IoT | swift NAVIGATION

Airtel Precise Positioning:

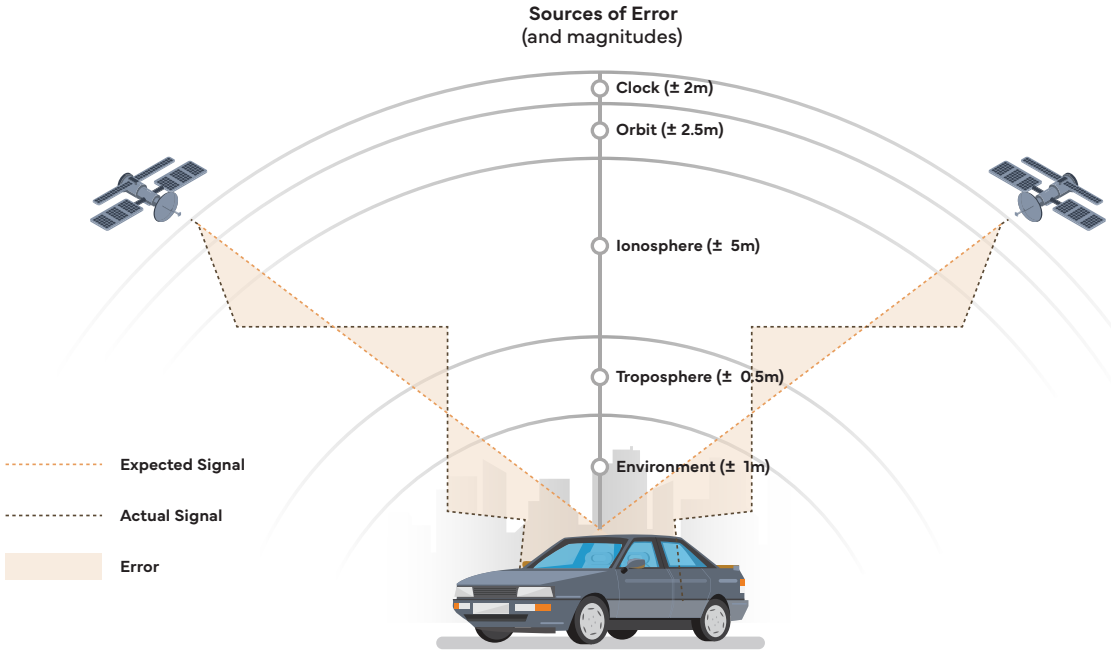
From meters to centimeters, powering India's autonomous future

Airtel and Swift Navigation: Partnership to deliver centimeter-level GNSS accuracy for automotive, IoT, and emerging autonomous applications across India

The Digital Transformation of India Demands Precision

India is in the midst of a technological revolution. From barrier less tolling and intelligent transport systems to the rapid growth of last-mile delivery and micromobility, industries are leveraging technology to build a more efficient and connected future. At the heart of this transformation is the need for precise location awareness.

However, standard Global Navigation Satellite Systems (GNSS) like GPS, while revolutionary, have inherent limitations. Atmospheric interference, satellite clock errors, and other disturbances typically result in position errors of 5–10 meters.



This "good enough" positioning is no longer sufficient for the next generation of applications that demand pinpoint accuracy and operational certainty. To unlock the full potential of autonomous vehicles, delivery drones, and precision agriculture, India needs a better solution.

The Solution: A Nationwide, Cloud-Based GNSS Corrections Service

To meet this critical need, Airtel, India's leading telecommunications provider, is partnering with Swift Navigation, a global leader in precise positioning technology. Together, we are launching a cutting-edge GNSS corrections service that enhances location accuracy from meters to centimeters. By integrating Swift Navigation's cloud-based Skylark™ Precise Positioning Service with Airtel's extensive experience in IoT solutions and services, we are building the infrastructure necessary to power a new era of innovation for Indian enterprises.

