

Team DJS Arya Triumphs in the International and National CanSat Competitions

The culmination of relentless dedication and non-stop hardwork was realized with a moment of profound, tearful joy for **Team DJS Arya** from Mumbai's Dwarkadas J. Sanghvi College of Engineering. This distinguished team proved its technical expertise on both national and international stages with their innovative CanSat (Canister Satellite) that is a simulation of a satellite in the shape of a can.

The immense success of these student engineers not only brings prestige and recognition to our institution but also confers honor upon the state of Maharashtra, and indeed, the entire nation of India on the international platform.

Mumbai's Pride Soars to the Sky! 'DJS Arya' Creates History, Bags First Rank in InSpace CanSat Competition!

This team from Mumbai's engineering college has etched their name in the nation's space sector through sheer hard work and determination. Their journey in the National InSpace CanSat India Competition, organized by the Astronautical Society of India in collaboration with ISRO, is not just a tale of technical excellence, but an epic of tears, joy, and immense struggle.

Team DJS Arya from Dwarkadas J. Sanghvi College of Engineering, Mumbai, scripted history by clinching the First Rank in the National InSpace CanSat India Competition 2024, organized by the Astronautical Society of India (ASI) in collaboration with ISRO (Indian Space Research Organisation).

This remarkable achievement wasn't just a technical milestone, it was a saga of hard work, sleepless nights, teamwork, and tears of joy, culminating in a triumph that made Mumbai and the entire nation proud.

The Challenge: Building a 1 kg Satellite of Dreams

The competition's mission challenged participants to design and build a CanSat weighing under 1 kg, capable of being launched by a rocket to an apogee of 1000 m. After separation, the CanSat was required to descend safely, demonstrate attitude stability about all three axes, and deploy a secondary descent mechanism at a lower altitude.

Team DJS Arya's CanSat ingeniously combined mechanical precision, electronic intelligence, and software robustness. Their design featured:

- **Mechanical Gyro System:** A reaction wheel that stabilized the CanSat's yaw axis during descent.
- **Grid Fins:** Deployed to stabilize pitch and roll axes, ensuring balanced aerodynamic descent.

- Secondary Parachute: A controlled descent mechanism that deployed automatically at 500 m altitude, reducing descent rate for smooth landing.
- Telemetry System: Enabled real-time transmission of data including altitude, temperature, and attitude.
- Onboard Cameras: Successfully recorded videos of both the reaction wheel in operation and the secondary parachute deployment, showcasing the CanSat's performance in-flight.

Team DJS Arya's CANSAT for the INSPACe CANSAT India competition



The results were near-perfect:

- Descent Rate after CanSat Release: 20.55 m/s
- Descent Rate after Secondary Parachute Deployment: 2.8 m/s

- Angular Momentum of almost 0 achieved, indicating a perfect descent of our CANSAT in equilibrium
- Recovery Time: CanSat successfully located and retrieved within 10 minutes after landing

Their flawless design and reliable execution impressed judges and competing teams alike.

When their CanSat, meticulously built through days and nights of toil, was placed into the rocket airframe on the Kushinagar launchpad, the hearts of every team member pounded. The thought in everyone's mind was, 'This is not just a can of 1Kg, this is the weight of our dreams.' One member recounted, "Watching it being seated in the rocket, it felt as if our baby was leaving home for the first time. Fear and pride, it was a storm of emotions!"

The interdisciplinary brilliance (combining Mechanical, Electronics, and Software) demonstrated by the team during the PDR and CDR rounds impressed even the Directors of InSpace. The team was honored to receive the compliment addressing them as an 'Advanced Team' during the CDR. This was the greatest validation of their methodology and preparation.

The CanSat was placed onto the launch pad near the Narayani river in Pipraghat, Uttar Pradesh, all hearts pounding, the excited yet feared face was evident. The countdown started... 10, 9, 8.... The shining eyes of hopes and dreams stared at the pad. 3.....2.....1..... LAUNCH..... The team's CanSat was launched into the sky, rising higher and higher. Team DJS Arya's CanSat was finally flying high!

During the launch, their Canister satellite successfully reached an altitude of 602m. The launch was a complete success, their CanSat, representing the Indian flag, went up perfectly and came down safely, just as they had planned. Every moment of the flight went smoothly, showing how much effort and care the students had put into their work. It was a proud moment for everyone watching.

The team was extremely happy, but the mission wasn't done yet, the CanSat had landed far away from the launch site, 1.4kms to be exact. The next obstacle was recovery, the team was split into sub sections to search for the CanSat. The GPS data from CanSat helped us locate it precisely, the help from local police officers added to our aid.

