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Satellite Follower App

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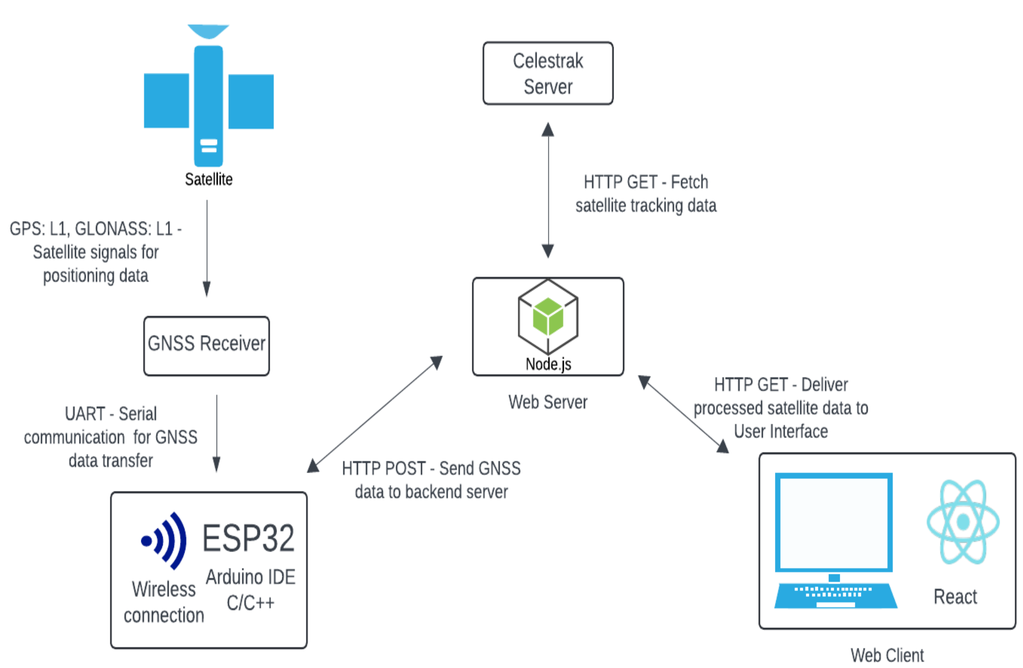
Project Description

- The Satellite Follower App enables users to track satellites in real time as they pass overhead.
- The app primarily focuses on GNSS (Global Navigation Satellite System) satellites, while also integrating data from Celestrak to track additional satellites.
- Users can view key details such as:
  - GNSS satellites: Name, type, and country of origin
  - Celestrak satellites: Name, latitude, and longitude
- This application serves as an educational tool for satellite enthusiasts and the general public, providing valuable insights into the world of satellite technology.

Architecture Diagram



Results

Technologies Used

Hardware:
- ESP32
- Quectel L86-M33 GNSS Receiver

Software/Tools:
- VSCode IDE
- Arduino IDE
- Celestrak API

Languages:
- C/C++
- JavaScript (React & NodeJS)

System Flow

- GNSS receiver captures satellite data
- Data is transferred from the receiver to ESP32 using UART
- ESP32 sends data via HTTP POST requests to NodeJS backend
- NodeJS processes the incoming GNSS data
- NodeJS also retrieves TLE (Two-Line Element) data from Celestrak
- The processed GNSS and TLE data is sent to the React frontend
- React frontend visualizes the satellite data for user interaction

Scan for GitHub