

CLTP7 REPORT

Presented By / Eng. Mohammed Ali Abo Arais

Cubesat Systems Engineer

Satellites Systems Development and testing lab

Egyptian Space Program

NARSS "National Authority for Remote Sensing and Space Sciences"



Day 1: 21-9-2016

- Meeting the Great CLTP 7 Team
- General Points about the Program TimeLine
- Learning Some Tips about HW Electronics



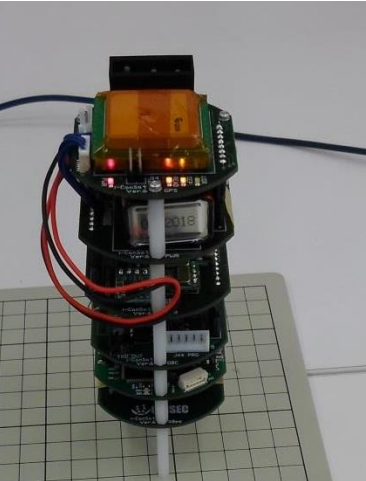
Day 2: 22-9-2016

- Self Introductory for all team
- Tips about the can-sat system Fabrication
 - 1-GPS Board
 - 2-Power Board
 - 3-User Board
 - 4-OBC Board
 - 5-Camera Board
 - 6-Communication Board
- Starting Can-sat system Fabrication



Day 3: 23-9-2016

-Getting All Can-sat Boards Working

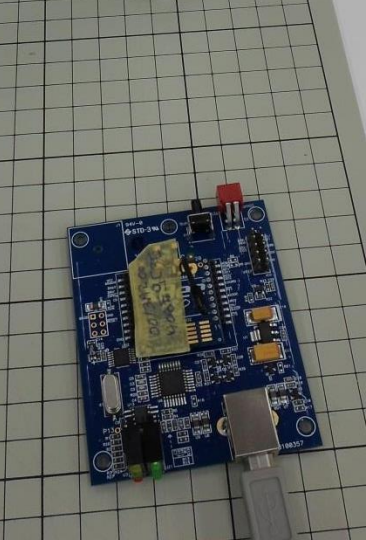


```
File Edit View Navigate Source Refactor Run Debug Team Tools Window Help
default zdc : W:\00 : bank 0 How do I? [keywords] Search (Ctrl+F)

Projects | Files | Classes
aboarais-cansat
  Header Files
  Importer Files
  Linker Files
  Source Files
  Libraries
  Loadables

Source
7 #include <stdio.h>
8 #include <stdlib.h>
9 #include <xc.h> //
10
11 // PIC18F877A Configuration Bit Settings
12 // CONFIG_FOSC_HS & FOSC_OFF & FWRTZ_OFF & BOREN_OFF & LVP_OFF & CPD_OFF & WRTZ_OFF & CP_OFF
13 #define _XTAL_FREQ 1000000
14
15 // I/O port
16 #define READ RB0
17 #define SEP RB1
18 #define LED RB3
19 #define CAM_IF1 RB4
20 #define CAM_IF2 RB5
21
22 #define INPUT 1
23 #define OUTPUT 0
24 #define HIGH 1
25 #define LOW 0
26 #define ACK 0
27
28 ##define RXBUF_LENGTH 16
29 #define GPS_LENTHR 76 //stores GPS data
30 #define EEPROM_INITIAL_ADDRESS 0x000000 //Defines where GPS data starts
31 //##define EEPROM_FINAL_ADDRESS 0x03ffff //when single EEPROM used.
32 #define EEPROM_FINAL_ADDRESS 0x03ffff // when double EEPROMs used.(comment out either one of them)
33

EEPROM_FINAL_ADDRESS
```



