TEAM

antariksh

SPACE TECHNOLOGY TEAM

R V COLLEGE OF ENGINEERING®

Rashtreeya Sikshana Samithi Trust ® RV INSTITUTIONS

VISION

To inspire young minds to take up challenging tasks in aerospace technology through interdisciplinary research and development.

MISSION STATEMENT

- To develop a microbiological payload for ISROs PSLV-4 initiative.

- To design, develop and test a rocket for Spaceport America Cup, New Mexico USA.

- To increase the participation of the students of RV College of Engineering® in Space Research and Technological development in India.

- To participate in the research and development of innovative scientific payloads for Sounding Rockets and Nanosatellite.

- To design, develop and test a series of indigenous model rockets with a goal to achieve self landing

ABOUT THE TEAM

Team Antariksh is a space technology student club whose goal is to understand, disseminate and apply the engineering skills for innovation in the field of aerospace technology. The team is highly multidisciplinary research project undertaken by the undergraduate students of RV College of Engineering®.

The hundred member strong team is working on two research projects viz, a novel idea to perform microbiological experiment in space with the help of ISRO and designing a Sounding Rocket with a scientific payload aiming to perform an experiment at higher altitudes.

The team is constantly researching from past 4 years and have numerous publications under its name. We are proud of principles and work culture which resembles the aerospace giants like ISRO, NASA etc.

INSIGHT

2020 → 2021

RVSAT

To design a microbiological payload for the analysis of the effects of microgravity on the growth of bacteria

2021 → 2023

SA CUP 2022

Design a COTS based Solid Motor Rocket for 10,000 ft. AGL with dual-deployment recovery

SA CUP 2023

Design a student-researched Solid Propellant based Rocket Motor for 10,000 ft. AGL

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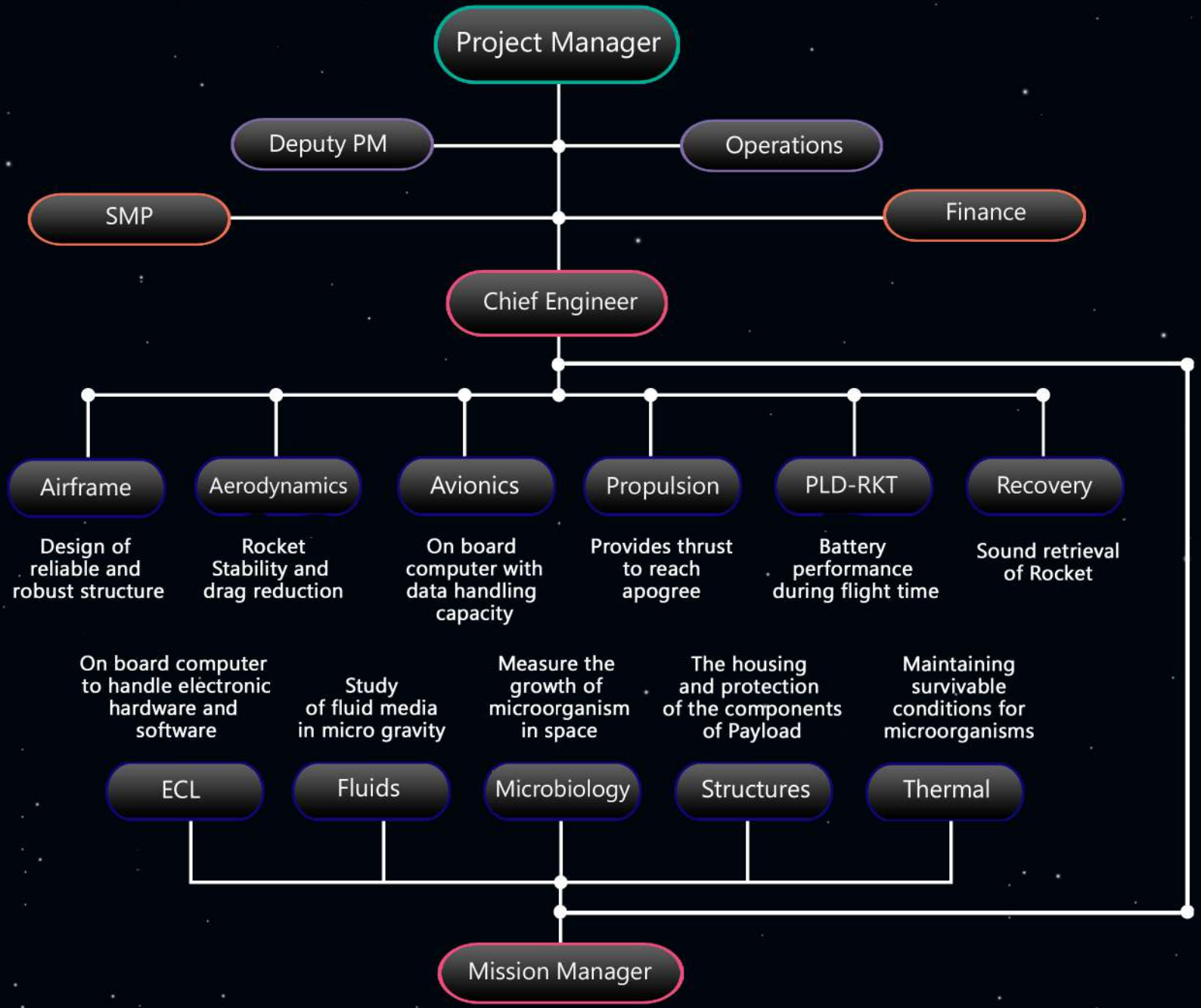
TEAM STRUCTURE



