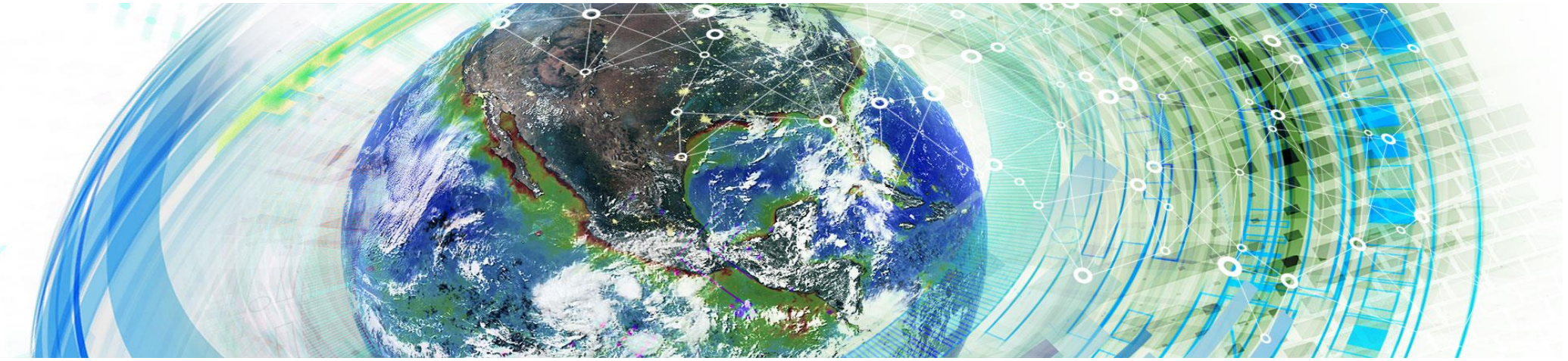

Smart Brain Child
Research & Development

Presents

High Altitude Balloon Satellite

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About Us

Smart Brain Child Research and Development. is a premier organization which aspires to bring the revolution in the field of Science, Technology and Innovation. Our Aim is to recognize and empower each and every youngster as well as educator to realize their full potential, across the globe. We seek a paradigm shift in the Learning methodology on the way how knowledge imparted in the classrooms transforms into a lifelong learning for a student. Our keen interest lies in how every stakeholder in this education Eco-system plays a role of enabler to achieve our common goals by bringing about a change in how an educator teaches and how a student learns.

We are pioneers in research and development and provide out of the box, innovative and creative, technological advanced education solutions in the field of education technology sector. Smartcircuits Innovation is not only a platform for an innovation, but it also inspires the minds of youngster to transform their ideas into reality, thoughts into action through the advancement of technology for the betterment of society, humanity and nation as a whole.

Our Mentor

Mr. George Salazar

NASA's Johnson Space

Mr. George Salazar received his Bachelors of Science in Electrical Engineering from the University of Houston and his Masters of Science in Systems Engineering from Southern Methodist University.

Mr. Salazar has over 30 years of experience in telemetry, communications, speech control, command and data handling, audio, displays and controls, intelligent lighting, project management, and systems engineering. He has been involved with the design of advanced telemetry, voice recognition and intelligent systems of which he has received various invention patents. His various systems were an important part of the Space Shuttle and Space Station program.

He is currently serving at NASA's Johnson Space Center as the Human Computer Interface Technical Discipline Lead to develop advanced human-computer systems. He is also working with astronauts as they learn to use these systems. His work is helping to take us into the future of space exploration.

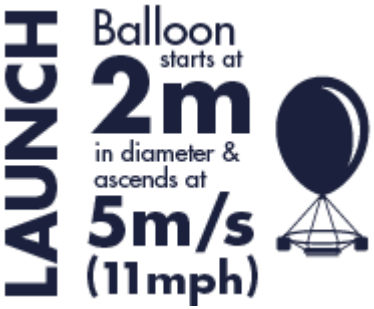
Balloon Satellite

A high altitude balloon is an unmanned balloon, typically a weather balloon that is launched into near space typically with a scientific payload or camera.

Balloons reach about 30 kilometers in altitude and stay aloft for 2-3 hours. High altitude balloons have recently been a focus in the scientific community as a low cost method of launching equipment into near space.

HAB SATELLITE SYSTEM

Our balloon will carry student experiments to an altitude of 30km, more than twice the height of commercial airliners, where they will be above 99% of Earth's atmosphere. Along the way they will experience conditions including temperatures of -50°C, pressures 1/100th that of sea level and an increased radiation dose.



Near Space Balloons are one of the cheapest ways to observe the earth from the sky. A high altitude Balloon carries the instruments aloft in order to send the information to the ground station. The unit that performs the actual measurements i.e radiosonde hangs at the lower end of the string and sends the data using Radio frequency.

The application area of the balloons ranges from the regular weather data collection & earth observation to highly scientific experiments which include measuring of the outer space radiation.