How It Works: From Meters to Centimeters

Corrections are applied to observations received on GNSS enabled devices to improve the position accuracy, potentially down to just a few centimeters. Our precise positioning service fundamentally enhances the quality of raw GNSS data received by a device. How this works:

Reference Network
A network of high-precision reference stations is established across the country, continuously tracking GNSS satellite signals.

Cloud Processing
These observations are streamed to Swift Navigation's Skylark cloud platform, which uses advanced algorithms to calculate and model errors in the GNSS signals in real-time.

Correction Delivery
The resulting stream of corrective data is delivered from the cloud via Airtel's nationwide IoT network.

Precise Position
End-user devices (e.g., vehicles, drones, mobile devices, etc) apply this corrective data to their GNSS receivers, achieving centimeter-level accuracy.

This cloud-based model is seamless, scalable, and far more efficient than traditional, localized correction services, making it ideal for a market as vast and dynamic as India. In India, Airtel is deploying and operating the network of Continuously Operating Reference Stations (CORS) which Skylark uses to model corrections in the cloud and deliver high accuracy positioning with seamless availability across the continent.

Unlocking New Possibilities: Applications Across Indian Industries

This technology is a game-changer for numerous sectors critical to India's economic growth.

Automotive & Transportation
Enable advanced driver-assistance systems (ADAS) like lane-keep assist and autonomous emergency braking. This is a foundational technology for fully autonomous vehicles, improving road safety and traffic efficiency.

Mobile & Consumer Apps
Navigation, ride-sharing, and fitness apps can deliver highly accurate, real-time location data for turn-by-turn directions, exact pickup points, and reliable activity tracking on smartphones and wearables.

Smart Tolling
Implement barrier less tolling or lane-level tolling where vehicles in priority lanes are charged a premium, without the need for extensive physical infrastructure like gantries, cameras and readers.

Logistics & Last-Mile Delivery
Provide the accuracy needed for autonomous drone and robotic delivery, especially in dense urban environments. It allows for precise fleet management, route optimization, and accurate arrival time predictions.

Map-Making & Digital Twins
Precise positioning makes it possible to build and maintain high-definition maps using simple cameras instead of expensive sensors, lowering costs while enabling large-scale digital twin creation.

GIS Mapping & Land Surveying
Bring affordable, survey-grade precision to GIS processes, enabling faster and more accurate mapping and data collection.

Construction & Utilities
Enable precise measurements for construction planning and accurate mapping of underground utilities like pipes and cables, enhancing safety and operational efficiency.

Micromobility
Ensure e-scooters, bikes, and other shared vehicles are tracked and parked in designated zones, improving public space management and user safety.

Railways
Enhance the safety and efficiency of rail operations through precise train positioning and control systems.

