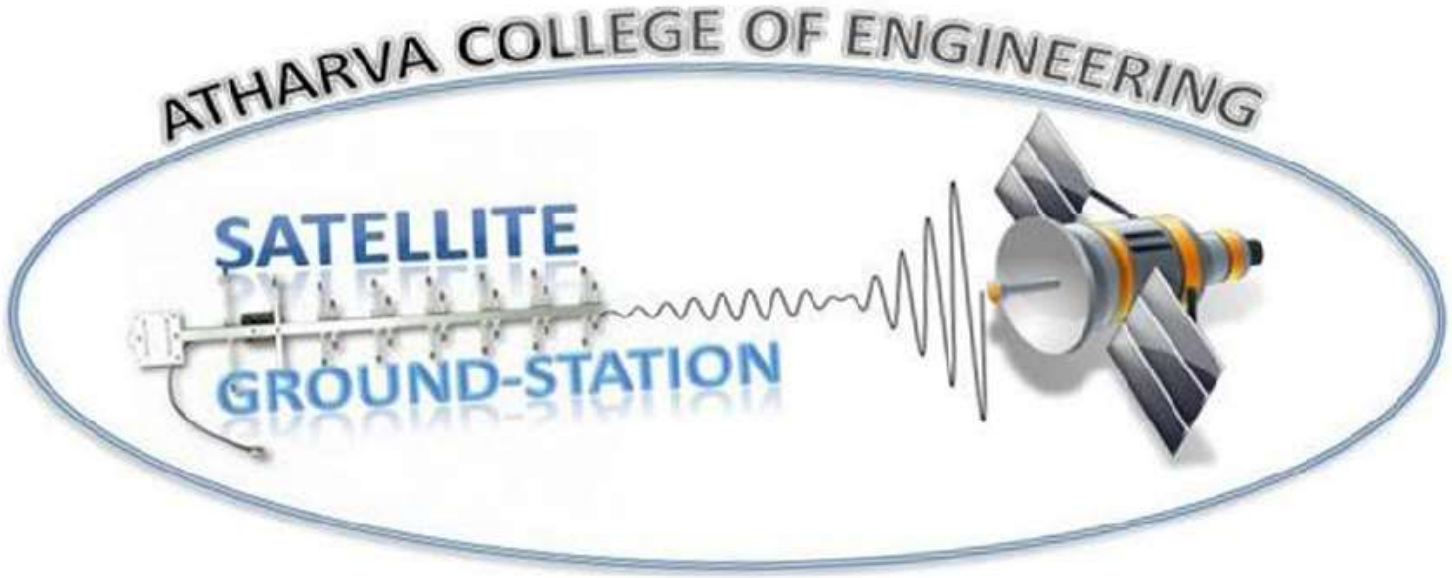
ATHARVA COLLEGE GROUND STATION

Ground Station Logo



"We Innovate Communication, We Communicate Innovation"

Project Guide: *Prof. Samuel Jacob*

Current Ground Station Team	
Prof. Shilpa Jaiswal	**Faculty Member**
Kavan Rawal	**BE ELECT**
Gaurav Raje	**BE ELEX**
Nikita Patil	**BE EXTC**
Rishabh Sanghai	**TE ELEX**
Prashant Saundalkar	**TE ELEX**
Jonas Robin	**TE EXTC**
Prathamesh Nate	**TE ELECT**
Shankar	**TE ELECT**

Introduction

Atharva Satellite Ground Station was started in 2008. It was initiated as a part of IIT Bombay's first Student Satellite "Pratham". Being a part of the project, a fully functioning satellite tracking system was developed by the students of Atharva under the guidance of project guides Prof. Samuel Jacob and Prof. Archana Chaudhary with continuous support from Atharva College Management.

As Atharva Satellite Ground Station evolved, it undertook projects such as being a ground station for "Swayam", a COEP student satellite and Atharva's very own "APHSARA", a balloon satellite.

History of Ground Station

Atharva Satellite Ground Station started as Satellite Technology research project in 2008.

Won Antenna Designing Competition conducted by IIT Bombay and became part of IIT Bombay's Student Satellite "Pratham".

Project was formally inaugurated in 2010 by successfully establishing communication with Delhi via satellite VO-52. Then Ground Station Setup was then visited by Institute de Physique du Globe de Paris (IPGP), France.

Prototype of Atharva College's own "Aphsara", a balloon satellite was made.

Swayam Project.

Pratham Project.

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Inside the Ground Station

Control Room

Control Room of Atharva Satellite Ground Station is located on 5th floor near Terrace, making it a perfect location for receiving signals from various satellites.
Control Room is fully equipped with various instruments which allows the Ground Station to carry out various tasks such as: Automated Satellite Tracking, Antenna Designing and research.

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Equipment Used

Yaesu AZ-EL Dual Controller

ARS USB

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SWR meter

Kenwood Transceiver

RTL SDR Dongle

Antenna Tower

Antenna Tower is located just outside the Control Room on the Terrace.
A Rotor is mounted on the top of the tower for moving antennas in desired position. Rotor can be controlled manually and also can be automated with help of software.
Two antennas of frequency 145 MHz and 437 MHz are mounted on the Rotor and both antennas are designed and fabricated by students in college workshop.

