



NASA Space Apps Noida 2024

World's Largest Space & Science Hackathon

5-6th October 2024 | 36 Hours Hackathon

Innovation partner **I2S**
HACK2SKILL



Team Details

- a. **Team name:** Aether
- b. **Team leader name:** Madhur Barnwal
- c. **Problem Statement:** Symphony of the Stars: Harmonizing the James Webb Space Telescope in Music and Images

Brief about the Idea

A web app that combines original music composition with advanced 3D animations to showcase the James Webb Space Telescope's groundbreaking discoveries.

Key Features:

Original Music Composition: Created using FL Studio, the score captures the awe and wonder of space exploration, enhancing the emotional impact of the visuals.

3D Visualizations: Implemented with React Three Fiber, the app features dynamic 3D animations that bring JWST's stunning imagery to life. The textures from James Webb Telescope imagers are added to Earth, Sun and the Carina Nebula. L2 star is approximated based on real world calculations

Interactive Experience: Users embark on a cosmic journey through interactive animations, experiencing the story of the universe as revealed by JWST's observations.



File Edit View Add Format Tools Plugins Help Diagnostic

Starry Goodbye

Home **Score** Publish

Parts Mixer

0:00:13:6 8.4 ♩ = 140

Starry Goodbye X

STARRY GOODBYE

Aether

Composer: Madhur Barnwal

♩ = 140

7

Workspace: Default

Concert pitch

Page view

112%

ENG US

05:51

06-10-2024

PRE

Palettes

Instruments

Add palettes

- Grace notes
- Ornaments**
- Clefs
- Time signatures
- Key signatures

Text

Tempo

Pitch

Accidentals



Differentiation from Existing Ideas

Combination of Music and 3D Animations

- Unlike many existing projects that focus solely on either visuals or educational content, Symphony of the Stars combines original music composed specifically for the project with dynamic 3D animations. This integration creates a richer, more emotive experience that enhances the storytelling of JWST's discoveries.

Interactive Features

- The inclusion of interactive elements allows users to engage with the content actively rather than passively consuming information. This interactivity sets it apart from other projects that may only offer static images or non-interactive videos.

Problem-Solving Capabilities

Enhancing Accessibility

- The web app makes complex scientific data accessible and engaging for a broader audience. By combining visual and auditory elements, it helps users of varying ages and backgrounds understand and appreciate JWST's findings.

Fostering Curiosity

- The immersive and interactive nature of the project stimulates curiosity and encourages users to explore and learn more about space. This approach can inspire a new generation of space enthusiasts and scientists.



Unique Selling Proposition (USP):

- **Custom Music and Interactive 3D Visuals:** Symphony of the Stars stands out due to its innovative blend of custom-composed music and interactive 3D animations. This combination offers a unique, engaging, and emotionally resonant experience that enhances the understanding of JWST's discoveries in a way that traditional media cannot.
- **Comprehensive Educational Tool:** By providing an interactive, educational, and visually captivating experience, the web app serves as a valuable resource for learners of all ages, making complex space science accessible and exciting.
- **Broad Appeal:** The project's ability to engage a diverse audience, from children to adults, through a rich multimedia experience is a key differentiator. It effectively bridges the gap between scientific content and public engagement, making it a standout solution in the realm of space exploration communication.



List of features offered by the solution

1. 3D Web Experience

- Utilizes Three.js to create a fully interactive 3D web environment.
- Users can explore JWST's captured images in 3D space, simulating the vastness of the universe.
- Features dynamic navigation, allowing users to zoom in and rotate celestial objects.
- Each image will represent a different region of space, creating a virtual tour of the cosmos.
- Offers a seamless blend of visuals and interactivity to enhance user engagement.

2. Original Music Composition

- Self-composed music using FL Studio and MuseScore tailored specifically for the website.
- Soundtrack evolves as users explore the site, with mood changes that match the cosmic journey.
- Themes transition from serene and mysterious to grand and awe-inspiring to reflect the cosmic scale.
- Music amplifies the immersive experience by syncing with the visual journey through space.