When it was time to announce the results, every competing team was holding their breath. "As the InSpace Chairman approached the stage with the microphone and that paper containing the results, our heart rate skyrocketed." a team member shared.

When the winners for the fourth, third, and second ranks were announced, we started questioning ourselves, 'Will we not make it?' Having witnessed other teams' near-perfect launches, we had almost lost all hope.

But, destiny had something else planned.

Finally, while announcing the 'First Rank', the Chairman gave a hint: "The team winning the first prize this time is from Mumbai."

Our hopes were immediately revived! But the next hint came: "This team resonates with Lord Krishna."

We were confused... Krishna and Arya? Then, in a flash, we remembered, Dwarkadas J. Sanghvi!

And at that very moment, the announcement boomed: "The winner of the **InSpace CanSat India** Competition goes to... Team number 072: Team DJS Arya!

That moment, the experience of going up on stage to receive the trophy, was unreal. Before and after going up on stage, we couldn't stop hugging each other. Our faces were drenched with tears of happiness, because we knew how hard we had worked for this single moment. One member emotionally confessed, "The true meaning of struggle and the extent of hard work required hit us at that instant, and the floodgates of tears opened.

Coming from the bustling city of Mumbai to a calm, smaller region like Kushinagar was a new and enriching experience for us. Team DJS Arya is deeply grateful that we had the opportunity to meet remarkable personalities such as Mr. Shashank Mani, Dr. Surendra Pal, Mr. Vinod Kumar, Dr. Pawan Goenka, and the Chief Guest for the event, Captain Shubhansh Shukla (Indian Test Pilot and Astronaut).

Their vision and willingness to engage in the development of the nation and the progress of the space sector are remarkable and admirable. We sincerely thank them for the opportunity to be a part of their great endeavor!





Team DJS Arya with Captain Shubhanshu Shukla







INS-SPACE CANSAT India Competition Trophy

Media Coverage:

<https://timesofindia.indiatimes.com/city/lucknow/innovators-from-bluru-mumbai-win-top-honours-at-rocketry-competition/articleshowprint/124966521.cms>

<https://m.economictimes.com/news/science/bengalurus-rvce-mumbais-djsce-top-national-rocketry-space-competition/articleshow/124964599.cms>

<https://www.news9live.com/science/india-student-rockets-inspace-isro-competition-kushinagar-2025-2900846>

<https://www.mymahanagar.com/desh-videsh/djs-arya-team-ranks-first-in-the-country-in-isro-cansat-competition-2025-held-in-uttar-pradesh-kushinagar-isro-djs-college-of-engineering/935834/>

<https://timestech.in/indias-young-space-innovators-excel-at-in-space-national-competition/>

<https://www.news9live.com/science/india-student-rockets-inspace-isro-competition-kushinagar-2025-2900846>

<https://economictimes.indiatimes.com/news/science/bengalurus-rvce-mumbais-djsce-top-national-rocketry-space-competition/articleshow/124964599.cms?from=mdr>

<https://www.ndtv.com/india-news/dream-big-aim-higher-astronaut-shukla-to-model-rocketry-competition-participants-9545793>

<https://cxotoday.com/press-release/indias-next-generation-of-space-innovators-shine-at-in-spaces-model-rocketry-and-cansat-national-competition-in-kushinagar/>

Shining Globally in the International CanSat Competition

In the prestigious International CanSat Competition 2025, organized by the American Astronautical Society (AAS) in collaboration with NASA, Team DJS Arya from Dwarkadas J. Sanghvi College of Engineering, Mumbai, once again made India proud on the global aerospace stage. The team's journey, marked by innovation, precision, and perseverance, reflected their passion for space engineering and their unwavering belief that

"Success is no accident. It is hard work, perseverance, learning, studying, sacrifice, and most of all, love of what you are doing."

Rising Through the Ranks

The competition challenged university teams worldwide to design, build, and launch a CanSat, a simulation of a real satellite in the shape of a can, carrying out the required mechanisms and involving data collection from various sensors and the transmission of the data to the ground station in the specified telemetry format which is displayed on a Graphical User Interface in the form of a variety of plots. Each CanSat was required to perform a complex mission post-deployment from a rocket, testing the team's ability to integrate mechanical, electrical, and software systems under real-world aerospace conditions.

Among 400 international teams, Team DJS Arya emerged as a technical powerhouse, securing:

- All India Rank 1
- Global Rank 5 in the Preliminary Design Review (PDR) with a score of 98.40%
- Critical Design Review (CDR): 98.45%
- Environmental Test Review (ETR): 100%,
- Post-Flight Review (PFR): Among the only 6 teams out of 40 to score above 90%
- Overall Score: 90.54% and Global Rank 15

These results reflect not just consistency, but an outstanding level of technical excellence across every stage of the competition.