MILESTONES

2015

Inauguration of the team by late Prof. Udupi Ramchandra Rao, Former Chairman, ISRO.

2017

First place in competition on "Space Missions" held at Indian Institute of Astrophysics.

2017

Talk on India's successful Mars Orbiter Mission by Sri. Nitin Ghatpande, Former Group Director, Power System, URSC.

2018

Talk on "Trends in Satellite Technology and challenges faced by Student Satellites" by Prof. M Krishnaswamy, Student Satellite Division, IRS, ISRO.

2019

A visit to Airbus India facility situated in Bengaluru as a part of partnership and sponsorship opportunities for the team.

2020

Acceptance of proposal by ISRO.

2017

Approval of Baseline Design Review (BDR) by ISRO.

2017

Meeting with Indian Institue of Astrophysics (IIAP) for seeking technical assistance for the project.

2017

Meeting with FCCI, New Delhi as part of sponsorship opportunities for the team.

2019

Expanding our Horizon started a new project of manufacturing sounding rockets.

2020

Team was present at the Human Spaceflight Conference, hosted by ISRO-IAA-ASI in Bengaluru

2020

Ret. NASA scientist Dr. Ravi, addressed Team Antariksh on his journey from RVCE to NASA. Valuable insight about system engineering practices and current trends in space technology were also shared.

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RESOLV

RECOVERABLE SUB-ORBITAL LAUNCH VEHICLE

Sounding rockets are one or two stage solid propellant rockets used for probing the upper atmospheric regions and for space research. The weight of payload in these rockets ranges from about 2 to 100 kg.
The ReSOLV-1 rocket is a step towards providing a platform for carrying out innovative research & experiments for upto 4 kg of payload capacity.

SPECIFICATION

ROCKET	ReSOLV 1
OBJECTIVE	Analyse vibrational effects on batteries
ORGANISATION	R V College of Engineering®
PAYLOAD CAPACITY	3 U
DRY MASS	27kg
ALTITUDE	10,000 feet AGL (Above Ground Level)
LAUNCH DATE	June, 2022

SPACEPORT AMERICA® CUP

MISSION

> ReSOLV-1 will be carrying a payload to observe the effects of vibration and temperature on batteries.

> The experiment will pave way for various advanced and innovative methods for industrial testing of High Power Batteries, being used for similar applications.

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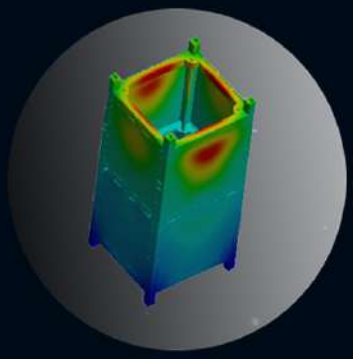
RVSAT

RVSAT-1 is a unique microbiological payload designed for ISRO's PS4 Orbital Platform. The objective of the payload is to perform the growth analysis on a microbe which is useful for analysing metabolic changes in humans in microgravity conditions.