3. Storytelling through 3D Animations

- 3D animations narrate the story behind each key JWST image, making complex astronomical data accessible.
- Each animation unfolds a different chapter of cosmic discovery, providing scientific and emotional context.
- The storytelling bridges art and science, making it engaging for all audiences, regardless of background.
- Animations guide users through key points in space, offering a unique blend of learning and visual storytelling.



ROADMAP

Concept Development

- Defining the project's theme and objectives.
- Integration of music and visuals.

Sponsorship Opportunity

Music Composition

- Composing the score and preparing it for integration.

Visual Design and Animation

- Developing 3D animations using Three.js and Threlte.
- Ensuring visuals complement the music and convey the narrative effectively.

Web App Development

- Implementing interactive features to enhance user engagement.

Launch and Evaluation

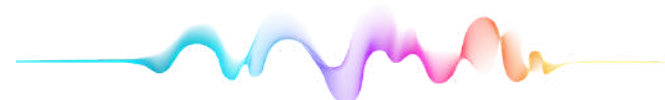
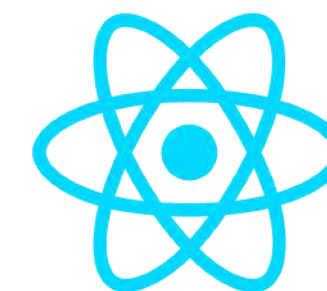
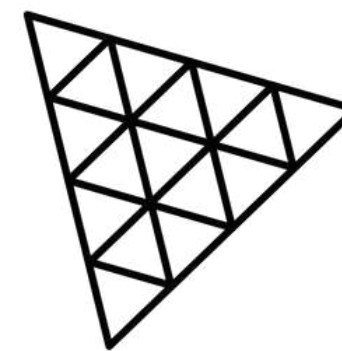
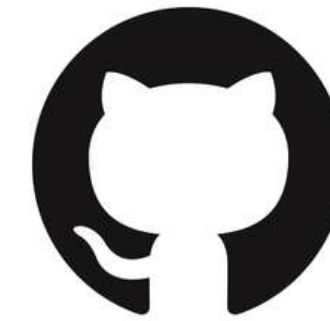
- Deploying the web app for public access.
- Monitoring user feedback and performance.
- Making any necessary adjustments based on feedback and analytics.

