



LAUNCH OF AN EDUCATIONAL MINIATURE SATELLITE (CANSAT) AS GHANA'S FIRST STEP TO SPACE

By: Aaron Yankey Antwi and Manfred Quarshie



OUTLINE



- Introduction
 - Ghana
 - All Nations University College - ANUC
- Intelligent Space System Laboratory (ANUC-ISSL)
 - The Team
 - Activities
 - Past
 - Current
 - Future
- ANUC-ISSL
- ACKNOWLEDGEMENT



INTRODUCTION: GHANA



- 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

Valley View

Regional University

Legon

School of Mines

ANUC

Central

Garden City

KNUST

Ashesi

GTUC

Portrait of President John Dramani Mahama



- Location: Latitude $6^{\circ} 6' 37.67''$ N and Longitude $0^{\circ} 18' 7.42''$ 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

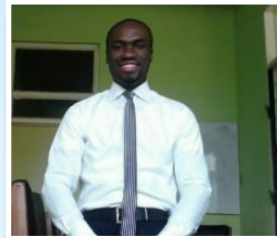




- Founded in 2nd February 2012 by Engr. Manfred Quarshie and his team
- First Laboratory in Ghana to successfully launch a CanSat.



Mr. Quarshie
Manfred



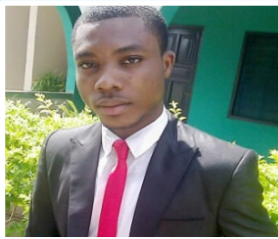
Mr. Bonso
Benjamin



Mr. Emeka
Keluba



Mr. Yankey
Aaron



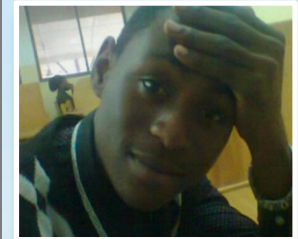
Mr. Quansah
Joseph



Mr. Matey Ernest



Mr. Williams
Melville



Mr. Nuchigan
Emmanuel

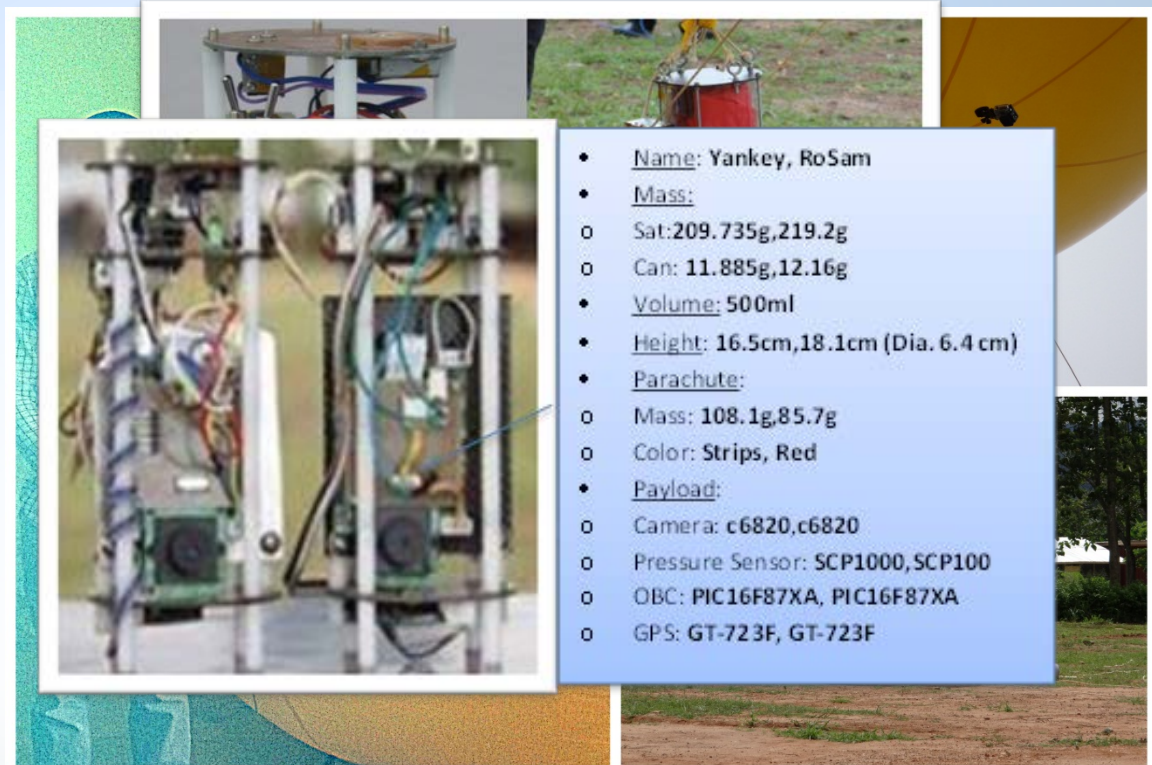


CANSAT: STRUCTURE



- Educational: Built by students
- Construction duration:
 - 6-7 Months
- Launching Method: Weather Balloon
- (Altitude of about 172m)

