



# DJS ARYA

The Official Canister Satellite Team Of  
Dwarkadas J. Sanghvi College of Engineering, Mumbai



# DJS ARYA

DJS Arya, the official canister satellite team of DJ Sanghvi College of Engineering, Mumbai, was formed in 2017 by a group of students from EXTC, Mechanical, Computer departments, intrigued by the world of space technology.

We build a fully functional miniature satellite integrated with space technology, which we present each year at the annual International Cansat competition, conducted by the American Astronautical Society (AAS) in collaboration with NASA.

Our team is committed to participating in the prestigious CANSAT competition, an esteemed international event renowned for its rigorous demands in the design, construction, and successful deployment of a fully operational CANSAT. This competition serves as a platform to showcase our team's proficiency in aerospace engineering, innovation, and collaborative problem-solving skills on a global stage.

## OUR DEPARTMENTS

### Mechanical division

The Mechanical Division assumes responsibility for the comprehensive testing, manufacturing, and design of an aerodynamically optimized CanSat. This includes CAD (Computer-Aided Design) modeling, structural stability analysis to ensure the robustness of the CanSat's framework and durability testing through various environmental and vacuum tests to ensure maximum efficiency and reliability.

### Electronics Division

The Electronics Division is responsible for conducting rigorous testing, precise calibration, and seamless integration of electronic components. This encompasses intricate tasks such as circuit design, sensor calibration, and PCB (Printed Circuit Board) design and implementation of uninterrupted communication systems to facilitate seamless data transmission. This involves exhaustive testing to certify the functionality and reliability of all electronic components, essential for the success of the CanSat mission.

### Software Division

The Software Division assumes a pivotal role in managing the programming aspects of the Graphic User Interface (GUI), facilitating real-time data plotting from sensors integrated within the CanSat. This encompasses the development of software systems tailored to enable efficient data visualization and analysis throughout the duration of the mission.

### Management Division

The Management Division oversees team management, finances, social media, marketing and enhancing sponsorships for funding, and international presentations, showcasing the CanSat model to international judges for recognition.

## ABOUT THE COMPETITIONS

### AAS International CanSat Competition :

The International CanSat Competition, organized by the American Astronautical Society (AAS), is an annual event for university students to design, build, and launch miniature satellites called CanSats, simulating a space mission. It emphasizes practical application and hands-on experience in engineering projects. Teams launch their CanSats to a specified altitude using a provided rocket, where they perform designated tasks and transmit data back to a ground station. The missions vary each year, challenging teams to ensure their CanSats survive launch and descent while achieving mission objectives like deploying probes or measuring environmental data



### InSpace CanSat Competition

The IN-SPACE CANSAT Student Competition, on the other hand, is an initiative by IN-SPACE and the Astronautical Society of India (ASI) to engage Indian university students in space exploration. It mirrors the International CanSat competition but focuses on a national level, aiming to spark interest and passion for space among Indian students by having them design, build, and launch CanSats using drones to reach an altitude of approximately 800 meters.

