

Report of ACE College Students at the NASA Space Apps Challenge 2024 Hackathon.

Introduction

The NASA International Space Apps Challenge is a hackathon for coders, scientists, designers, storytellers, makers, technologists, and innovators around the world to come together and use open data from NASA and its Space Agency Partners to create solutions to challenges we face on Earth and in space.

When you participate in the NASA International Space Apps Challenge, you join a global community that embraces collaboration across borders, sectors, and cultures. The NASA Space Apps community shares a desire to learn and an interest in exploring our planet and universe through the creative use of science and technology. All ages, skill levels, and professional backgrounds are welcome. At NASA Space Apps, there's always space for one more!

NASA Space Apps provides a platform for problem solvers worldwide to use free and open data from NASA and its Space Agency Partners. NASA Space Apps Challenge teams use these resources to solve challenges written by NASA experts, featuring topics ranging from storytelling to software development, astrophysics, space exploration, and more.

Each year thousands of teams submit projects that demonstrate creativity, collaboration, and potential to solve challenges we face on Earth and in space. The projects go through multiple rounds of judging to determine the NASA International Space Apps Challenge Global Winners, which represent the most innovative and impactful projects submitted by the NASA Space Apps community.

Overview of NASA Space Apps Challenge 2024

The NASA Space Apps Challenge 2024 focused on leveraging data and technology to address challenges in space exploration, environmental sustainability, and public health. With NASA's vast open data resources, participants were tasked with creating software, hardware, data visualizations, and more to propose innovative solutions. Some of the categories for the challenges included:

1. **Earth's Oceans and Atmosphere** – Projects aimed at understanding and protecting the Earth's ecosystems.
2. **Moon to Mars** – Solutions focusing on missions to the Moon, Mars, and beyond.
3. **AI in Space** – Using artificial intelligence to solve space-related challenges.
4. **Planetary Exploration** – Utilizing NASA data for space exploration and planetary research.

Participants had 36 hours to design, develop, and present their solutions to a panel of judges, who evaluated the projects based on creativity, impact, usability, and the quality of the execution.

Our Team's Experience

We entered the NASA Space Apps Challenge 2024 with great enthusiasm, forming a diverse team of Three individuals with backgrounds in software development, data science, environmental science, and user experience design. Our goal was to create a solution that addressed a critical challenge while applying cutting-edge technology and leveraging NASA's open data.

Project Concept: "Chronicles of Exoplanet Exploration"

Our team's project was titled "**Chronicles of Exoplanet Exploration**", where we embark on a thrilling journey to revolutionize exoplanet education! The discovery of exoplanets has redefined our understanding of planetary systems, expanding what we know about our place in the universe. From scorching gas giants to potentially habitable rocky worlds, these distant worlds offer a glimpse into the remarkable diversity of planetary configurations. Traditional educational materials about this topic may not be accessible to everyone, particularly those from underserved communities or with limited access to resources. Your

challenge is to develop engaging and accessible learning materials that leverage creativity to enlighten students about the wonders of exoplanets.

Key Features of Chronicles of Exoplanet Exploration:

- **Real-Time Data Integration:** The platform integrated data from NASA's satellites which included information about all exoplanets
- **User Dashboard:** A user-friendly interface that displayed the information about all the available exoplanets.
- **Community Engagement:** We created a video which helps you explore all the exoplanets present by explaining about each exoplanet and then we have shown it in a VR.

Hackathon Timeline

- **Day 1:** We kicked off with an ideation session, reviewing NASA's challenges and deciding to focus on Chronicles of Exoplanet Exploration. We divided tasks based on each member's expertise, with some working on data integration and others on, front-end design, and user experience.
- **Day 2:** The second day was crucial, as we worked tirelessly to build the platform's core functionalities. We integrated data from NASA's portal and then we tried building a video that is then converted into a VR which helps in having a better user interaction.

Key Takeaways

1. **Power of Collaboration:** Despite the challenges, the experience underscored the importance of teamwork. Each member brought unique expertise, and by working together, we managed to combine data science, environmental knowledge, and software development into a cohesive project.
2. **The Value of Open Data:** NASA's open data initiative played a central role in the hackathon. Access to high-quality satellite data allowed us to build a solution that could have real-world applications for environmental conservation.
3. **Innovation Under Pressure:** The hackathon format challenged us to think creatively and work quickly under pressure. It taught us how to prototype fast, focus on the core functionalities, and communicate effectively.

4. **Feedback from Experts:** Presenting our solution to NASA judges and receiving constructive feedback was invaluable. They provided insights into how we could further develop our platform and potentially apply for future NASA grants or support for continuation.

Current Achievement.

The hackathon spanned 36 hours, during which we developed both a website and a VR video. Throughout the event, there were three evaluation rounds, and by the conclusion of the competition, the top 14 teams were selected. We were honoured to be among those teams, securing the title of national winners and earning a nomination for the international competition. As a result of our achievement, we received gold medals for our success at the national level.

Future Opportunities for Our Team

If we are selected for the international round of the hackathon, we stand to gain several exciting opportunities that could shape our future careers and personal growth.

1. NASA Visit and Global Exposure

One of the most significant opportunities would be the chance to visit NASA. This would provide us with the unique experience of witnessing cutting-edge space research and technology firsthand. Engaging with NASA scientists and engineers could give us invaluable insights into the practical applications of the concepts we worked on during the hackathon. This experience would deepen our understanding of space exploration, data science, and technology at a global level.

2. Networking with Global Innovators

At the international competition, we would be exposed to teams from across the world, allowing us to network with fellow innovators, engineers, and tech enthusiasts. Building connections with participants and professionals from diverse fields can lead to collaborations, mentorships, and even future job or research opportunities. These connections would broaden our horizons and help us stay at the forefront of emerging technologies.

Impact of Our Participation in the Hackathon on Our College

Our participation and success in the hackathon significantly benefit the college in terms of reputation, skill development, industry connections, and student motivation. This achievement not only brings pride to the institution but also paves the way for future growth, collaboration, and continued excellence in education.

1. Enhances College Reputation

Being national winners in a prestigious hackathon boosts the college's reputation on both national and international levels. The recognition from our achievement highlights the quality of education, mentorship, and resources available at our college, attracting positive attention from external institutions, sponsors, and potential students.

2. Strengthens Industry Connections

Participating in and winning national-level hackathons can lead to valuable partnerships with industry leaders and sponsors. The exposure our team gained from this event opens up networking opportunities that can directly benefit our college, leading to collaborations, internships, and future sponsorships for college events and other student initiatives.

3. Promotes College's Role in Technology and Research

The hackathon project focused on building cutting-edge technology like websites and VR videos, which aligns with the college's commitment to promoting technology-driven research and development. Our win reinforces the college's status as an institution that supports and nurtures technical innovation, further advancing its reputation in fields such as computer science, engineering, and digital media.

Students Selected: For Finals from ACE College.

- **Amrutha Lahari - 3rd Year CSM.**
- **Harshini Adaloori - 3rd Year CSM.**