Report on

IISFest – Students’ Innovation Festival – Space India Hackathon 2023

The India International Space Festival (IISF) is a collaborative effort involving the Ministry of Science and Technology, Ministry of Earth Sciences, Department of Space, and Department of Atomic Energy. In partnership with Vijnana Bharati, it aims to commemorate science, engage the public in an entertaining manner, contribute to well-being, and foster collaboration in scientific pursuits.

Fifteen different events were conducted during the festival: Artisan's Technology Village - Vocal for Local; Face-to-Face with New Frontiers in Science; Guinness Book of World Records; Mega Science and Technology Exhibition; National Social Organizations and Institutions Meet (NSOIM); New Age Technologies Show; Science through Games and Toys; Startup Conclave; State Science & Technology Councils Conclave; Students' Innovation Festival (SIF); Students Science Village 2022; VIGYANITIKA – Science Literature Festival; Young Scientists Conference; and 15 Mentoring & Counselling (Scientific Discussion) sessions, and last but not the least, the International Science Film Festival of India.

Launch@ by Shri Narendra Modi – the Prime Minister of India, the IISFest SIF Space India Hackathon 2023, organized by Hack2Skill in association with ISRO, featured nationwide participants addressing space challenges through workshops, seminars, and interactions with ISRO scientists. It also involved government departments and organizations such as the Department of Biotechnology, National Innovation Foundation, Department of Science and Technology, Vijnana Bharati, THSTI Gurgaon, Regional Centre for Biotechnology, and NRSC (National Remote Sensing Centre). "In 2023, ISRO opened its doors to startups, transforming into an organization that fosters values, entrepreneurship, and innovation. We are no longer a secret entity; instead, we aim to create meaningful contributions to society,” stated Dr. S Somanath – Chairman, Indian Space Research Organization (ISRO) during the IISF SIF Space India Hackathon.

Two teams from of BE CSE Third Year students from our college had participated and took up 2 different problem statements:

Team 1: Aaditya Rengarajan (21Z202), S Karun Vikhash (21Z247), Ashwant Krishna R (21Z211), Hareesh S (21Z218)

Team 2: Aadil Arsh S R (21Z201), Kavin Dev R (21Z224), Aswinkumar V (21Z212), Sanjay Kumar Eswaran (21Z247)
Team 1 was tasked with developing a "Cyber Security Model for Identifying, detecting, and reporting of threats in the Bhuvan Portal." The objective is to leverage AI/ML techniques to analyze cyber-attacks on the Geo-Web Portal, automate alert mechanisms, and generate reports in real-time. In a similar vein, CYBRANA, the winning project by this team at the hackathon, is an advanced AI-powered cybersecurity toolkit. It excels in capturing and processing malicious logs from Firewalls, IDPS Systems, Servers, Gas Stations and Organization Computer Users, aligning with industry-standard frameworks such as MITRE, OWASP, and NIST. CYBRANA utilizes innovative AI algorithms for log analysis, predictive modeling, and explainable AI, ensuring precise threat identification and prioritization. The project's groundbreaking approach positions it as a cutting-edge solution in the cybersecurity landscape.

Team 2 focuses on "Enlightening User Experience through User Log Trails." Participants aim to design a Log UI incorporating both user interaction and server-side logs, utilizing machine learning to analyze and interpret user behavior patterns. Outcomes include a user interaction log generator, machine learning models, and a comprehensive Log UI featuring timeline overviews, visual path analysis, heatmaps, session replay, security alerts, and resource utilization visualization. Evaluation involves algorithm performance, feature importance analysis, Log UI assessment, and documentation/presentation quality.

Other problem statements for the Grand Finale cover topics such as Conversational AI, Geospatial Insights Hub, GIS analysis empowerment, voice-enabled navigation of thematic data, landscape dynamics analysis, land use and cover classification accuracy improvement, optimized geospatial data management, feature extraction from RS-HR data, AR/VR and virtual games for cultural heritage, and more.

The event boasted an esteemed panel of judges and mentors, including Dr. Sudheer Kumar N (Director, CBPO, ISRO), and industry experts from NRSC. Interaction with these experts provided valuable insights and guidance to the participants.

The Space India Hackathon event consisted of 3 rounds:

<table>
<thead>
<tr>
<th>Round</th>
<th>Description</th>
<th>Participants</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round 1</td>
<td>Conducted online in December 2023, had a requirement for participants to pitch in their solutions through the submission of a presentation of maximum 5 slides.</td>
<td>Around 15,000 participants</td>
<td>December 2023 – January 2024 (1.5 Months)</td>
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<td>Round 2</td>
<td>Conducted at THSTI-RCB Campus at Faridabad, Harayana, 30 continuous hours were allotted to develop and implement unique and innovative solutions to the given problem statement. Students were addressed by various dignitaries including Dr. S Somanath – Chairman ISRO.</td>
<td>57 Teams of 2-4 members per team</td>
<td>January 17-19, 2024 (30 Hours)</td>
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<td>Round 3</td>
<td>This round involved pitching of these solutions within an allotted time of 2-3 minutes on stage to a panel of 15 judges as well as all participants. Finalists were selected in round 3.</td>
<td>35 participants</td>
<td>January 20, 2024</td>
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Crossing all the 3 rounds, both the teams from PSG College of Technology secured places in the hackathon, with the aforementioned Team 1 as winners and Team 2 as runners. As per the judgement and announcements, there were 4 teams of 3-4 members each that shared the winners title and 6 teams of 3-4 members each that shared the runners title.

The recognition included the commitment to support the projects’ development into a startup, with mentorship, funding, and guidance from ISRO. ISRO expressed its commitment to support the winning projects, in further development.

Dr. Sudheer Kumar N personally provided assurance of mentorship, funding, and thorough guidance to transform the project into a startup. This collaboration with ISRO positions the teams from PSG College of Technology as pioneering initiatives with the potential to contribute significantly to the technological landscape.
Participating in the IISFest Space India Hackathon 2023 offered the students a multifaceted learning experience. From interdisciplinary collaboration to real-world problem-solving, participants honed their skills in integrating cutting-edge technologies, showcased entrepreneurial spirit with the potential to transform innovative ideas into viable startups, and developed effective presentation and communication skills. This holistic approach not only enhanced technical proficiency but also fostered resilience, adaptability, and a passion for innovation, positioning students for success in both academic and professional realms.

2) Winners from PSG College of Technology
(Names from Left to Right: S Karun Vikhash, Aaditya Rengarajan, Dr. Sudheer Kumar N – ISRO, Ashwant Krishna R, Hareesh S, Dr. Vivek Kumar – NIF)

3) Runners from PSG College of Technology
(Names from Left to Right: Dr. Vivek Kumar – NIF, Aswinkumar V, Kavin Dev R, Sanjay Kumar Eswaran (not in picture), 2 Judges from NRSC, Aadil Arsh S R, Dr. Sudheer Kumar N)
Dr. Sudheer Kumar N from ISRO shared insightful details about the guidance and support that ISRO is poised to provide. He mentioned a comprehensive approach, including a seed funding and mentorship program tailored to individual preferences and aspirations. This program is designed to be flexible, accommodating participants' interests, whether they aim to pursue their project, embark on an internship, or even establish a startup. The personalized nature of the guidance ensures that each participant receives the necessary resources and mentorship to successfully navigate their chosen path within the realms of space technology and innovation. Such support reflects ISRO's commitment to nurturing and fostering the diverse aspirations of the participants, fostering a conducive environment for their growth and success in the field.

4) Both the teams from PSG College of Technology with their honorable principal Dr. K. Prakasan, showcasing their certificates in the Principal's Office.