



# UDAAN

**The official  
AeroModelling Club of NITR**

Contact Us



Where Dreams Take Wings





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# INTRODUCING UDAAN

## Introducing UDAAN: Soar to New Heights in Aeronautics

Join UDAAN, the distinguished club at NIT Rourkela, where innovation and technical expertise in aeronautics take flight. Discover a dynamic community of bright engineering minds pushing the boundaries of technology, fostering innovation, and unlocking your potential to reach new heights. From designing drones to building rocket subsystems, UDAAN sets new standards of excellence, shaping the future of aerospace engineering.

## Our Pride: THE BBA PLANE

Witness our self-modelled plane, a proud symbol of UDAAN's innovation and technical prowess. Standing tall in front of the Bhubaneswar Behera Auditorium at NIT Rourkela, this model aircraft represents our commitment to promoting aeromodelling and robotics. It serves as an inspiration to current and future members, igniting pride within the entire NIT Rourkela community.



# RC PLANE SUBSYSTEM

## RC Plane Subsystem: Taking Flight to Perfection

Experience UDAAN's Technical division, involved in designing, building, and testing remote-controlled plane models. Our team utilizes advanced software tools to optimize aerodynamic performance, stability, and structural analysis. With a focus on versatility, we select electronic components and perform mission planning for various applications.

### RC Plane Subsystem Projects:

- **Nora:** A slim and stable aircraft, perfect for beginners in model aviation.
- **Fatboy:** A versatile cargo plane and trainer known for its large capacity and stability.
- **Whale:** A massive cargo plane with improved aerodynamics and high lift capacity.
- **Elephant:** Inspired by the Boeing C-17 Globemaster, this cargo plane has impressive carrying capacity and efficiency.
- **Surprise:** Combining slim design with cargo capabilities, it's a versatile and robust aircraft.



# UPCOMING PROJECTS

- **FT EDGE 540:** An RC version of the Edge 540 designed for the World Robotics Competition Technoxian 2023.
- **UDN Cargo Commander-1 (UDN CC-1):** An efficient RC cargo plane designed for various payload sizes and weights.
- **UDN-VTOL:** An autonomous vertical takeoff and landing UAV for aerial surveying, mapping, and cargo delivery.
- **Sukhoi Su-30 UDN:** An RC model resembling the iconic Sukhoi Su-30 fighter jet.
- **UDN-Amphibian:** A unique aircraft capable of smooth transitions between land and water operations.
- **UDN-View:** An air surveillance aircraft for aerial photography, mapping, and environmental monitoring.





# DRONE SUBSYSTEM

## Conquer The Skies with Grace



### Drone Subsystem Projects

- **UDN-MarK** - F404:  
Unleash the power of this agile UAV designed for versatile flights.
- **UDN-FireboIT** -F404:  
Get ready for an adrenaline-pumping experience with this high-speed UAV built specifically for FPV racing.

Witness the technological marvel of UDAAN's Drone Subsystem, here innovation and artistry intertwine. Unleash state-of-the-art image recognition algorithms, GPS navigation systems, and sophisticated flight control algorithms.

# UPCOMING PROJECTS

### **UDN-Optimus Prime:**

A groundbreaking UAV engineered to capture drones mid-air.

### **UDN-Helicarrier:**

A revolutionary logistics solution with remarkable lifting capabilities.

### **UDN-VTOL :**

Discover the future of autonomous flight with UDN-VTOL, combining vertical takeoff and landing with efficient horizontal flight.



# ROCKET SUBSYSTEM:

## Touch the Stars with Ambition

Embark on a journey beyond earthly confines with UDAAN's Rocket Subsystem. Our sleek and aerodynamic rockets challenge the laws of gravity, inviting dreamers to chase celestial wonders. Witness the fusion of scientific prowess and artistic finesse.

### Rocket Subsystem Projects:

- **Water Rocket:**  
Experience the thrill of soaring heights with our soda bottle water rocket, propelled by water pressure.
- **Model Rockets:**  
Discover the art of rocketry with meticulously designed and manufactured model rockets, powered by rocket candy motors.

### Upcoming Projects:

- **Thrust Vector Control system:** Unlock the potential of advanced rocketry with our upcoming TVC system, allowing rockets to change trajectory during flight.
- **Piston Ejection system:** Experience flawless parachute deployment with our upcoming Piston Ejection system, ensuring reliable recovery at the peak of flight.



