

DJS Antariksh

European Rover Challenge (ERC) 2021 Remote Report

Achievements:

1. Team DJS Antariksh secured the **1st Rank Worldwide** in ERC 2021 Remote.
2. **Won the Best Science Award.**
3. **Won the Best Navigation Award.**
4. In just its second year, our team has become the **1st Asian Team to ever win** the European Rover Challenge.
5. The team secured **2 out of the 4 Special Category** awards at ERC 2021 Remote.

About the Team:

DJS Antariksh is the official rover challenge team of Dwarkadas J. Sanghvi College of Engineering, Mumbai, India. It was founded in January 2020 and ERC 2020 was the first ever competition in which the team participated. It has student members from diverse streams belonging to Second and Third Year of engineering. It focuses primarily on Technology and Innovation. Determined to participate and win National and International rover challenges, team has brought multiple laurels to the college.

Competition Summary:

European Rover Challenge (ERC) is one of the best and most prestigious Space & Robotics competitions worldwide. It is an international competition where undergraduate and graduate student teams participate. They build prototype Martian rovers like Curiosity, Perseverance and perform various tasks like collecting soil samples, manipulating switches and many more. The competition has been organized since 2014 in Poland and is held in the 2nd week of September annually. ERC 2021 was conducted from 10th – 12th September 2021 at Kielce University, Poland, in the form of two editions, remote and onsite. The team qualified for both the editions but due to the current COVID-19 pandemic situation and the inability of the team to work offline, we could only actively participate in the remote edition.

1. **Science and Navigation task:** The team was supposed to reach given waypoints by navigating through the MarsYard built by ERC and deploy probes at each waypoint. The team also had to scan the MarsYard for unidentified objects and verify our hypothesis through our final reports.
2. **Maintenance Task:** The team had to remotely take over and control a 6-axis robotic arm (UR3) to do various tasks, like pressing buttons, attaching IMU sensor and inspection, which are common tasks for astronaut-assistive missions
3. **Presentation Task:** The team was expected to develop an overall presentation of the engineering approach, planning and execution of the tasks in the competition. Along with this, the business model for the commercialization of our rover on an international scale played a crucial role in the presentation.

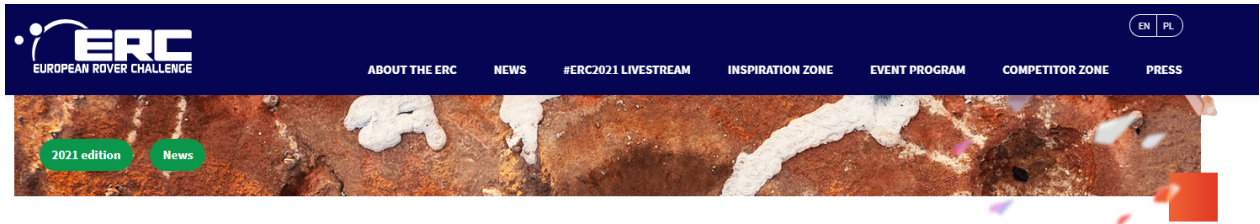
Team Faculty Advisors:

1. Dr. Amit Deshmukh
2. Prof. Sanjay Deshmukh
3. Prof. V. Venkatramanan
4. Prof. Rahul Taware
5. Prof. Tushar Sawant
6. Prof. Yukti Bandi

Team Structure:

Sr No.	Name	Position	Department
1.	Rutwik Bhangale	Team Captain	TE Mechanical
2.	Sandeep Jala	Team Vice-Captain	TE EXTC
3.	Yukti Shah	Team Manager	TE Comps
4.	Parshvi Doshi	Electronics Head	TE EXTC
5.	Vedant Singh	Mechanical Head	TE Mechanical
6.	Jazib Dawre	Coding Head	TE Comps
7.	Darshan Mehta	Marketing Head	TE Comps
8.	Vishal Umaria	Science Head	TE Mechanical

ERC News Release: <https://roverchallenge.eu/en/poland-and-india-triumph-during-erc2021/>



13 September 2021

Poland and India triumph during ERC2021! [list of winners]

On Sunday, September 12, 2021, we met the medalists of the international Mars rover competition. The first place was taken by **IMPULS (ON-SITE) from Kielce and DJS Antariksh (REMOTE) from India**. The **ITU Rover Team (ON-SITE)** and the German **ERIG (REMOTE)** were second in the ranking. This year's podium is closed by **EPFL Xplore (ON-SITE)** and **RoboClyde (REMOTE)**.

