

GPS2Quantum™ Case Study

Drone Survey Mission in a GNSS-Denied Zone

Scenario Overview

A field engineer is piloting a survey drone in a remote coastal region near Santa Monica. Mid-flight, GPS signals become unreliable due to interference or jamming. The engineer uses the GPS2Quantum™ mobile app to estimate current position by simulating quantum drift from the last known GPS fix.

Setup in the App

1. Open GPS2Quantum and tap **Search Location**.
2. Enter last known GNSS coordinates: **34.0219, -118.4814**.
3. Set a **Custom Altitude** of **100 meters** (typical drone height).
4. Open **Settings**:
 - Sensor: Strategic Grade (Quantum)
 - Condition: Aerial / High Dynamics
 - Drift Time: 45 seconds
5. Tap **Simulate Quantum Coordinates**.
6. View the estimated position and drift radius on the **Earth Sphere**.

Behind the Scenes

The app calculates drift based on a Strategic sensor in aerial mode:

Drift Rate: 0.03 m/s

Uncertainty Radius: $0.03 \times 45 \text{ sec} = 1.35 \text{ meters}$

Altitude is factored into the 3D Earth Sphere and ECEF position visualization.

User Interpretation

The drone is assumed to be within 1.35 meters horizontally of the simulated point, at an altitude of 100 meters. As GPS outage time increases, the engineer can adjust drift time and regenerate a new estimate.

Why This Matters

Even without GPS, users retain positional context with quantum-derived simulations. The app is lightweight, offline-capable, and ideal for demo, training, or field operations.

Learn more at: gps2quantum.com