# ACHIEVEMENTS:

UDAAN's Unforgettable Triumphs in 2022

## •Aeroprix Flight Competition:

Igniting the Skies of Innovation  
Awe-inspiring spectacle at  
Innovision, NIT Rourkela's  
prestigious technical fest Amity  
University, Noida clinched the  
coveted first prize ITER team  
from Odisha secured the  
remarkable second prize.



## •Skysparks Event at Techkriti, IIT Kanpur:

Illuminating the Skies with  
Excellence UDAAN achieved a  
remarkable 13th rank in the  
north zone Battled  
challenging weather  
conditions with indomitable  
spirit Captivated hearts of the  
eager spectators, leaving an  
everlasting impression.

## •Distinguished Recognition in RC Plane Events:

Unleashing the Power of Innovation  
UDAAN's abstract shortlisted for  
participation in prestigious  
technical fests Recognition of  
unparalleled potential and  
commitment to excellence.

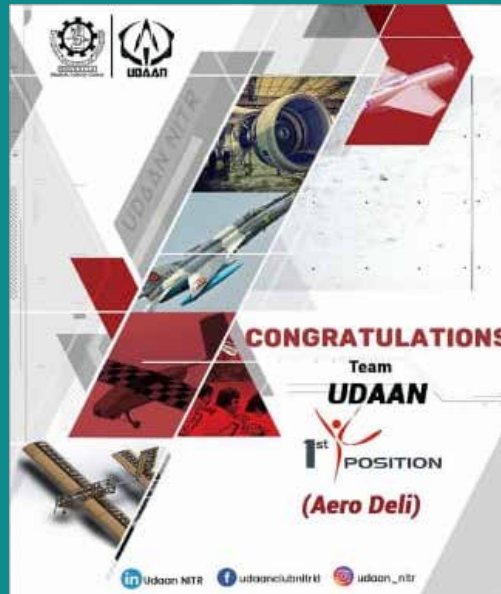
## •The Soaring Success of the Drone Subsystem:

Redefining Unmanned Flight  
Achieved top 10 position among 50  
fiercely competitive teams  
Exemplified innovation and skill in  
multirotor event at Techkriti, IIT  
Kanpur Defied expectations,  
leaving an indelible mark in the  
annals of unmanned flight.