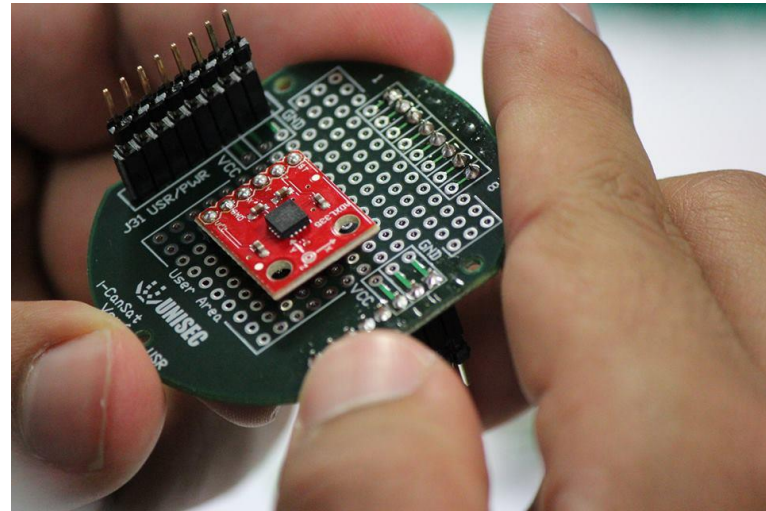
Day 4: 24-9-2016

- Testing the System Functions HW and SW
- Designing the recovery System using Parachute
- Drop Test to test Recovery System



Day 5: 25-9-2016

- User Board Fabrication and Testing
- Testing the System Functions HW and SW



Day 6: 26-9-2016 Outing Day



Day 7: 27-9-2016

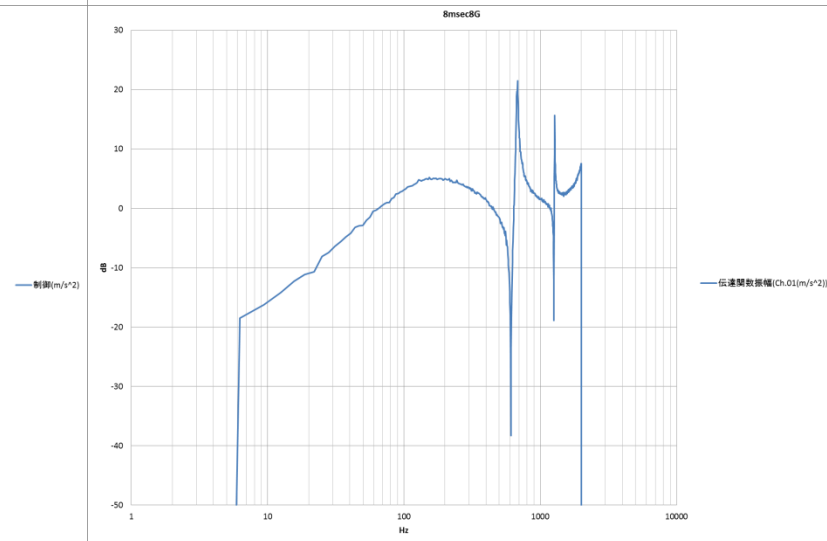
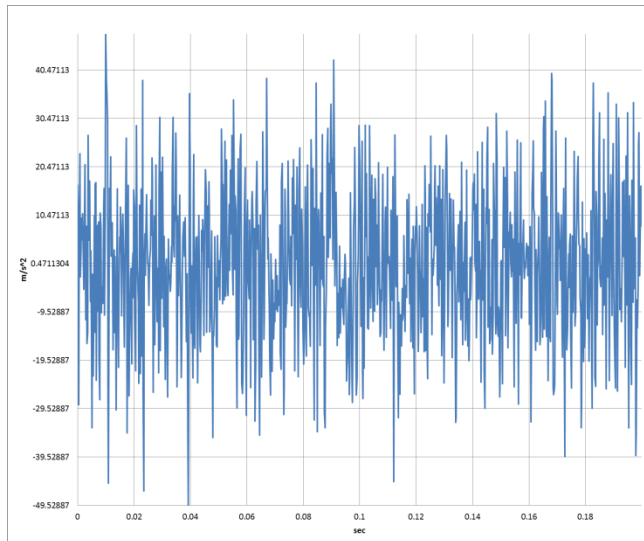
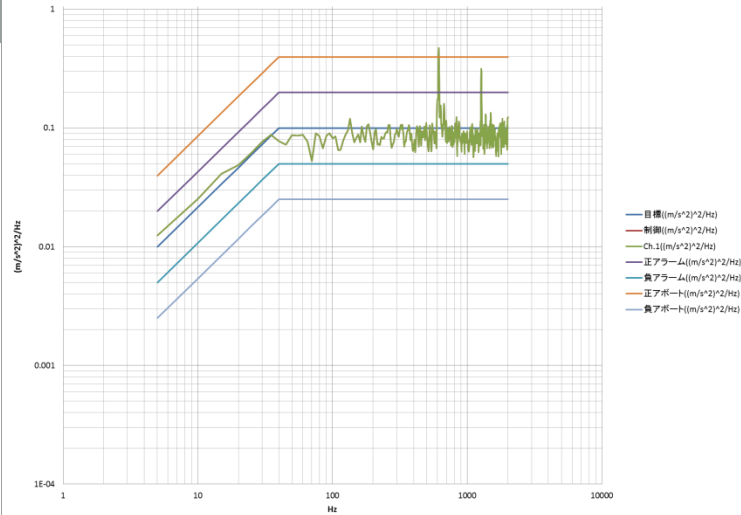
Testing