Engineering the Auto-Gyro Descender CanSat

As per the 2025 mission statement, teams were tasked with designing an Auto-Gyro Descender, a payload that deploys rotor blades upon release from the container and descends while stabilizing itself aerodynamically.

Team DJS Arya's CanSat was a masterclass in system-level engineering integration:

- Mechanical Subsystem: Designed to ensure smooth deployment of auto-gyro blades, precise control over the angle of attack, and structural robustness under shock and vibration loads.
- Electronics Subsystem: Featured a custom-designed main PCB and an audio beacon circuit, mounted with vibration isolation using standoffs and adhesive

supports. The telemetry system transmitted data at 1 Hz through XBee radio modules, ensuring real-time monitoring of altitude, temperature, and battery voltage.

- **Software Subsystem:** A custom Graphical User Interface (GUI) displayed live telemetry and flight states, and also ensured seamless transitions between SIM mode and FLIGHT mode, ensuring reliability even during dynamic launch conditions.



Team DJS Arya's CanSat for the International CanSat competition



Their Ground Station Antenna, entirely fabricated in-house under the guidance of Dr. Amit Deshmukh (Head of Department, EXTC), was a highlight of our project. The antenna's design and performance drew attention and appreciation from multiple NASA and AAS jury members during the Flight Readiness Review.

Flight Readiness and Perfect Performance

Before the final launch, every team underwent the Flight Readiness Review (FRR), a stringent test of technical preparation, structural safety, and data reliability. DJS Arya aced it with a Perfect 100% Score, maintaining their record of excellence from previous years.

Their CanSat successfully endured the Environmental Test, where it was exposed to high temperature and vibration conditions replicating those experienced during an actual rocket launch, proving its structural strength and reliability.

The Launch: Perseverance Meets Performance

The final launch took place from Jack Mountain Village, Monterey, Virginia, between June 5th–8th, 2025. DJS Arya's CanSat was deployed from a sounding rocket at an altitude of approximately 700 meters, initiating its auto-gyro descent sequence at 75% of the apogee, while also transmitting valuable telemetry throughout the flight

Remarkably, Team DJS Arya was among the few teams to successfully record an in-flight video capturing the payload release mechanism in operation, earning bonus points and widespread appreciation from the judges.

Despite partial payload loss during recovery, the team's Post-Flight Review presentation stood out for its clarity, detailed data analysis, and honest technical evaluation, making them stand among the top 6 teams with a score of above 90% in the Post Flight Review.

A Global Impact

Representing India among world-class teams from Argentina, Turkey, Taiwan, Canada, Mexico, Indonesia, and Italy, Team DJS Arya not only showcased technical excellence but also embodied the spirit of collaboration and global learning. Their indigenous designs, creative problem-solving, and impeccable presentation skills were applauded by officials from NASA, Siemens, the U.S. Naval Research Laboratory, and the Valley Aerospace Team (VAST).

The team's in-house antenna fabrication, perfect FRR score, and system reliability demonstrated India's growing competence in space technology and student-led research.

The Legacy of DJS Arya

From nights spent soldering PCBs in hotel rooms to conducting telemetry range tests in the hills of Virginia, every moment of this journey was fueled by determination, teamwork, and a passion for aerospace.

With All India Rank 1, Global Rank 15, and a reputation for technical precision and innovation, Team DJS Arya continues to inspire young engineers across the country. Their achievement is not merely a win, it's a statement:

India's student engineers are not just learning space science—they are shaping its future

Image 1: Team DJS Arya holding the prestigious certificates given to the team at the International CanSat competition

Image 2: Team DJS Arya standing next to the director and the organizing team member of the International CanSat competition

Image 3: Team DJS Arya heading to the launch pad with their CanSat mounted on top of the rocket.





The dual triumph of Team DJS Arya: securing AIR 1 in the InSpace National Competition and achieving AIR 1 and Global Rank 15 in International CanSat Competition is a monumental achievement that encapsulates the team's motto: "Imagination Deployed." Their journey, from the sophisticated labs of Mumbai to the launchpad in Kushinagar, was an enriching experience, offering a unique perspective far removed from the urban rush of Mumbai.

By mastering complex subsystems like electronics, mechanical and communication under extreme conditions, they have not only built miniature satellites but have also laid a solid foundation for India's future aerospace talent. Team DJS Arya's journey is a beacon of hope, proving that with self-belief and relentless dedication, students from Mumbai can compete and conquer on the world stage, making them true pioneers in the next generation of space exploration.