Project Completion

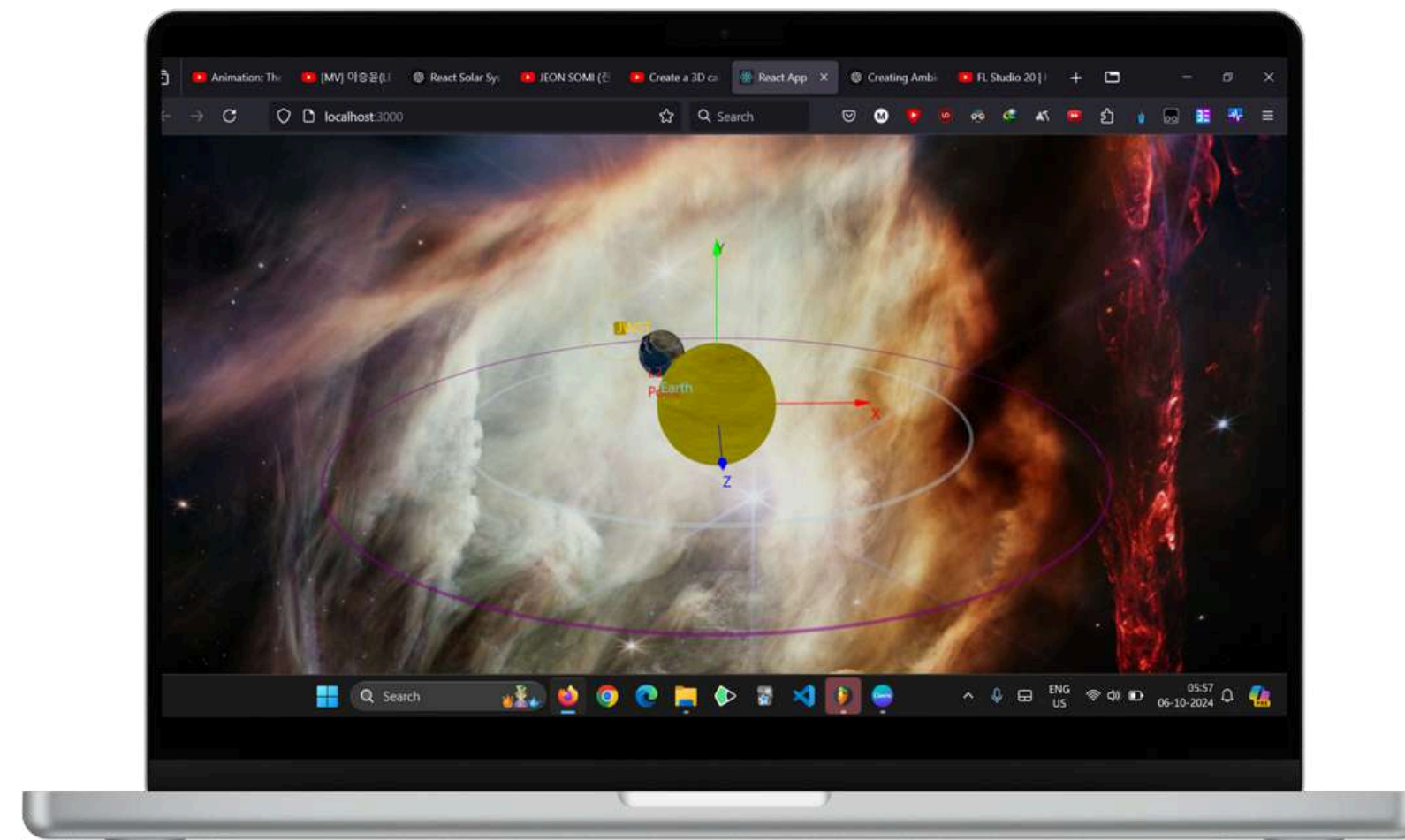


Technologies to be Used in the Solution

- **Data Set:** Webb Image Galleries
- **Website Development:** Reactjs, Threejs, Drei
- **Music:** FL Studio, Musescore
- **Version Control:** Git



Snapshots of the prototype



Website Link:

<https://symphonyofstars.netlify.app/>



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Future Vision

Building on the foundation of "Symphony of the Stars," the future development will evolve into a more expansive and multifaceted experience, titled "Webb's Cosmic Chronicles." This next iteration will feature multiple interconnected stories, each highlighting different cosmic phenomena and discoveries made by JWST.

Key Features:

Multiple Narratives:

- "Webb's Cosmic Chronicles" will present a series of thematic stories, each focusing on different aspects of the universe, such as the formation of galaxies, the lifecycle of stars, the search for exoplanets, and the exploration of distant cosmic structures. Each story will be a self-contained experience, yet part of a larger, cohesive narrative.

Educational Modules:

- Integrated educational modules will provide in-depth explanations of the scientific concepts presented in each story. These modules will be designed to be accessible to learners of all ages, with interactive elements and visual aids to support understanding.



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1. GitHub Public Repository:

<https://github.com/MadhurBarnwal/NASA-Space-Apps-Challenge-2024-Live>

2. Demo Video Link:

<https://www.loom.com/share/98df7d65a4a4492e8bf030276f2d2fbe>



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Proof of Registration

NEW MEMBER REQUESTS

You may allow up to 6 users to join your team.

No Pending Requests.

TEAM MEMBERS



Madhur Barnwal
@madhurbarnwal
India

Team Owner

You are the team owner.