- Sine Vibration Test
- Random Vibration Test
- Shock Test
- Thermal test



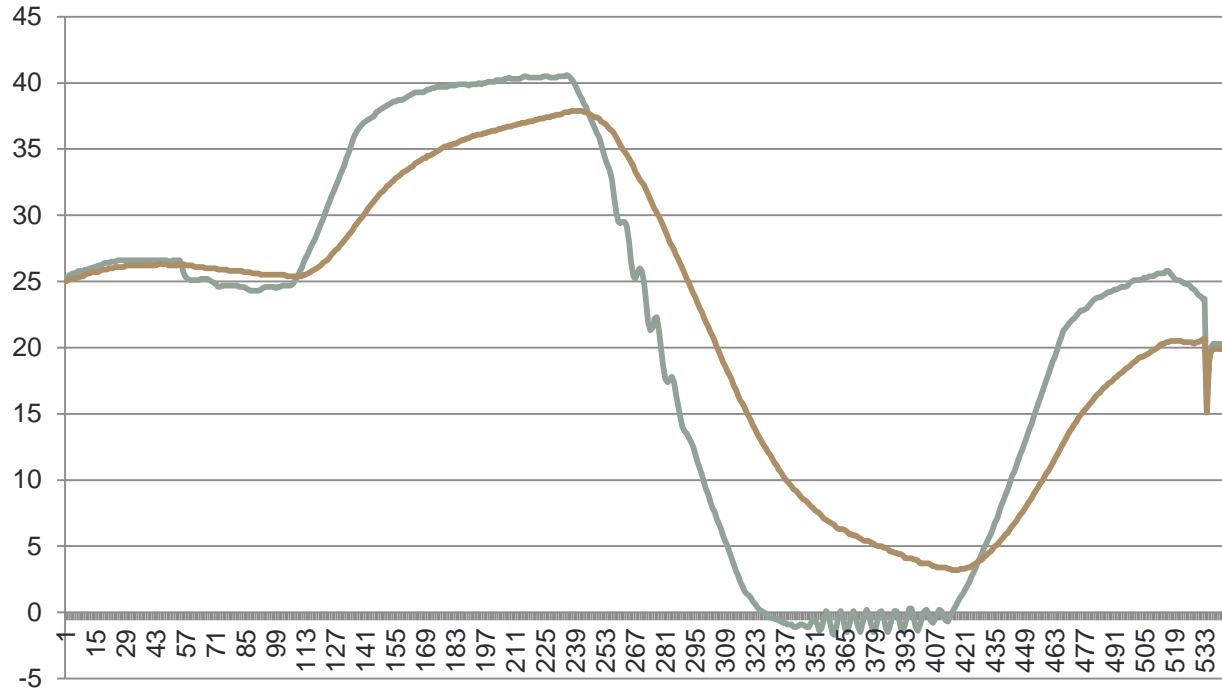
Testing Results

-Vibration Testing Results



Testing Results

-Thermal Testing Cycle



Day 8: 28-9-2016

- Paper Rocket Model Fabrication
- Tips About Rockets Design



Day 9: 29-9-2016

-Can-sat System
Testing



-First Launching
Preparation



-Successful Launching



Day 10: 30-9-2016

- Can-sat System Testing
- 2nd Launching Preparation
- Successful 2nd Launching



Launching Results

-GPS Receiver

-Sensors :

