



CELESTINE

Intelligent Navigator for the Universe & Earth

Powered by Gemini 2.5, Google Maps Platform & Google Cloud

by Veronika Kashtanova



Problem: STEM Education is Static

Addresses UN SDG 4 (Education) & SDG 9 (Innovation)

Limited Access

High-quality space education is often expensive or confined to static textbooks

The Disconnect

Students struggle to visualize complex cosmic data. There is a gap between abstract NASA data and real-world understanding

Forgotten Dreams

"Space Mode" features in mapping tools have faded, leaving behind static images without interactivity

Making cosmic exploration deeply personal, interactive, and intelligent



Celestine: An Intelligent Co-Pilot

Multi-Modal AI

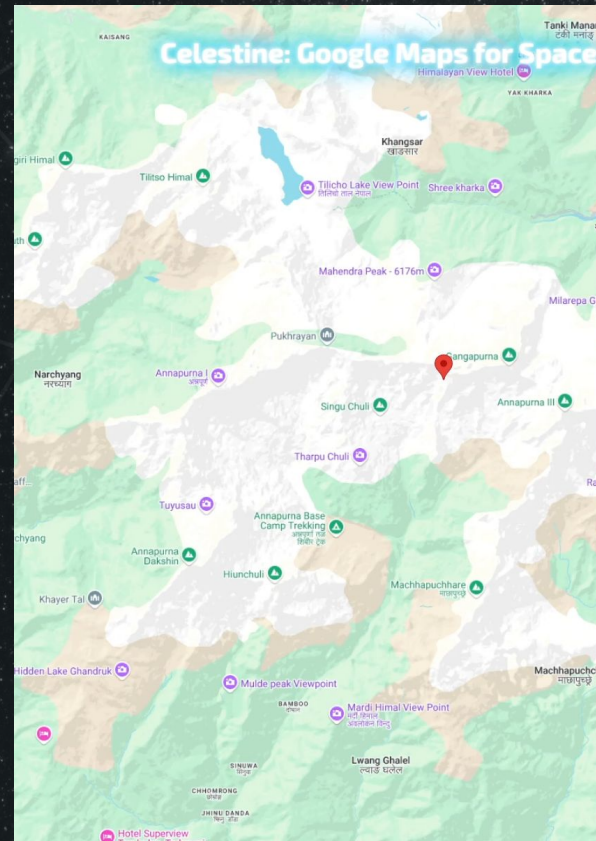
Engage with an AI guide via text, voice (ElevenLabs), or a live video avatar (Tavus).

Planetary Analogues

The AI doesn't just recite facts. It uses Gemini 2.5 to reason about geological features (e.g., "shield volcano on Mars") and uses the Google Places API to find terrestrial counterparts on Earth (e.g., Mauna Kea).

Result

A seamless loop connecting alien worlds back to our reality.



Space AI Agent



You:
Go to Moon.

Agent:
Initiating landing sequence for Moon. Stand by.