It is first of its kind in India and attempted by the undergraduate students under the supervision of eminent faculty from RV Colege Of Engineering®.

SPECIFICATION



Spacecraft	RVSAT-1
Mission Type	System Design and verification
Orbit Type	Polar LEO
Organisation	RV College Of Engineering®
Launch Agency	ISRO
Mass	2.66kg
Dimensions	10cm * 10cm * 22.7cm
Altitude	580km approx.

UNIQUENESS OF PAYLOAD

The design of the mechanism and setup is envisioned by the students under the supervision of faculty. The growth data collected in real-time will be sent to the ground station for further analysis which mught be used by various space agencies planning for manned missions.

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INSIGHT

MODEL ROCKETRY

Sounding Model rockets are small scale rockets designed to reach an apogee of up to 3000ft AGL with a mass not exceeding 2 kgs. They aim to provide an insight into the fundamentals of rocketry and help in validation and integrity of various other systems.
Insight-1 is the first iteration of our model rocket series with complete in-house manufacturing and SRAD motors. It is also being designed to use Kalman filter on the sensor fusion data to predict the apogee of the rocket.

SPECIFICATION

ROCKET	Insight -1
OBJECTIVE	To launch and recover a sub scale sounding rocket
ORGANISATION	R V College of Engineering®
PAYLOAD CAPACITY	Nil
DRY MASS	2kg
ALTITUDE	2000 ft
LAUNCH DATE	September 2021

MISSION

> To integrate and launch an indigenously developed model rocket to reach an apoge of 2000 feet.

> To use Kalman filter on the sensor fusion data of the accelerometer of the IMU and the altimeter to predict the apoge altitude achieved.

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ACHIEVEMENTS

ICSS

Winners in student competition of design and implementation of space projects at International conference in Small Satellites, Hyderabad

2019

QuEST INGENIUM

QUEST
BORN TO ENGINEER

First Runners Up in Quest Ingenium, a platform for presentation of Engineering Projects.Voted as Best Project by QuEST Employess.

2018

ISRO WORLD SPACE WEEK

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Bagged all six prizes in World Space Week Quiz conducted at URSC.Opportunity to tour ISRO-URSC facility for a day.

2018

IIA

Winners of National Level Competition on "Space Missions" held at Indian Institute of Astrophysics, Bengaluru

2018

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RESEARCH ACCOLADES

10 PAPERS

Ten paper publications at 70th International Astronautical Congress, 2019, Washington DC, USA

02 PAPERS

Two paper publications Satellite Technology Day 2018, URSC-ISRO, Bengaluru, India

01 PAPER

Two paper publication at AIDAA, 2019 International Congres, Rome, Italy

01 PAPER

Paper publication at (IEEE) International conference for convergence in technology, Mangalore, India

09 PAPERS

9 paper publications at 71st International Astronautical Congress, 2020, The CyberSpace Edition

01 PAPER

Paper publication at IEEE Aerospace conference, 2019, Washington DC, USA

03 PAPERS

Three paper publications at 69th International Astronautical Congress, 2018, Bremen, Germany

01 PAPER

Paper publication at International conference on small satellites 2019, Hyderabad, India

02 PAPERS

Two paper publications at Alchemist Belagavi

01 POSTER

Poster publication at International conference on small satellites 2019, Hyderabad, India

02 PAPERS

One conference paper and two journal publications at IJNTSE, 2018, India

03 PAPERS

Three paper publications at 2nd ICMAE, 2018, INDORE, India

01 PAPER

Paper publication at IEEE aEROSPCE and Electronica AeroConf, 2020 BigSky, Mntana

02 PAPERS

2 paper publications at IEEE-Aeroconf 2021

TOTAL COUNT 39

OUR PARTNERS

ALTAIR

Ansys

SIMSCALE

BURNSIM

Anabond

Aqura Turn Tech

UNO MINDA

ABHI METALS

STAR

Rashtreeya Sikshana Samithi Trust

RV

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