LAUNCH OF AN EDUCATIONAL MINIATURE SATELLITE (CANSAT) AS GHANA’S FIRST STEP TO SPACE
By: Aaron Yankey Antwi and Manfred Quarshie
• Introduction
  • Ghana
  • All Nations University College - ANUC

• Intelligent Space System Laboratory (ANUC-ISSL)
  • The Team
  • Activities
    • Past
    • Current
    • Future

• ANUC-ISSL

• ACKNOWLEDGEMENT
• Location: Latitude 5° 33’ N and Longitude 0° 15’ W
• President: His excellency John Dramani Mahama
• Area: About 92,099 square miles
• Population: About 25 Million people
• Culture: 5 Main ethnic groups
• Education: About 83 tertiary institution
• All Nation University is one of them
• Location: Latitude 6° 6’ 37.67” N and Longitude 0° 18’ 7.42” W (about 13,784 Km away from Takeda Hall)
• Founder: Founded in 2002 by the visionary; Dr. Samuel Donkor
• Population: Has a student population of about 3000
• Faculties: Has 13 faculties
• The Intelligent Space Systems Laboratory is one of them
• Founded in 2\textsuperscript{nd} February 2012 by Engr. Manfred Quarshie and his team

• First Laboratory in Ghana to successfully launch a CanSat.
• Educational: Built by students
• Construction duration: 6-7 Months
• Launching Method: Weather Balloon (Altitude of about 172m)

• Some Features

**CANSAT: STRUCTURE**

- **Name:** Yankey, RoSam
- **Mass:**
  - Sat: 209.735g, 219.2g
  - Can: 11.885g, 12.16g
- **Volume:** 500ml
- **Height:** 16.5cm, 18.1cm (Dia. 6.4 cm)
- **Parachute:**
  - Mass: 108.1g, 85.7g
  - Color: Strips, Red
- **Payload:**
  - Camera: c6820, c6820
  - Pressure Sensor: SCP1000, SCP100
  - OBC: PIC16F87XA, PIC16F87XA
  - GPS: GT-723F, GT-723F
• The Big picture
• Brain storming
• Payload Identification
• Mostly Paper work
• Theoretical
• Team work begins
CANSAT: PRELIMINARY DESIGN PHASE

- Sketch
- Subsystem
- Prototyping
• Construction/Assembly and Troubleshooting phase.
• CanSat testing and test flight phase.
• Time of flight 3 mins and 46 secs
• Mission (Data Acquisition)
  • Aerial Video
  • Atmospheric Measurements
Successfully Launched in 15th of May, 2013

Media Attention

Lots of experiences were gained

Everyone was happy:

- Team
- Institution
- Nation
- Continent
• Enable ISSL track and communicate with amateur CubeSat and ISS
• Launched 2014
• Working to be members of AMSAT, GENSO and UNISEC
• GhaSat 1
  • Mass: 2-5 Kg

• Mission
  • Oil spillage
  • Deforestation
  • Urban Planning

• Launched 2015

• Vision
• Ground Station
• CubeSat

• GTUC – 45%
• KNUST – 75%
• GSSTI – 75%

• February 2, 2012
• March 20-21, 2013
• March, 2014

• Akuse
• Pentecost
• Heart of the Fathers
• Ghanas

Outreach

UNISEC

Workshop

Research

Ground Station
• CubeSat

ANUC-ISSL

12/6/2013
*Prof. Miyazaki Yasuyuki- Nihon University
*Rei Kawashima -UNISEC
*Prof Shinichi Nakasuka-Tokyo University
*Prof. Van Zyl- Cape Peninsula University of Technology
*Prof. Herman Steyn- Stellenbosch