- Some Features



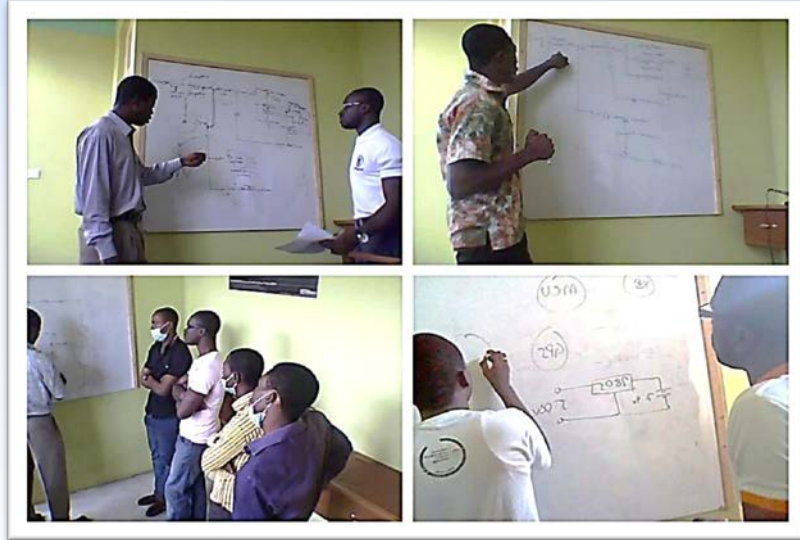
- **Name:** Yankey, RoSam
- **Mass:**
 - o Sat: 209.735g, 219.2g
 - o Can: 11.885g, 12.16g
- **Volume:** 500ml
- **Height:** 16.5cm, 18.1cm (Dia. 6.4 cm)
- **Parachute:**
 - o Mass: 108.1g, 85.7g
 - o Color: Strips, Red
- **Payload:**
 - o Camera: c6820, c6820
 - o Pressure Sensor: SCP1000, SCP100
 - o OBC: PIC16F87XA, PIC16F87XA
 - o GPS: GT-723F, GT-723F



CANSAT: CONCEPTUAL DESIGN PHASE



- The Big picture
- Brain storming
- Payload Identification
- Mostly Paper work
- Theoretical
- Team work begins





CANSAT: PRELIMINARY DESIGN PHASE



- Sketch
- Subsystem
- Prototyping





CANSAT: DETAILED DESIGN PHASE



- Construction/Assembly and Troubleshooting phase.





CANSAT: TEST AND LAUNCH PHASE



- CanSat testing and test flight phase.
- Time of flight 3 mins and 46 secs
- Mission (Data Acquisition)
 - Aerial Video
 - Atmospheric Measurements