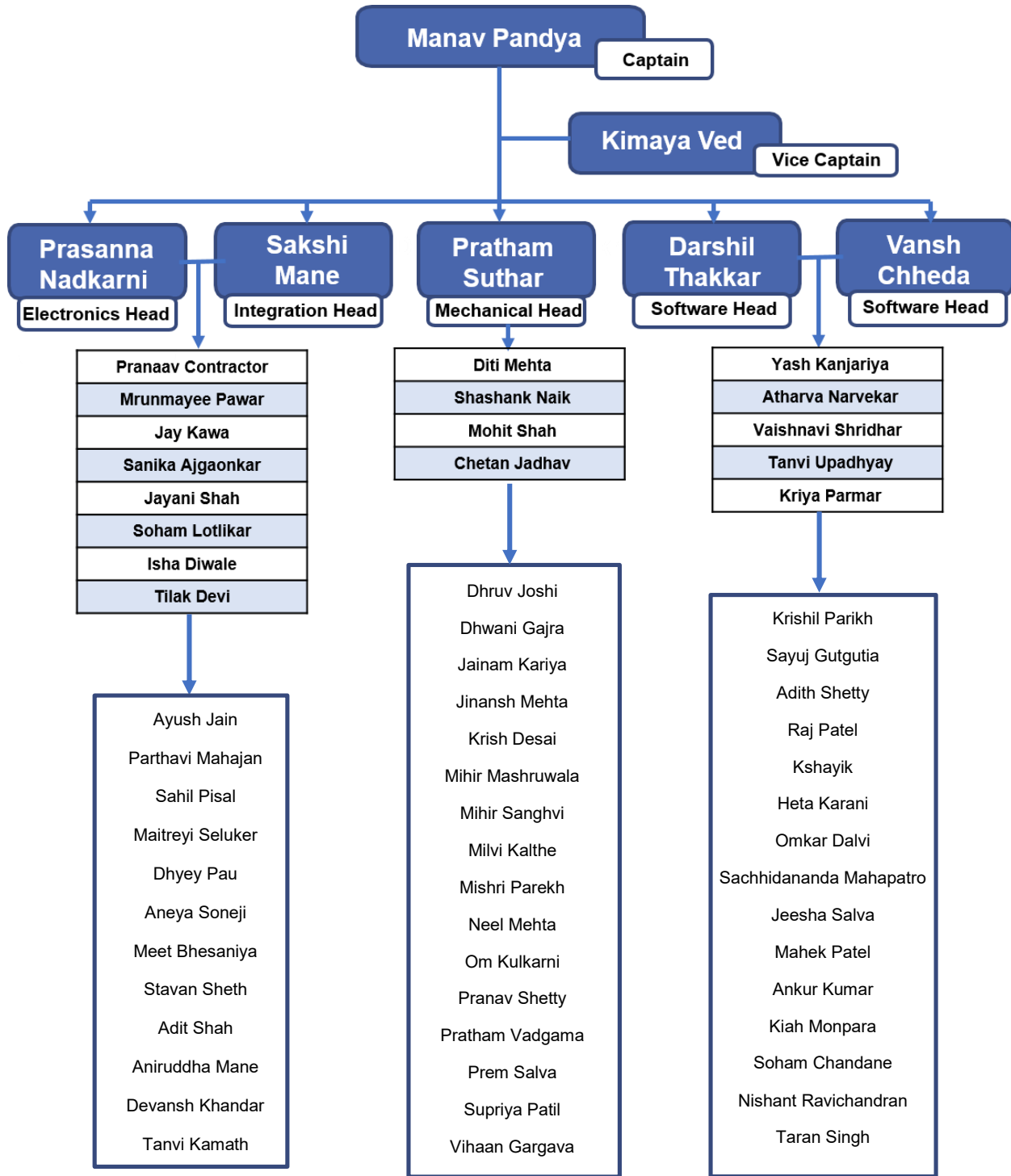


### AUVIS IARC Competition

The AUVSI International Aerial Robotics Competition (IARC), organized by the Association for Unmanned Vehicle Systems International (AUVSI) Foundation, is a longstanding challenge for university teams to push the boundaries of autonomous flying robots. Unlike other competitions, IARC presents complex missions requiring innovative technologies and approaches. Teams build autonomous flying robots to navigate unknown environments, manipulate objects, and make real-time decisions without human control, showcasing advancements in aerial robotics.



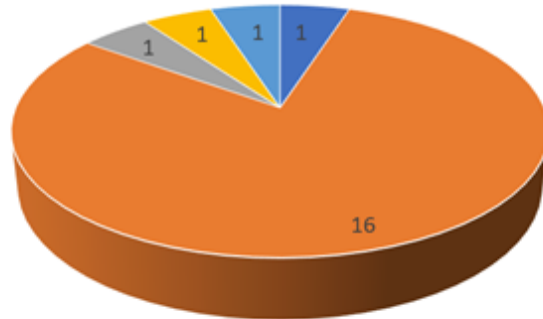
# Team Structure:



## Our Devison-wise Strength:

### Electronics

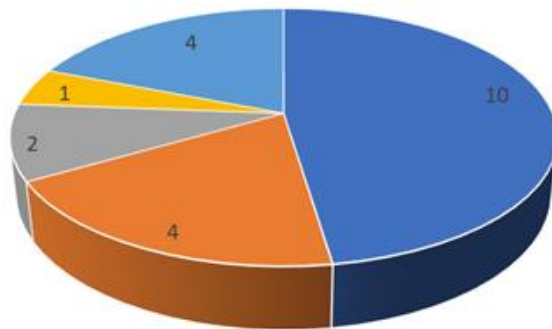
- AIML
- EXTC
- IT
- MECH
- COMPS



AIML	1
EXTC	16
IT	1
MECH	1
COMPS	1

### Software

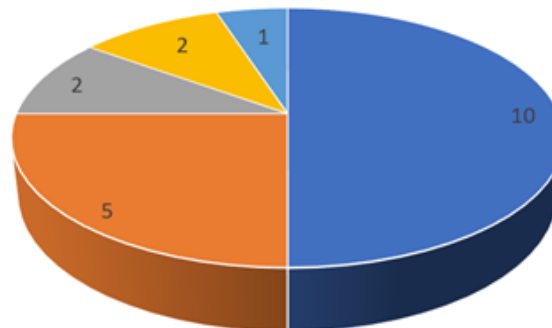
- IT
- CSEDS
- EXTC
- AIML
- COMPS



IT	10
CSEDS	4
EXTC	2
AIML	1
COMPS	4

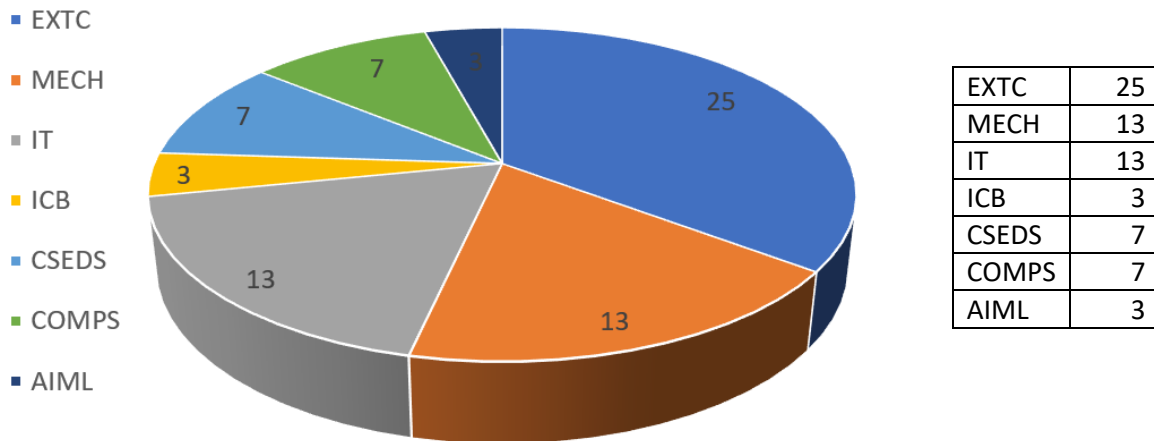
### Mechanical

- MECH
- EXTC
- ICB
- CSEDS
- COMPS



MECH	10
EXTC	5
ICB	2
CSEDS	2
COMPS	1

## DJS Arya



DJS Arya was a moderately sized team, comprising of 24 members in the term 2023-24. We have now expanded our team size to 71 members (juniors, seniors and super-seniors included) for the term 2024-25 to meet with the workload of 3 competitions that we plan on taking part in, this year.

### Learning Experience in DJS Arya

Working with DJS Arya has been a profound learning journey, molding us into adept engineers prepared for the rigors of the aerospace industry and beyond. The team environment fostered a blend of theoretical understanding and practical application, emphasizing collaboration and innovation as core pillars.

A pivotal aspect of our experience was working on a functional miniature satellite. This project integrated our expertise in electrical, software, and mechanical engineering, providing a comprehensive grasp of their synergy in space technology. Each phase, from circuit design to software programming and mechanical assembly, translated classroom knowledge into real-world solutions.

Beyond technical skills, DJS Arya instilled crucial life skills. Time management became critical as we balanced academic commitments with project demands. Collaboration across diverse departments ingrained teamwork as a fundamental asset, fostering creativity and critical thinking in problem-solving.

Participating in the International Cansat competition was a crowning achievement, showcasing not just our technical proficiency but also our adaptability in a competitive setting. Representing our college globally bolstered our pride and sense of accomplishment, reinforcing our dedication to excellence in aerospace engineering.

Ultimately, our journey with DJS Arya was transformative, equipping us with the confidence, knowledge, and skills to navigate future challenges successfully. We are grateful for the opportunity to grow, learn, and contribute meaningfully to a field we are passionate about.