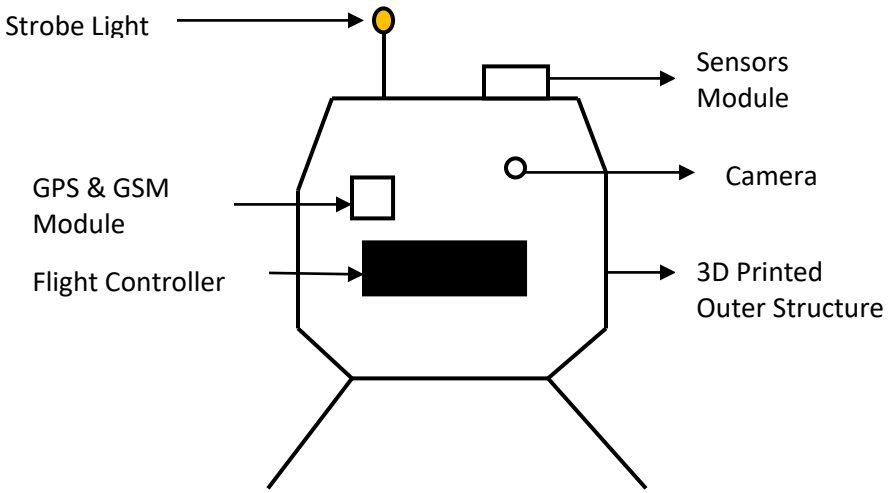
Sounding Balloon

Sounding type meteorological balloons are used to carry larger payloads typically in the form or a radiosonde. A radiosonde includes sensors for air temperature, pressure, humidity etc. Depending on the size of the weather balloon used it will fly to a certain height with the attached radiosonde. These sensors in the radiosonde communicate with ground receiving stations that constantly receive data streams with recorded information.

Flight Equipments

Sensors

Different sensors such as Temperature, Pressure, Humidity, gas, dust, light intensity, accelerometer, Magnetometer etc. Interface with controller and monitor the environmental data.



3D Printed Structure

HAB Satellite outer structure is made with PLA material using 3D Printer technology.

GPS & GSM

HAB Satellite is integrated with GPS and GSM Module so that at receiver end we will get live coordinates (Latitude and Longitude) and we can easily track and recover our HAB Satellite.

Camera

A high resolution camera is attached with HAB Satellite for capturing images during its flight as well as images of earth curvature.

Flight Controller

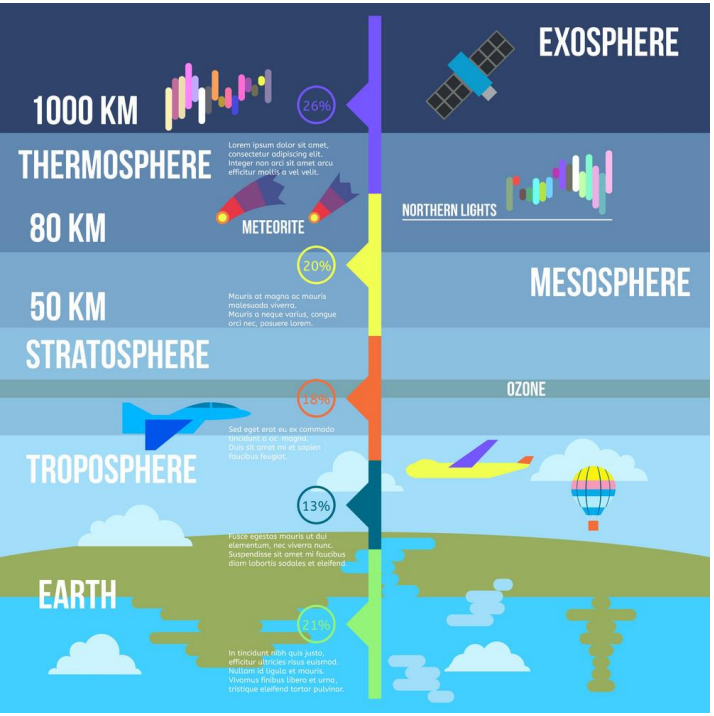
Students will develop their own flight controller as per the nature of payload of HAB Satellite.

Parachute

A parachute automatically deploys to guide the balloon safely back to Earth after its flight.

LAUNCHING HAB SATELLITE

The Balloon CPR 1200 is filled with Helium Gas after calculating parameters like Payload weight, trajectory, altitude, neck lift weight etc. Moreover, we need approval from agencies such as Airport Authorities, Air Force Authorities if lies in/near to launching area, Ministry of Defense etc.



NAVIGATING THE WINDS

STRATOSPHERIC FLIGHT

Balloon travel approximately 30 km above the Earth's surface in the stratosphere, well above Airplanes, wildlife, and weather events.

AUTONOMOUS

Balloon can reach other region from our launch Sites. The navigation system functions autonomously using our software and algorithm, with operators providing continuously human oversight.

LANDING & RECOVERY

HAB Satellite maintains continuous telemetry and command links with every balloon, tracking the location using GPS. As the balloon will gain height it will keep on expanding due to decrease in atmospheric pressure and would ultimately burst at which point the parachute attached to the payload will deploy automatically and the payload will land in or near the predicted landing zone from where it will be retrieved by our team and the data stored will be procured.

POST FLIGHT ANALYSIS

Once recovered, HAB Satellite goes for post flight analysis. This process paints a picture of how our balloons/HAB reacts to condition in stratosphere and retrieves the sensors data.

Implementation Plan

Team

Required a total of 20 team members for HAB SATELLITE mission

Duration

The HAB Satellite project will be completed in a period of 2-4 months which includes Research and Development, designing, development of satellite and testing.

Material

Smartcircuits Innovation Pvt. Ltd., India will provide all the material required for development of HAB Satellite. School will arrange Helium gas locally (our team will help in that).

Training & Guidance

Our experts will provide training to your students i.e. four times in a month and help in designing and development.

Permissions Clearances

School has to take approval/permissions from following authorities:

- Airport Authority
- Air Force Stations if lies in/near to launching sites
- Ministry of Defense/Telecommunication

This permission/NOC process will take around additional 1-2 months and we will help school in getting all the permissions. After getting all the permissions we will only able to launch a satellite.

BUDGET

INR 4, 85,000/-

Inclusive of Following Services

- Material for HAB Satellite
- Trainings and guidance
- Personal Visit of Our experts to your school
- Material Shipment, GST