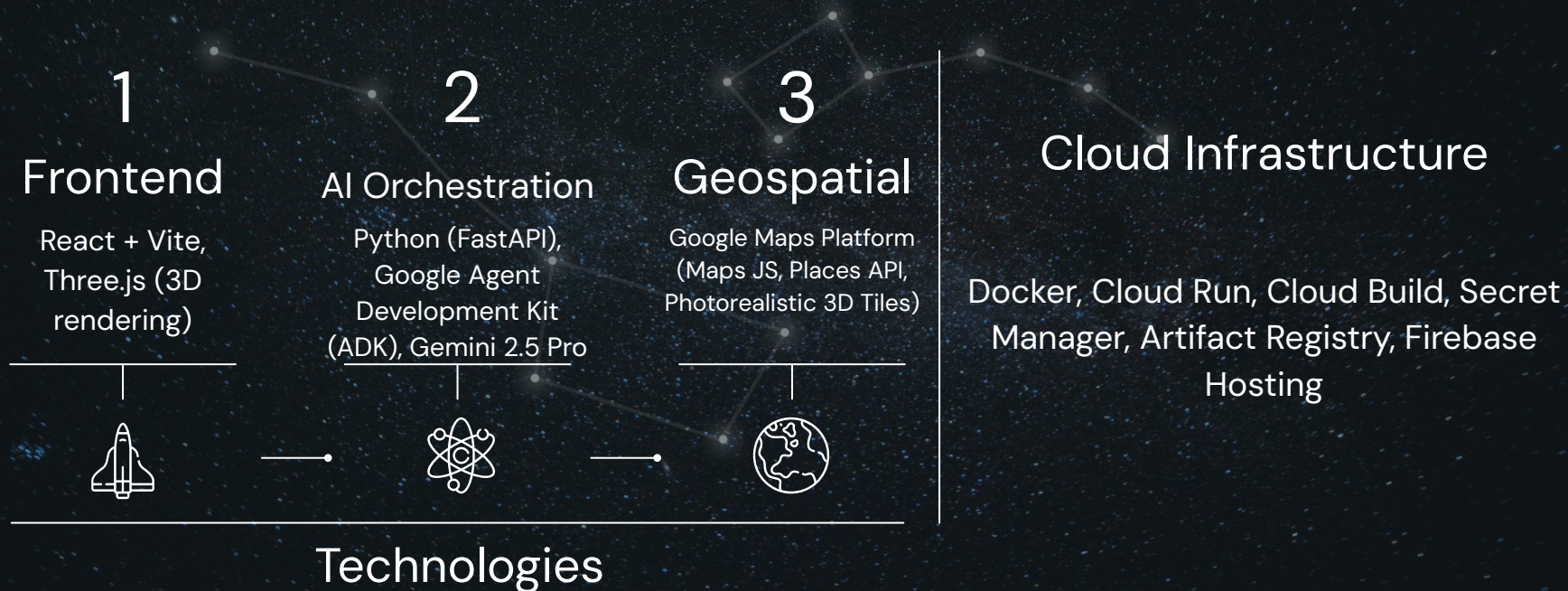
You:
I'm looking at Olympus Mons on Mars. It's a Shield Volcano. The description says: "The largest volcano in the Solar System, a huge shield volcano". Based on this, what are some of its analogues on Earth?

Agent:
Based on the features of Olympus Mons, a notable Earth analogue is Medicine Lake in California, which is also a shield volcano.

You:
I'm looking at Maxwell Montes on Venus. It's a Mountain Range. The description says: "The highest mountain range on Venus, possibly formed by tectonic processes." Based on this, what are some of its analogues on Earth?

Agent:
Based on the description of Maxwell Montes as a large mountain range formed by tectonic activity, the Himalayas are a good Earth analogue. They are the highest mountain range on our planet, formed by the collision of the Indian and Eurasian tectonic plates.

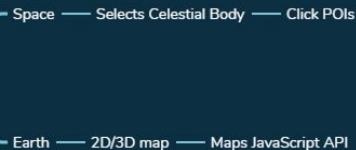
Cloud-Native Architecture





Celestine's user

Navigation



Write question on UI — Send to backend — Root Agent delegates it to Sub-Agent

Frontend get answer from agent and unpacks

App switches to 2D map of the Earth

Draws on the map points in needed places

Text summary is sent to chat

Places are stored in placeResults



Maps Area

Display current user location

Space AI Agent

Space App Coordinator

Greeting Agent — say_hello — Welcome the user aboard

Farewell Agent — say_goodbye — Says goodbye to the user

Cosmos Specialist Agent — Answers questions on astronomy

Analogue Specialist Agent

Get question from frontend

Reasons over the text and highlights key geological terms

Formulates a precise search query

find_earth_analogues tool — Google Maps Places API

Get JSON array of found locations from tool

Form the final answer in format: {"summary": "...", "places": [...]}.
Sent it to frontend

Navigation Agent

Receives the command (e.g., "Go to Mars")

navigate_to_planet

Create a standard command in JSON format

Formulate confirmation with JSON to user

Frontend receives json — run get().landOnPlanet("Mars")

