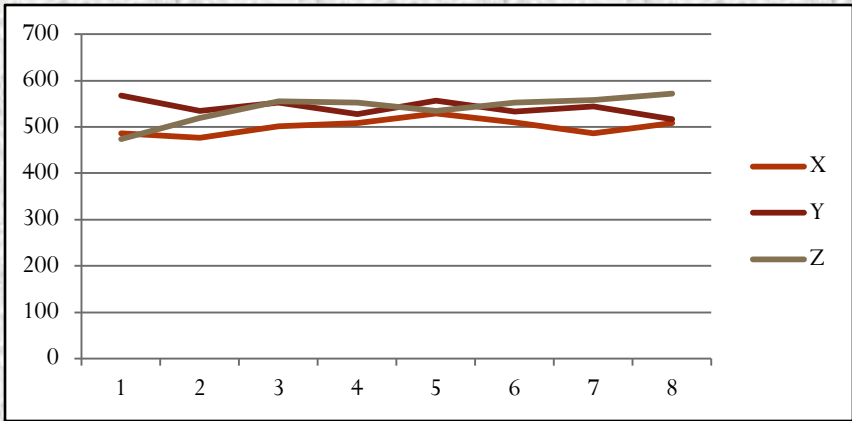
Altitude. Max=70.8m



Altitude. Max=75m

ACCERERATION AND HUMIDITY

DATA



CAMERA

DATA



PLAN AFTER CLTP5

- I will teach my laboratory students
- Cansat training course in Mongolia. March 2015
- I want to make first CubeSat in Mongolia



Have a nice time...

Thank you very much all