Antenna tower of Atharva Ground station

Team of Ground Station

Currently 8 students are working in the Ground Station team under the Guidance of Prof. Samuel Jacob.

40+ students have worked in the Ground Station in 5 different generations.

Ground Station is also blessed to have great support from the management of Atharva College, Shri. Sunilji Rane Sir, Executive - President of Atharva Group of Institutes & Founder Secretary – AET, Dr. Nemade, Director and professor at Atharva COE., Dr. Shrikant Kallurkar, Principal of Atharva COE.

Visits by Ground Station Team

Members of Ground Station visit many facilities for gaining knowledge as well as establishing new contacts. The prominent visits are as follows:

1. IIGM, Indian Institute of Geomagnetism.
2. SAMEER, Mumbai.
3. Indian Institute of Tropical Meteorology, Pune.
4. TIFR Balloon Facility, Hyderabad.
5. Space Application Centre of ISRO, Ahmedabad.

IITM, Pune

SAC, Ahmedabad

Accomplishments

Atharva Satellite has successfully developed a fully functional Satellite Tracking System which is capable of tracking most of the Amateur Category Satellites.
Prototype of Balloon Satellite is ready and tested, which will be launched very soon.
Team has designed and fabricated their own antennas for Satellite Tracking.

Newspaper Articles About Atharva Ground Station

Away from the spotlight, Malad engg college students set up ground station

Yogita.Rao@timesgroup.com

Mumbai: On Monday night when Pratham was expected to send its first beacon from its orbit in space, the team at IIT-Bombay was not the only one to get excited. Another group of students from Atharva College of Engineering – not as celebrated as IIT-Bombay – were ecstatic too. Though this team from a college in the western suburbs did not get their share of limelight over the years, at least five batches of students have been working on Pratham's ground station since 2008, the only one apart from IIT-Bombay. The college's students have been independently working on the ground station of the satellite project despite not having an aerospace engineering branch in their college.

When IIT-Bombay first conducted their training workshop as part of their outreach programme in 2008, about 10 colleges from the country showed their willingness to set up the ground station. By the time Pratham was ready to launch, only the ACE team had successfully managed to design the antenna for receiving signals and the control room. What started off in 2008 from the staircase of the Malad campus with just seven passionate students has now grown into a major project involving 50 students.

The outgoing students select their successive teams from across departments after a rigorous process involving a written test, group discussion and an interview too, said their professor, Samuel Jacob. Varun Joshi, from the first batch of students, who is now pursuing his Ph D from a US University, was also in the city coincidentally to witness the launch of the satellite. He said that when they had started off there was no infrastructure. "In 2010, when we were passing out from the college, a room was allotted to us. Till then, we used to work on the staircases during weekends," said Joshi.

The team from the Atharva College of Engineering

Aishwarya Sansare, a team member from electronic and telecommunication department, said that they have constantly been in touch with their seniors and a scientist for assistance on the project. Aishwarya Wahane, another student, said that several other colleges are now approaching them to check the work done on the ground station to seek help on their projects. "The electron count varies across the globe. More ground stations will help the satellite to pick up more data from across the globe," said Wahane. Ketki Kamthi another student said that they had picked up signals from other satellites too in the past, but they can gather data from satellites only where they are authorized too.

Current project manager – Pratham, Ratnesh Mishra, said the institute conducted workshop in the beginning and trained groups on designing a ground station. "It was not possible for us to monitor the development at colleges. If college showed interest, but the only result is at ACE. More colleges are now working on it such as NIT Surathkal and IPGP France. More the numbers, more area will be covered for geographical data," he said.

The Times Of India, Mumbai- Sept. 27, 2016

Sunil Rane with Dr SP Kalkarbe, principal Atharva College of Engineering, and the ground station team at the felicitation event

Satellite technology by students

IIT Bombay's Pratham satellite was successfully launched by ISRO's four-stage Polar Satellite Launch Vehicle (PSLV) at the Sriharikota's Satish Dhawan Space Centre on September 26, at 9am. The Ground Station Innovation Students' team of the Atharva College has established a functional ground station for Pratham at Atharva College of Engineering. Sunil Rane, executive president, Atharva Group of Institutes, and founder secretary, AET, says, "We have supported and motivated the ground station team to keep working hard on the project. The Atharva ground station is the first functional station, which is capable of receiving and processing data sent by Pratham."

The satellite is designed to fit into a cube of 30cm and weighs nearly 10kg. Pratham will be useful for scientific studies, and will transmit humans warnings and correct errors in GPS communication. Says Rane, "The passion of the team for space technology and satellite communication has led it to do research on tracking satellites and sharing knowledge on designing antennas and decoding signals."

Atharva's management felicitated and encouraged the ground station team to excel in space technology and satellite communication, and help build a better future for the Atharva Ground Station or an event, recently. Says Rane, "Atharva takes initiatives in exploration, research, technology and innovation, along with the development of the students, thereby making them competent engineers of tomorrow." Rane has also announced a grant of ₹5 lakh for the students of the ground station team to further their research activities.

Sunil Rane, addressing the students of Atharva's ground station team, at Atharva College of Engineering

HTC Campus of the Atharva College of Engineering

Hindustan Times, Mumbai- Oct. 4, 2016

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Thank You