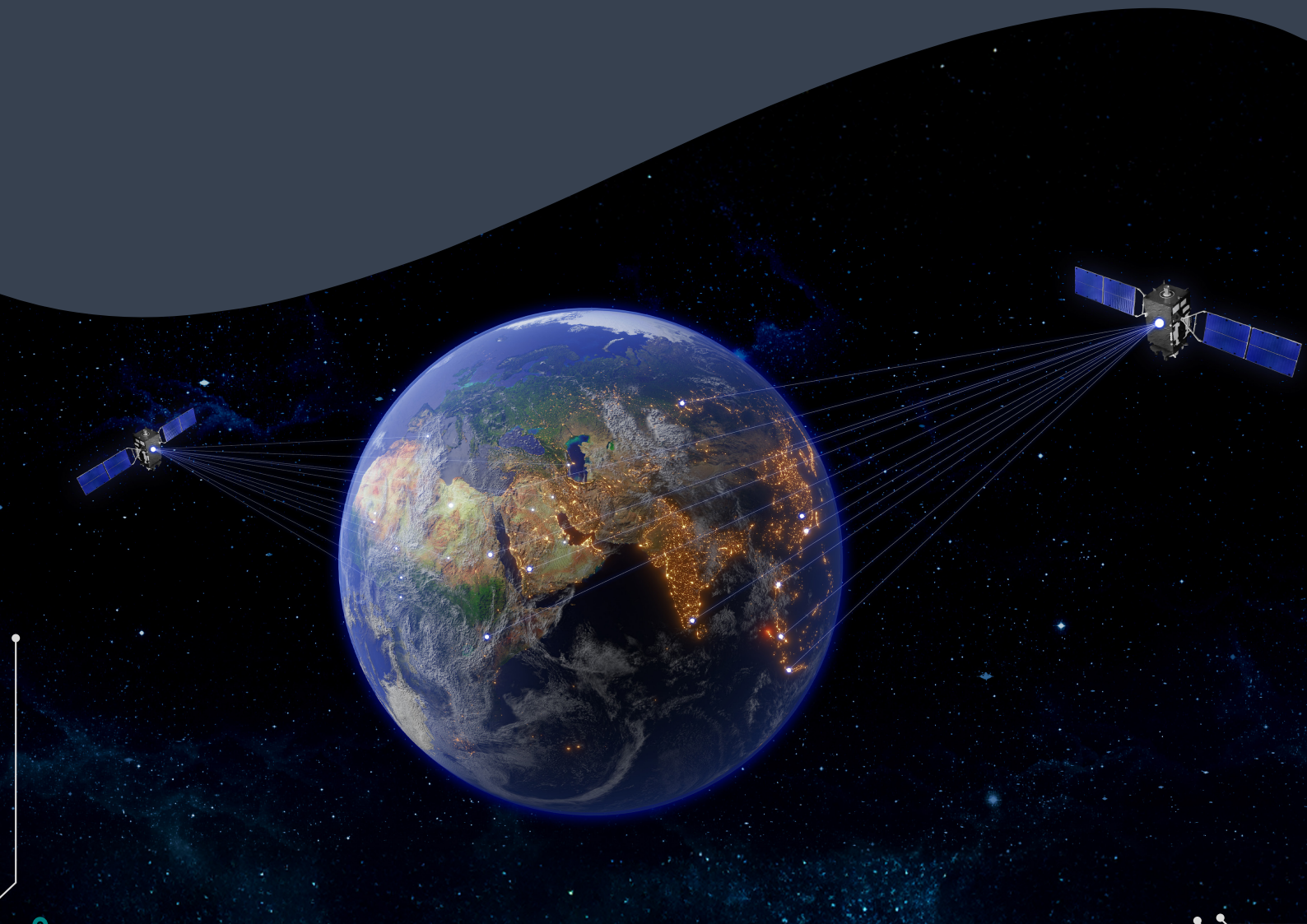
Agriculture
Power precision agriculture by providing exact positioning for automated tractors, seeders, and sprayers. This allows farmers to optimize the use of water, fertilizer, and pesticides, boosting crop yields and sustainability.

A Partnership Built for India

The collaboration between Airtel and Swift Navigation creates a perfect synergy to deliver this transformative technology.

- **Airtel** brings its vast experience in delivering IoT solutions and services, robust pan-India 4G/5G network, ensuring reliable, low-latency delivery of correction data to any device, anywhere. Our deep understanding of the Indian market and strong enterprise relationships will accelerate adoption.

- **Swift Navigation** provides its world-class, hardware-agnostic Skylark precise positioning platform, a proven solution trusted for its accuracy, integrity, and scalability — supported by a wide ecosystem partner program and already powering millions of connected devices worldwide.



Get Ready for the Future

Airtel's Precise Positioning service, powered by Swift Navigation, is more than just a technology; it's a foundational enabler for the next wave of digital innovation in India. It offers a solution that is:

- **Ultra-Accurate:** From meters to centimeters.
- **Seamless:** Continuous coverage across India via Airtel's network.
- **Scalable:** Easily supports millions of connected devices.
- **Cost-Effective:** A cloud-based subscription model without the need for complex on-premise infrastructure.

To learn how precise positioning can transform your business, contact our IoT pre-sales and enterprise sales team today.

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