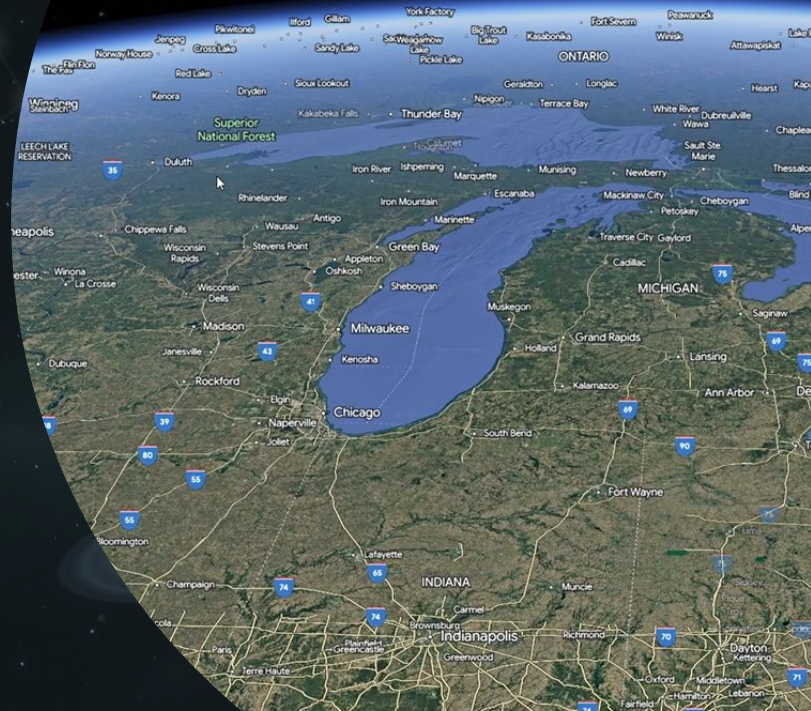
Impact & Vision

Building the Next Generation of Explorers

- Democratizing Data: Turning terabytes of scientific data into storytelling.
- Scalability: The agent-based architecture on Cloud Run is ready to serve students globally.
- Roadmap: Integration of Routes API for geological tours, Street View, and upcoming Project Astra capabilities.
- Sustainability: Operating on a Freemium B2B2C model tailored for the global EdTech market.

It's a map. It's a guide. It's the start of humanity's new interface with the cosmos.

Celestine: Google Maps for Sp





Nominee: Google Maps Platform

Google Maps Platform

Why GoogleProductsSolutionsPricingResources

Contact salesGet started

Celestine

By Veronika Kashtanova

See in devpostShare

Celestine: An AI-Powered Navigator for the Universe (Google Maps Platform)

Tharsis on Mars

Посмотреть на YouTube

HIGHLIGHTS

Tharsis on Mars

CATEGORY

AI

KEY FEATURES

Maps JavaScript APIPlaces APIGemini API+8

Inspired by Google's past "Space Mode" experiments, this project revives the dream of cosmic exploration with an intelligent co-pilot for the Solar System. It aims to make space personal, interactive, and intelligent, moving beyond static images to offer a dynamic journey through the cosmos.

Starting as a 3D solar system viewer, the application evolved into a multi-modal, AI-driven exploration platform. It allows users to navigate a 3D model of the solar system, "land on" planets to view points of interest, and engage with an AI agent via text, voice, or video. A key innovative feature is the AI's ability to use Google Maps Platform tools: when a user clicks a celestial point of interest, the AI identifies terrestrial analogues using the Places API, displaying them on an interactive 2D Earth map to connect alien worlds to our reality.





Recognition

Featured Project on DEV.to
Community

Thanks!

Do you have any questions?

github.com/vero-code/celestine

vero-code.website

x.com/veron_code



DEV Community  @ThePracticalDev · Dec 29, 2025

Celestine: An AI Navigator for the Universe. Explore planets in 3D and "land" on them using Gemini and Google Maps.

An entry for DEV's Worldwide Show and Tell Challenge Presented by
[@MuxHQ](#)

{ author: [@veron_code](#) }



From dev.to



1



7



26



2.8K