# ACHIEVEMENTS (2021)



Techkriti,  
IIT Kanpur



IIT Ropar



Cognizance,  
IIT Roorkee

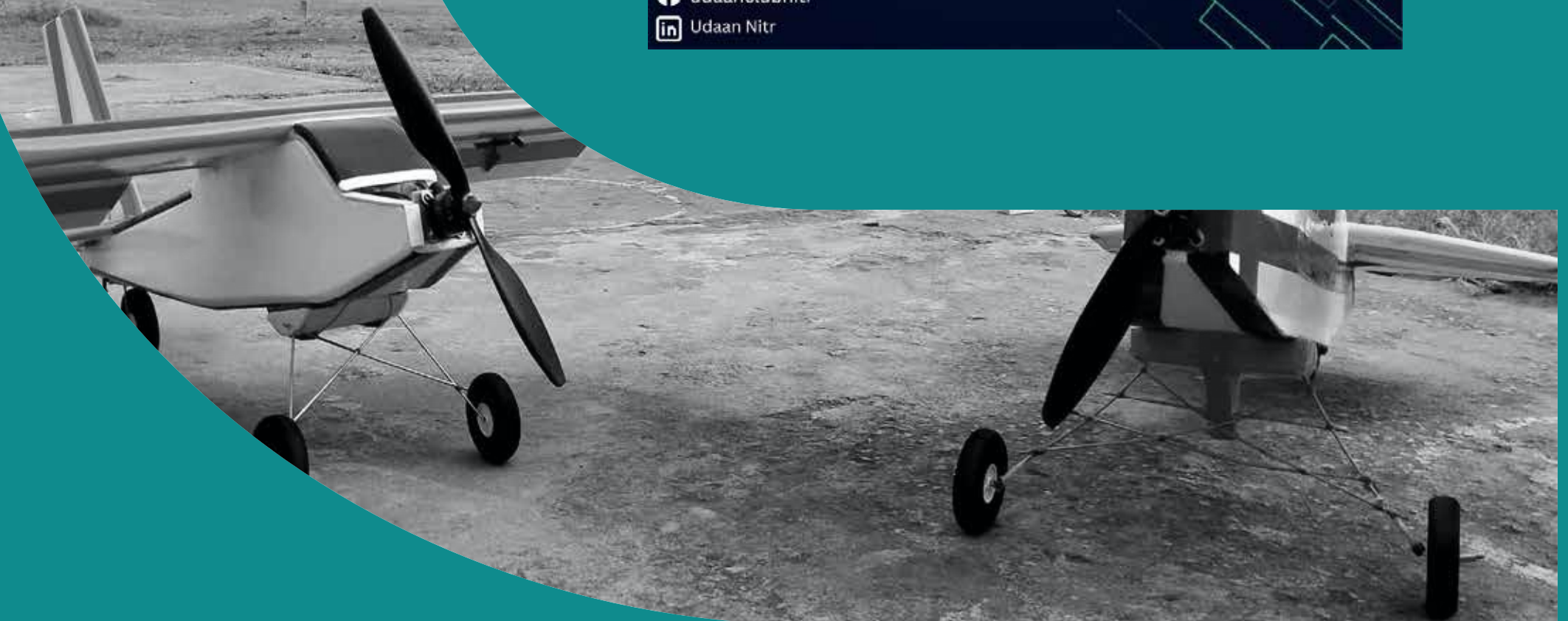


Technex,  
IIT BHU



# OFFICIAL COLLABORATION

UDAAN NIT ROURKELA has recently collaborated with Robotics and Intelligent Systemclub(RISC),IIT BHU-BANESWAR. RISC is officially been declared as the Workshop Collaborator of UDAAN. Hopefully we would be able to see them as our project collaborator too in future.Together, we aim to foster innovation, creativity, and technological advancement in the field of robotics. We embark on this collaborative journey, providing students with the tools and expertise to shape the future of robotics.



## Faculty Advisor



**Dr. PS BALAJI**

Assistant Professor in Mechanical Department

A well praised Faculty Advisor of Udaan Club, Dr. PS Balaji has secured each and every possible achievement for the club. Starting with managing the budget, providing the room to allotting with much designated projects he has been a very successful guide to the club.

Since 2008, Udaan Club has grown under my guidance as a faculty advisor. Aviators join our club. Drone subsystems, introduced under my direction, have expanded our activities. I invite everyone to help Udaan Club succeed and grow. Every contribution, whether it's expertise, workshops, sponsorships, or support, is valuable. Together, we can inspire the next generation of aviation enthusiasts to explore and innovate. Udaan Club teaches teamwork, leadership, and critical thinking in addition to aviation, preparing members for success in any field.

## Student Activity Center

The Student Activity Center (SAC) at NIT Rourkela plays a vital role in the promotion and development of various clubs, including the UDAAN Club. It serves as a platform that encourages students' extra-curricular talents and fosters their all-round personality development. The center provides ample opportunities for students to engage in a wide range of activities and events that align with their interests and goals. Through active participation in the UDAAN Club, students can hone their skills, enhance their leadership abilities, and collaborate with like-minded individuals. With the support and resources offered by the Student Activity Center, the Club can thrive and help students reach their goals, while fostering a vibrant and dynamic campus environment. For more details, reach out to [website.nitrkl.ac.in/SAC/UDAAN](http://website.nitrkl.ac.in/SAC/UDAAN) NITR

## Contact Us

PRESIDENT - 6371873931

VICE-PRESIDENT - 8018436185

PR HEAD - 7077503389

Club Email : [nitrudaan07@gmail.com](mailto:nitrudaan07@gmail.com)



# EXECUTIVE BODY



PRATYUSH NAYAK

PRESIDENT



BIKRAM JENA

VICE-PRESIDENT



DIBYARCHANA NAYAK

PR & SPONSORSHIP HEAD



UDAY KUMAR NAYAK

MANAGEMENT HEAD



SWAPNIL GAIKWAD

DRONE LEAD



SUMEDH GAJGHATE

RC PLANE LEAD



KARTIK GURJAR

ROCKET LEAD

# Conclusion

In conclusion, we are obliged and deeply grateful for the unwavering support and enthusiasm that has propelled UDAAN to new horizons. To all our members, partners, and supporters, we extend our heartfelt thanks for believing in our mission and sharing our passion for innovation and aeronautics.

As you hold this brochure in your hands, we invite you to embark on a remarkable journey with UDAAN. Discover a dynamic community that nurtures talent, fosters creativity, and pushes the boundaries of technology. Together, let us unlock the extraordinary possibilities that lie within the vast expanse of the skies.

Join UDAAN and become part of an exceptional legacy of excellence. Unleash your potential, explore the thrilling world of aeronautics, and soar to new heights of achievement. The future awaits, and we are excited to have you on board.

With sincere gratitude and anticipation,

The UDAAN Team

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