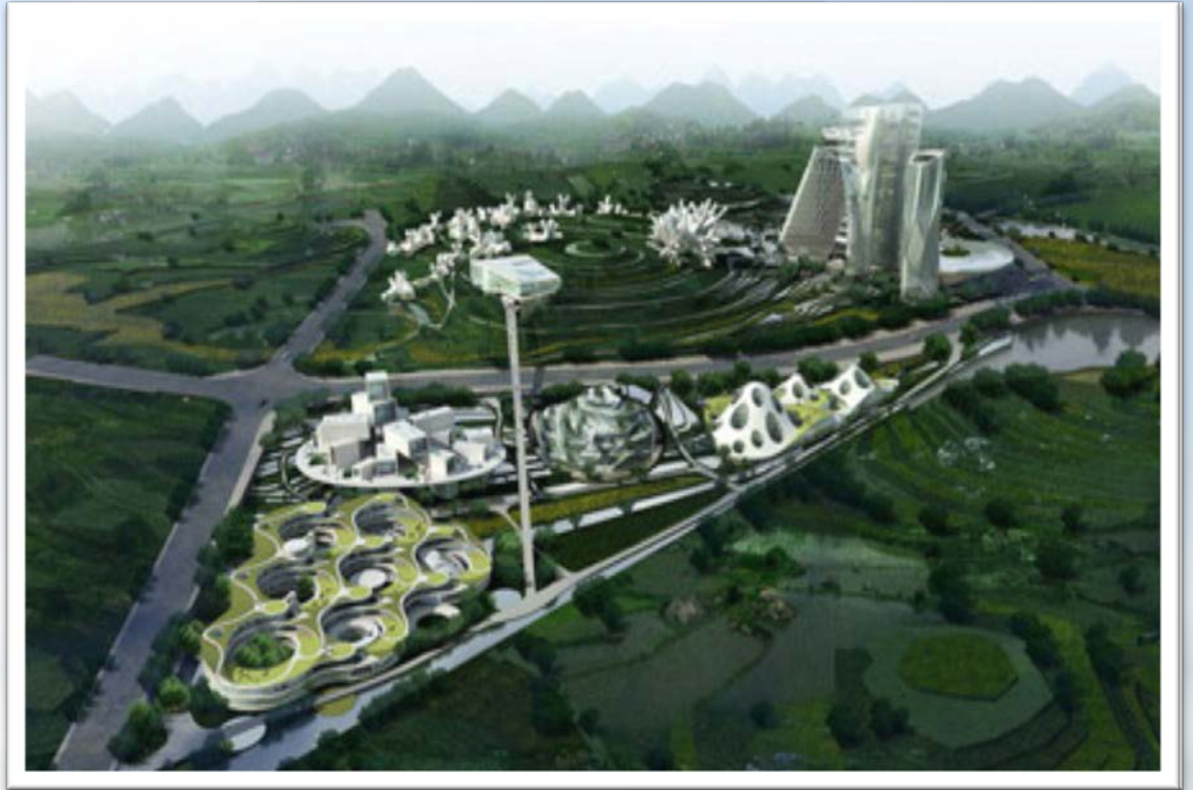


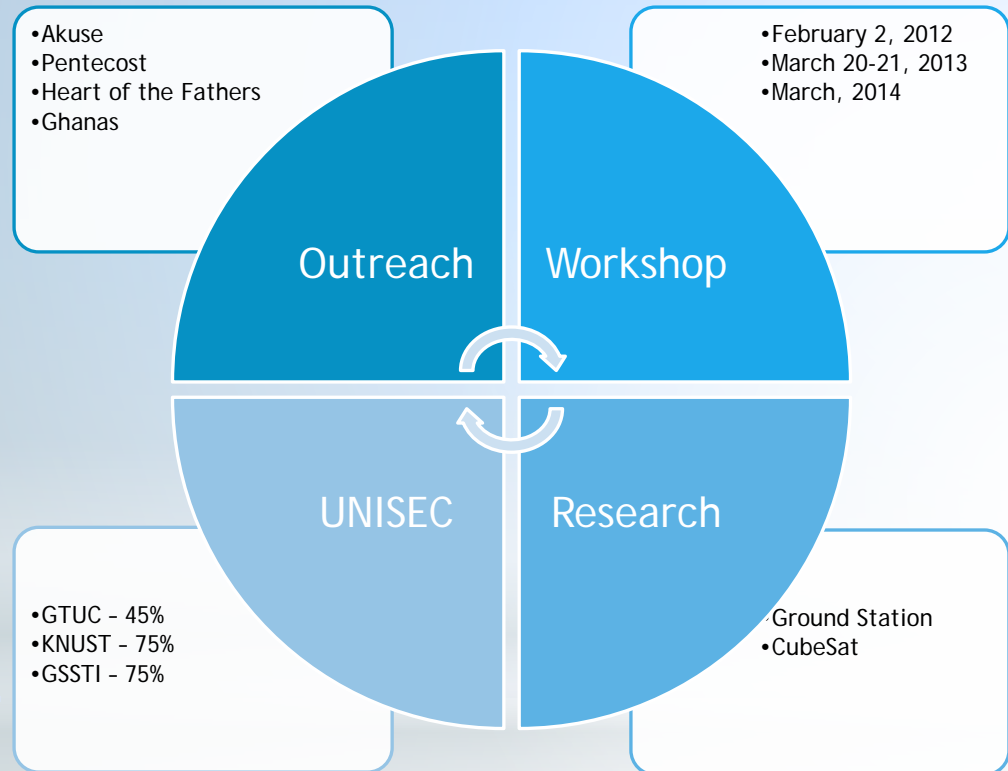
- Successfully Launched in 15th of May, 2013
- Media Attention
- Lots of experiences were gained
- Everyone was happy:
 - Team
 - Institution
 - Nation
 - Continent





- GhaSat 1
- Mass: 2-5 Kg
- Mission
 - Oil spillage
 - Deforestation
 - Urban Planning
- Launched 2015
- Vision







Acknowledgements



- * 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



THANK YOU