Our Competition organisers:



Our Sponsors and Supporters:



The 3DEXPERIENCE® Company



## Our Notable Alumini:



**MEGH DOSHI**

PhD Student at  
**University of Wisconsin- Madison**  
Double Masters in Electronics  
Ex-CAPTAIN and Founder  
(2018-2019)



**POOJA JHA**

Program Manager at **AMAZON**  
Ex-Vice Captain  
(2018-2019)



**RITWIK DHAR**

Co-Founder of **AICAN**  
Ex-Electronics Team Member  
(2018-2019)



**VAIBHAV CHEDDA**

Project lead developer at **Infosys**  
and graduated from **Texas Dallas**  
Ex-Electronic Head  
(2018-2019)



**VEDANT AWASTHI**

Founder of **AICAN**  
Ex-Electronics Team Member  
(2018-2019)



**DISHANT SHAH**

Founder of 3 Companies  
Director of **Blue Phoenix Technologies Pvt. Ltd.**  
Ex-TECHNICAL HEAD  
(2019-2020)





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### Achievements:

CANSAT Competition 2022-2023

Worldwide Rank – 12

All India Rank – 1

CANSAT Competition 2021-2022

Worldwide Rank – 12

All India Rank – 1

CANSAT Competition 2020-2021

Worldwide Rank – 12

All India Rank – 1

Team made its debut in year 2017-2018

With a hat-trick of All India Rank 1, DJS ARYA has been retaining its Worldwide and All India Rank for the past 3 years showing ultimate consistency and hoping to move further up in the upcoming years at the International CANSAT Competition



**DJS Arya during the 2023-24 Academic Year**



**Moments before submitting the CanSat to the competition committee for the launch**



**Pictured of the mass manufactured, monokote covered Container for International CanSat Competition 2023**



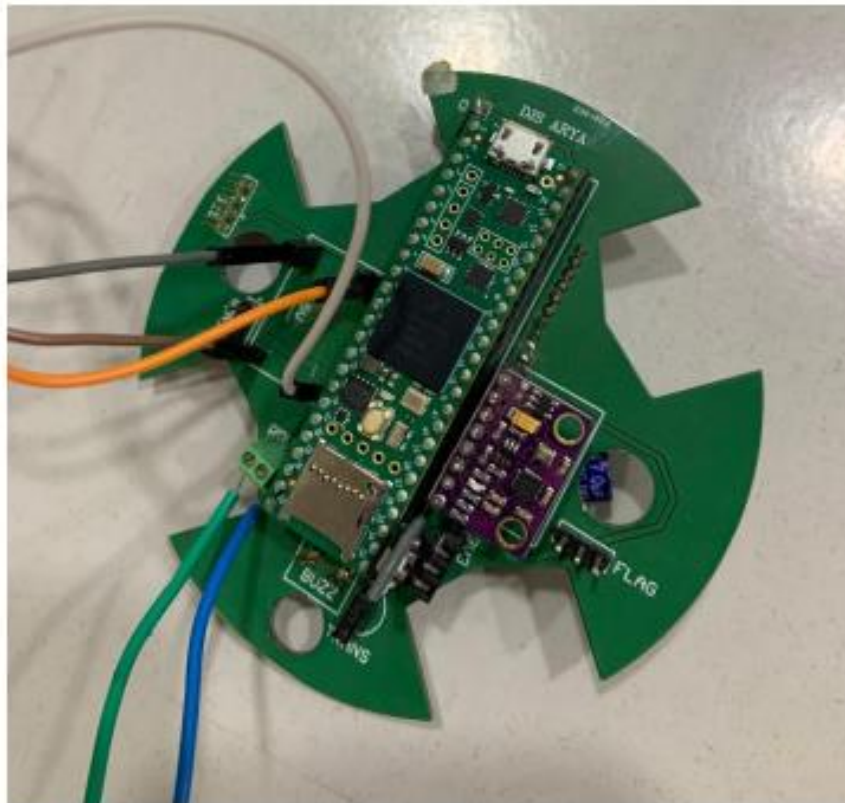
**A picture of few of many 3D printed parts in the inventory for Competition in 2023**

**A picture of few of many parts which were manufactured using laser cutting in the inventory for Competition in 2023**





**A Skeleton of the Probe module with custom heat shield and carbon fibre rods of the CanSat during the testing before the Critical Design Review**



**X-Shaped design of the Double-sided Printed Circuit Board for International CanSat Competition 2023**



**Team DJS Arya at the launch site**



**Team DJS Arya after the awards ceremony**



**Team DJS Arya with other competing teams**