

THE SCIENCE STUDENTS WHO MADE GHANA PROUD BY LAUNCHING GHANASAT-1 INTO SPACE

Ghana's first Cubesat Satellite (Ghanasat-1) was launched at 06.07hrs Japan time (Sunday, 4th June, 2017), or 21.07hrs GMT, Saturday, 3rd June, 2017. The Satellite weighs 1,000 grams and went into orbit at an altitude of 420kms.

2. The objectives for the launch of Ghanasat-1 Mission (the first private University Satellite in Sub-Saharan Africa), are as follows:

- a. To take pictures of the coastal belts of Ghana;
- b. To broadcast Ghana's National Anthem from space; and
- c. To measure radiation effect on satellite microprocessors to contribute to space science research.

3. Three Ghanaian students who played key roles in the launch were Mr. Bonsu Benjamin, Mr. Ernest Teye Matey and Mr. Quansah Joseph Neenyi Kojo Krobo. The trio are graduates of the All Nations University, Koforidua in Ghana and furthered their studies at Kyu-shu Institute of Technology (Kyutech) in Japan.

Below are their areas of study and contribution to the successful launch of Ghanasat-1.



My name: BONSU BENJAMIN

My country is: Ghana

My majors :

Bachelor of Engineering in ELECTRONICS AND COMMUNICATION ENGINEERING

Master of Engineering in APPLIED SCIENCE FOR INTEGRATED SYSTEM ENGINEERING

My role in the BIRDS Project:

Antenna Deployment

Make sure Antenna can be successfully deployed after satellite is launched

Design Dipole and Monopole Antenna and ensure it can be able to radiate VHF and UHF radio signals from satellite to ground

Ensures Antenna can withstand Space Environment

Ground Station (GS)

To make sure communication link between the satellite and ground is established to exchange uplink command and telemetry data

To perform link budget calculation to obtain the margin to verify the GS system receiver sensitivity can tolerate an additional attenuation between the transmitter and the receiver, and it would still just barely work.

Determination and prediction of the orbit of the satellite.

Observation planning and scheduling.

Development of Ground Station software interfaces

Ground station network operations and data base management

Frequency Co-ordination

To make sure Birds satellites acquire registered amateur frequency to operate under the IARU and ITU regulation law

Interface Control Management

To keep track and make documents on all the subsystems interface with one another and ensure is updated for troubleshooting purposes.

Fault Tree Analysis

Responsible for creating a logic diagram of the overall satellite system by mapping the relationship between faults, subsystems, and redundant safety design elements to improve reliability.



My name is: ERNEST TEYE MATEY
My country is: Ghana
My major in college: Electronics and Communication Engineering

My role in the BIRDS Project:

My role in BIRDS project is to determine precise position of the BIRD satellite in Space so our Ground Station can track it accurately. I also work on the communication sub-system and the configuration of the satellite. Presently, there is a need for me to study more on software simulations to accomplish my task. Working on the entire configuration of the Satellite gives me a platform to study almost everything about CubeSat integration.

This knowledge will be a great asset even as I go back to my country (Ghana) to start a major Space project in my school (All Nations University College). The BIRDS project is a great platform for enhancing my engineering skill under the supervision of my skilled professors here.

Editor’s note: Ernest designed the official logo of the BIRDS Project.





My name is: Quansah Joseph Neenyi Kojo Krobo
My country is: Ghana
My major in college: Electronics and Communication Engineering

My role in the BIRDS Project:

As being first of its kind and also aiming at performing state of the art missions. One of the missions is to measure the atmospheric density at low earth orbit using a constellation of CubeSat and I am assigned to that task. The mission aims at predicting the atmospheric density with the change in satellite altitude as it orbits. We love BIRDS and wouldn't want to lose track of it in orbit, therefore I am also assigned to the ground software determination of the BIRDS attitude and orientation in orbit.

The project also ensures to have a good management and development process and due to that, I am also included in a team responsible for the production and risk management of this project which leads to the fulfilment of its manager.

Editor's note:

He can cook a great beans & sausage dish from Ghana.