**Project Report: Stellar Stories – The Space Weather Log**

**Team Name: Space Seekers**

**Theme: NASA – Stellar Stories: Space Weather Communication Challenge**

**Project Title: Stellar Stories – The Space Weather Log**

**1. Introduction**

Space weather is the study of how activities on the Sun affect the Earth and everything around it.  
Phenomena like **solar flares**, **coronal mass ejections (CMEs)**, and **geomagnetic storms** can cause strong changes in our planet’s magnetic field. These events can disturb **satellites, GPS systems, power grids, and even communication networks**.

Although NASA continuously monitors and studies space weather, **most people don’t really understand what it means** or how it affects their everyday life. The information NASA provides is extremely valuable but also **very technical** and filled with scientific terms that are difficult for normal people to grasp.

That’s where our project, **“Stellar Stories – The Space Weather Log,”** comes in. It is designed to make space weather easy to understand, interactive, and relatable. Instead of reading complex graphs or numbers, users can explore **real stories and logs** from people around the world who have experienced space-related events — like seeing auroras, noticing GPS glitches, or even unusual sky colors.

Our goal is simple: **connect NASA’s science with people’s daily lives** through storytelling, visuals, and easy explanations.

**2. Problem Statement**

While space weather affects many technologies and systems that people use daily, most of the public **has little or no awareness** of it.  
NASA’s data is collected by satellites and observatories and shared through websites and scientific dashboards. However, these are built mainly for researchers and experts.

As a result, there is a **huge communication gap** between the scientific community and the general public. People hear terms like “solar storm” or “geomagnetic activity” but don’t know what they really mean or how serious they are.

Currently, there is also **no global platform** where citizens can share what they observe or feel during such events. A farmer might see changes in crop behaviour, a pilot might face radio disturbance, or a student might spot an aurora — but there’s no single space to record these experiences and connect them with NASA’s real-time data.

Our project fills this gap by building a **community-based storytelling platform** where science meets simplicity.

**3. Project Objective**

The main objectives of Stellar Stories are:

1. **Simplify complex science** — make NASA’s space weather data understandable to everyone, not just scientists.
2. **Create awareness** — help people realize how space weather affects their lives, technology, and environment.
3. **Encourage citizen participation** — allow normal users to log and share their observations of sky events.
4. **Support education** — help students, schools, and enthusiasts learn about space weather in an interactive way.
5. **Build a global network** — connect people worldwide who are interested in space, science, and Earth observation.

By achieving these goals, Stellar Stories will make people not just observers of science — but **active participants** in it.

**4. Project Description**

**a. Concept**

Stellar Stories is a **web-based platform** that combines **NASA’s real-time data** with **citizen logs** and **stories**.  
Whenever a space weather event happens — such as a solar flare or geomagnetic storm — users can:

* Read a short and simple explanation of what it is,
* See real data from NASA APIs, and
* Post their own experience, if they notice anything unusual in their surroundings.

These posts can include **text, photos, or short videos**. Each post is called a **“Story Log.”**

**b. Why Stories?**

Stories are powerful. People remember stories better than raw data.  
By transforming NASA’s data into short, human-friendly stories, we make learning about space weather both **fun and meaningful**.

A story might look like this:

“I saw a red glow near the horizon last night in Finland — turns out it was an aurora caused by a strong solar storm!”

Such real-life stories connect emotional experience with science, helping others understand and relate better.

**5. Key Features**

1. **Easy-to-Use Interface:**  
   A simple layout where anyone can read or post stories without needing technical knowledge.
2. **NASA API Integration:**  
   Our website connects directly to **NASA’s Space Weather API** to display accurate, up-to-date information about solar activity.
3. **Story Logging System:**  
   Users can post their own experiences, along with date, time, and location. These become part of a **global public logbook**.
4. **Educational Section:**  
   Includes short articles, definitions, and infographics that explain what solar flares, CMEs, and geomagnetic storms are — in very simple language.
5. **Community Gallery:**  
   A space where people can view others’ logs from around the world, like or comment on them, and learn how space weather affects different regions.
6. **Search & Filter Tools:**  
   Allows users to explore posts based on country, event type, or date.

**6. Working Process**

1. **Data Collection:**  
   The system automatically collects real-time information from NASA’s databases.
2. **User Interaction:**  
   Visitors can explore this data in a simplified format — such as color codes showing solar activity levels.
3. **Story Submission:**  
   Users add their personal observations or stories with optional images.
4. **Data Linking:**  
   Each story is linked to NASA’s event data from the same time period, creating a connection between human experience and scientific data.
5. **Community Display:**  
   All verified stories are displayed on the public dashboard, where others can view, comment, and learn.

**7. Technology Stack**

* **Frontend:** HTML, CSS, JavaScript
* **Backend:** Firebase / Google Cloud
* **Database:** Fire store for storing user logs and NASA data
* **APIs Used:** NASA Space Weather API, Open Weather API (for local conditions)
* **Visualization:** Chart.js and custom UI graphics

This combination ensures that the platform is **fast, lightweight, and accessible** from any device.

**8. Impact and Benefits**

1. **Awareness:**  
   People begin to understand that space weather is not just for scientists — it affects our world too.
2. **Education:**  
   Students, teachers, and enthusiasts get a fun and interactive way to learn science topics that are usually tough to understand.
3. **Citizen Science:**  
   By contributing logs, users become a part of NASA’s broader mission — making science collaborative and community-driven.
4. **Real-World Connection:**  
   Every log shows how space events connect to real experiences — for example, GPS errors, colorful skies, or even radio issues.
5. **Research Potential:**  
   The collected logs can later help researchers study how people experience and respond to space weather in different regions.

**9. Future Scope**

* **Mobile Application:**  
  A mobile app version will make logging and sharing even easier.
* **AI Summaries:**  
  We plan to use AI to automatically explain NASA data in short, simple summaries every day.
* **Gamification:**  
  Users can earn badges for consistent logging and learning.
* **Integration with Schools:**  
  Partnerships with schools and universities to make this a space-weather awareness program.
* **NASA Collaboration:**  
  Possibility to connect Stellar Stories with NASA’s Citizen Science Projects like Auroras Aurus.

**10. Conclusion**

“**Stellar Stories – The Space Weather Log**” is more than just a project — it’s an effort to make science **accessible, interactive, and community-driven.**

By combining NASA’s powerful data with human experiences, it creates a **bridge between technology and storytelling.** It helps people understand how the Sun and space truly influence our planet — in ways we often overlook.

Our platform invites everyone — students, travellers, scientists, and ordinary citizens — to **become part of NASA’s mission** by recording, learning, and sharing space weather experiences.

In short, Stellar Stories turns space weather from a complex topic into a story **everyone can understand and connect with.**

**Team members:**

Madeti Venkata Ramaraju- venkataramarajumadethi@gmail.com

D.S.K Ajay

S.K.Shalini

Ch.kishitha