



INDUSTRIAL VISIT

DAYANANDA SAGAR UNIVERSITY



Department of Computer Science Engineering School of Engineering

INDUSTRIAL VISIT “ISRO-URSC Bengaluru”

Date: 12 May, 2023
Time: 9:00 am – 1.15pm

Resource Person:

Dr. Srinivas
ISRO Scientist, URSC

ORGANISERS:

Dr. Gopalsharma R Joshi, Professor, Space Research & PoP CSE

Dr. Rajesh TM, Associate Professor, CSE

Dr. Tina Babu, Assistant Professor, CSE

➤ **Industrial Visit Agenda:**

- To get the guidance of Dr. Srinivas, Scientist, ISRO, URSC, to gain knowledge about satellites and rockets.
- To view the actual satellite making.
- To visit the URSC exhibition and see the prototypes of satellites and rockets.
- Doubt clarification session.

Faculties Visited:

- 1) Prof. Dharmendra DP
- 2) Prof. Raghavendra K
- 3) Prof. Vishwas
- 4) Prof. Navya Damodar
- 5) Prof. Pranami Chowdhury

Industrial Visit Details:

On 12th May, 2023 , faculties and students of CSE Department visited the UR Rao Satellite Centre in Bangalore. This centre is renowned for its exceptional contributions to the field of satellite development and space exploration. During the visit, they provided a comprehensive overview of the satellite building process, from manufacturing to launch. Also, there was an opportunity to witness various satellites, including the engineering model of 'The Ariane Passenger Payload Experiment' (APPLE), and observe the construction of new satellites, namely Cartosat and Intrusat. Additionally, an interactive Q&A session was done to gain deeper insights into the different components and functionalities of these satellites.

Observation of the Industrial Visit:

Opportunity to witness several satellites, each with its own unique purpose and design. Notably, a real engineering 1st model of The Ariane Passenger Payload Experiment (APPLE) was shown which was launched on 19th June 1981, its weight is 670 kgs and onboard power was 210 Watts and shape is cylindrical and its launching site was kourou (CSG) French Guiana, which provided valuable insights into the complex workings of a satellite. The model showcased the various subsystems, instruments, and communication equipment typically found in a satellite.

Prototype of some satellites were displayed in the exhibition:

- 1) Aryabhata
- 2) Bhaskara
- 3) Solar sail
- 4) Mangalayan Scale 1:5
- 5) Astrosate Scale 1:5
- 6) IRNSS Scale
- 7) INSAT 2
- 8) RI SAT

Phases of Satellite Building: One of the key highlights of the visit was the detailed explanation of the different phases involved in satellite building. The ISRO experts guided us through the entire process, which can be broadly categorized into the following stages:

1. Design and Conceptualization: This initial phase involves defining the mission objectives, identifying the necessary payloads, and determining the specifications and requirements for the satellite.
2. Engineering and Development: The second phase focuses on the engineering aspects of the satellite. This includes designing the satellite's structure, developing the electrical and mechanical subsystems, and integrating the required instruments and communication systems.
3. Manufacturing and Assembly: Once the satellite design is finalized, the manufacturing and assembly phase begins. Components and subsystems are

fabricated, and the satellite is assembled meticulously to ensure precision and reliability.

4. **Testing and Quality Assurance:** Extensive testing is conducted to verify the functionality and performance of the satellite. This includes environmental testing, vibration testing, thermal vacuum testing, and electromagnetic compatibility testing, among others. Quality assurance measures are implemented to ensure that the satellite meets the required standards.
5. **Launch and Deployment:** After successfully passing the testing phase, the satellite is prepared for launch. The necessary preparations, such as fuelling and payload integration, are carried out. Finally, the satellite is launched into its designated orbit, marking the culmination of the building process.

Furthermore, a glimpse of the ongoing projects at the centre were shown. The construction of new satellites, Cartosat and Intrusat was in progress. These satellites represented ISRO.

Meeting Takeaways:

The interactive Q&A session proved to be an excellent opportunity for us to clarify our doubts and delve deeper into the intricacies of satellite building. The ISRO experts patiently answered our questions and discussed various components of the satellites, including their power systems, communication mechanisms, propulsion systems, and payload configurations. This session greatly enhanced our understanding of satellite technology and its applications.