-Pressure Sensor

-Gyro Sensor

-Accelerometer Sensor

-Camera



Launching Results

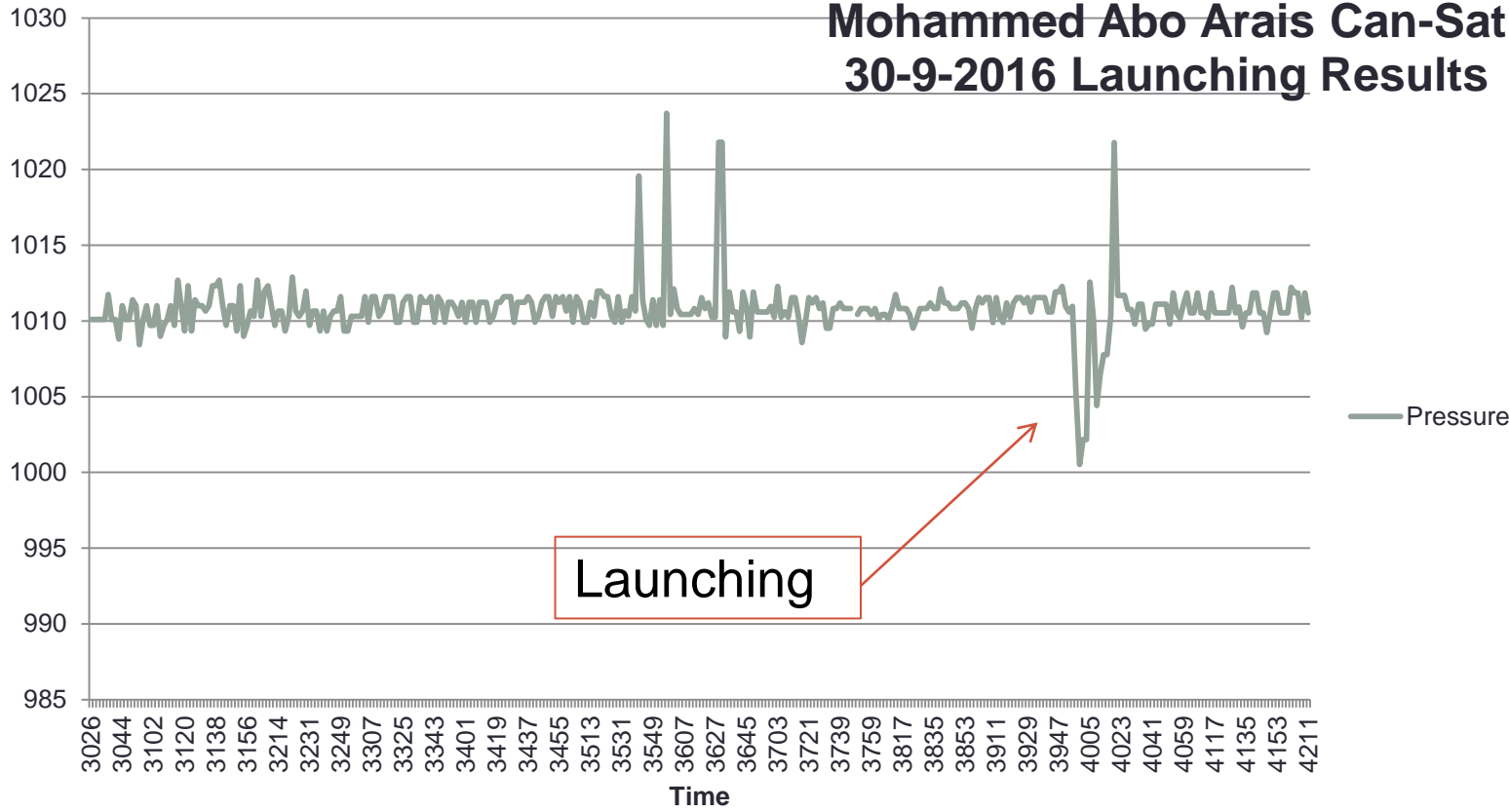


Launching Results



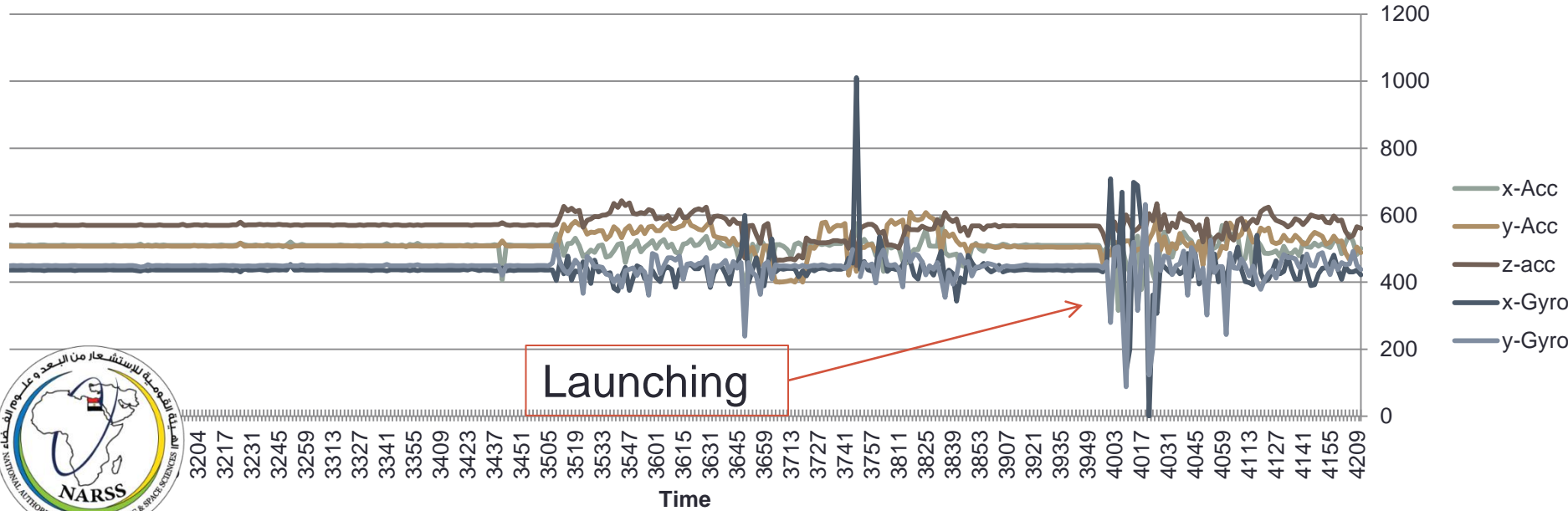
Launching Results

Mohammed Abo Arais Can-Sat 30-9-2016 Launching Results



Launching Results

Mohammed Abo Arais Can-Sat 30-9-2016 Launching Results



Launching Results

-Camera Photos



After CLTP:

1- create a local can-sat network inside Egyptians universities

By leading Can-sat TOT "training of trainers" program from all Egyptian universities



After CLTP:

2-To solve the problem of launching sites

I have two plans short term plan is to build an professional launching site for educational satellites inside the space operation center which I'm working in now and on long term plan I will use this model to to help other universities to build their own launching site with low cost.



After CLTP:

3- Launching the first can-sat design competition for all Egyptian university students



Thanks for your time

Facebook :

<https://www.facebook.com/mohammed.aboarais>

E-mail :

mohamed.aboarais@narss.sci.eg

m.aboarais@gmail.com

LinkedIn:

<https://www.linkedin.com/in/aboarais>