The 7th edition of the ERC competition was held in two formulas for the first time. Teams competed stationary (ON-SITE) and remotely (REMOTE). This year's competitions took place on a track whose surface is inspired by a fragment of the volcanic plain of Mars called Elysium Planitia. The tasks prepared by the jurors reflected the work of engineers of the largest space agencies during the exploration of Mars.

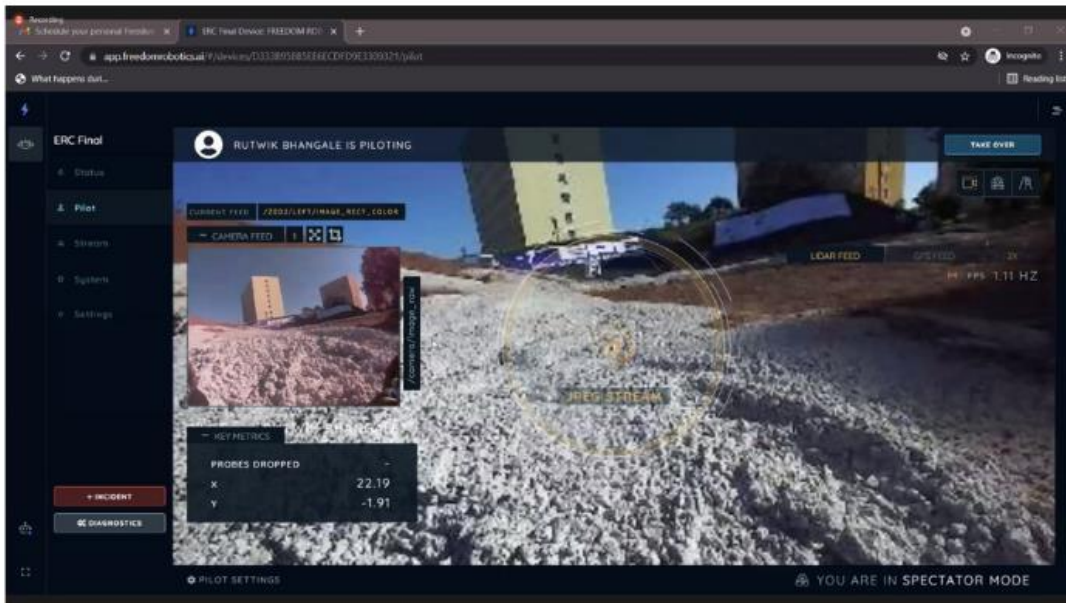
This year, apart from the three main prizes, additional awards were also granted for achievements in individual categories and fair play competition.

1ST PLACE REMOTE	DJS ANTARIKSH	INDIA
2ND PLACE REMOTE	ERIG	GERMANY
3RD PLACE REMOTE	ROBOCLYDE	UK
BEST TEAM IN: NAVIGATION ON-SITE	AGH SPACE SYSTEMS	POLAND
BEST TEAM IN: NAVIGATION REMOTE	DJS ANTARIKSH	INDIA
BEST TEAM IN: MAINTENANCE ON-SITE	ITU ROVER TEAM	TURKEY
BEST TEAM IN: MAINTENANCE REMOTE	ERIG	GERMANY
BEST TEAM IN: SCIENCE ON-SITE	EPFL XPLORE	SWITZERLAND
BEST TEAM IN: SCIENCE REMOTE	DJS ANTARIKSH	INDIA
BEST TEAM IN: PROBING ON-SITE	EPFL XPLORE	SWITZERLAND
BEST TEAM IN: PRESENTATION ON-SITE	AGH SPACE SYSTEMS	POLAND
BEST TEAM IN: PRESENTATION REMOTE	MARS ROVER MANIPAL	INDIA

Competition snippets:

Day 1 (10/09/21) – Science & Navigation task

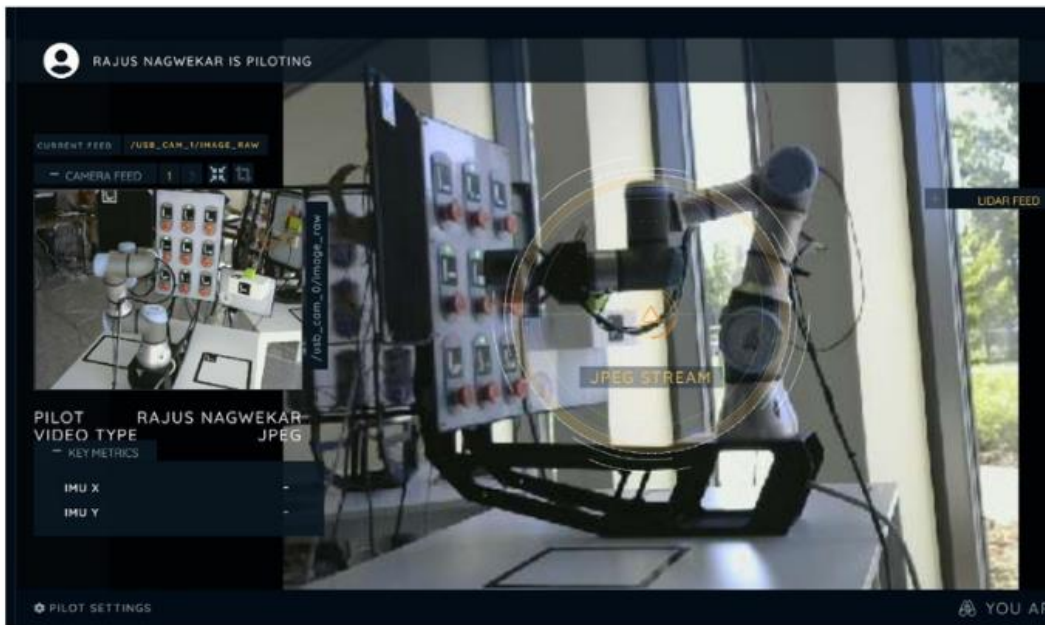
ERC 2021



SCIENCE & NAVIGATION TASK

Day 2 (11/09/21) – Maintenance Task

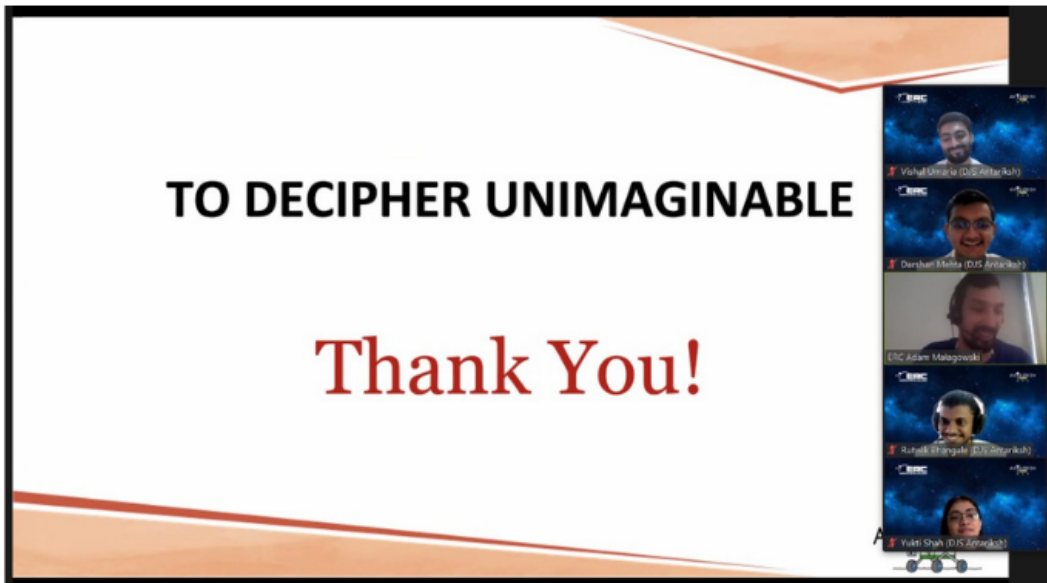
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MAINTENANCE TASK

Day 3 (12/09/21) – Presentation Task

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PRESENTATION TASK