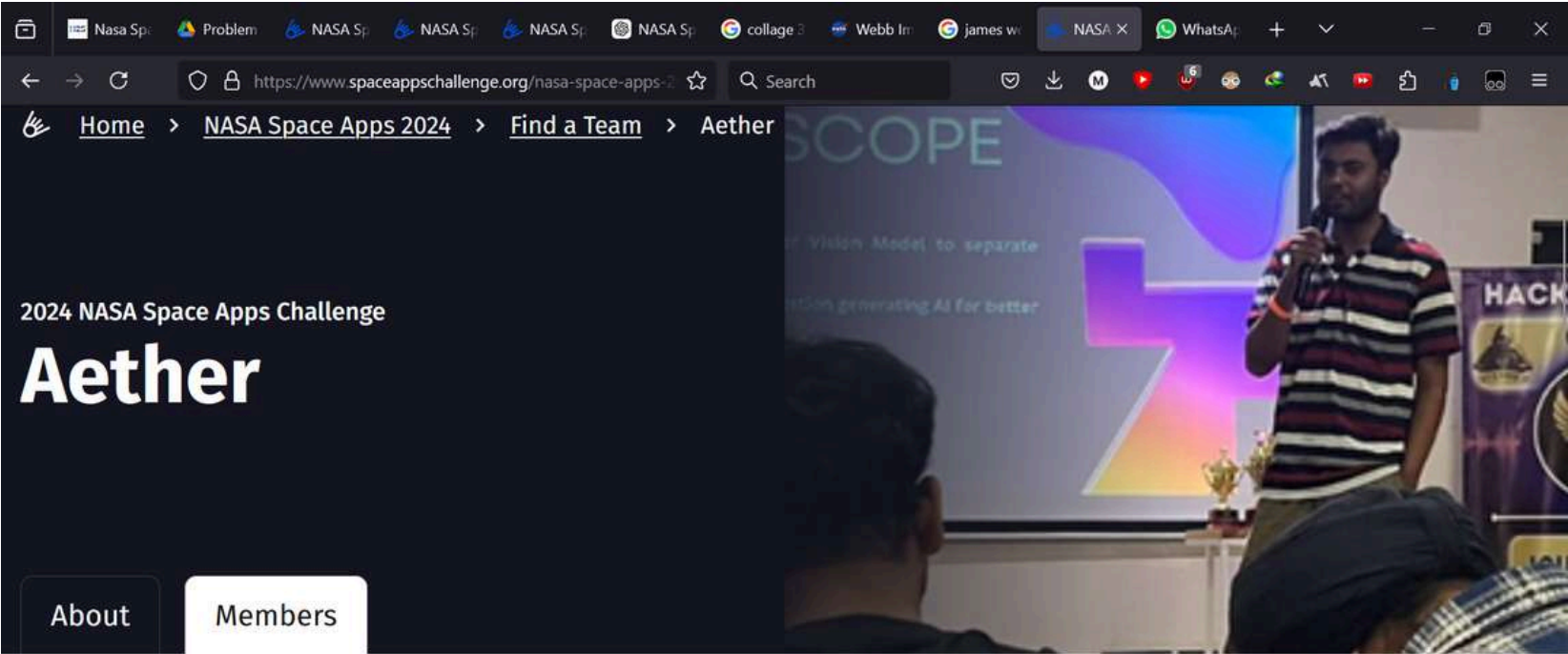
Team Information

Local Event
Noida, India

Challenge
Symphony of the Stars: Harmonizing the James Webb Space Telescope in Music and Images

Desired Skills

- Arts
- Arts & Multimedia
- Astrophysics
- Climate
- Coding
- Data Visualization
- Graphic Design
- Web Design



Team Contact Information

Email: madhurbarnwal123@gmail.com

References:

1. Webb Images: Webb's science images and a number of other curated galleries of Webb's build.
2. Threlte: <https://threlte.xyz/>



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Thank You

