

The logo for IC11, featuring the letters 'I', 'C', and '11' in a bold, white, sans-serif font. The 'C' is stylized with a thick stroke and a small gap at the top. The background is a solid blue with a subtle halftone dot pattern that fades from left to right.

IC11

We connect things to come
Underground GPS

uGPS

Smart
Challenge
Innovation

The Perfect Indoor Positioning Solution

GPS (GNSS) signals are globally accessible and vital for accurate positioning and time data.

Indoor positioning data is essential in daily life, but GPS signals are unavailable indoors or underground.

IDCITI's uGPS package delivers highly precise, sub-40 nanosecond synchronized signals for use in tunnel and indoor environments, enabling high-speed vehicle connectivity in any location, even indoors or underground.

uGPS, Customized to accommodate our clients' site-specific needs, uGPS delivers GPS satellite-level precision even in the most demanding indoor environments.





Software Satellite System

uGPS

• uGPS MU(Main Unit)



Size	5U in Standard 19 inches Rack
Signals	10 GPS/GLONASS signals
Channels	≤12 (8 GPS/ 4 GLONASS)
Accuracy	≤5m (all channels used)
PPS Accuracy	<8ns
Delay	<8ns
Coverage	within 10km
Strength	Range : -80 ~ 0 dBm Level : 0.1 dB Precision : +- 0.5

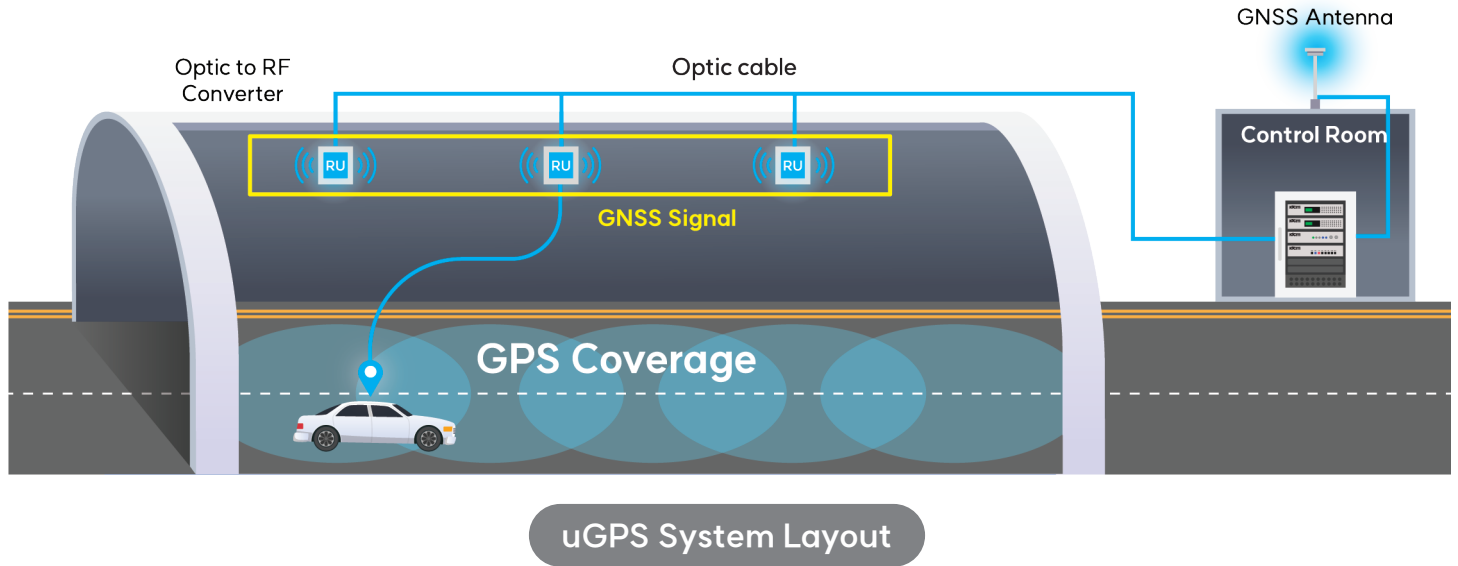
• uGPS RU(Remote Unit)



Size	20X20X10(cm)
Durability	IP65
Range	Range : -80 ~ 0 dBm



The Radical Solution to Indoor Positioning



Versatility

uGPS does not require users to install extra H/W or S/W. Any GPS capable devices on the market is enough.



Extendibility

uGPS is an implementation of GNSS, the global standard satellite system. Our technology can be applied anywhere on this planet.



Competible Price

uGPS will be shipped at 1/10 of the price of our international competitors.



Easy Maintenance

No need for preprocessing; uGPS can be deployed upon install. This makes our maintenance cost more affordable.



High-Speed Application

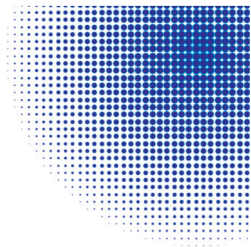
uGPS generates GPS signals that can be received by vehicles moving at high speed (up to 100km/h).



Seamless Connection

With uGPS, end-users will experience a seamless connection to GPS signals moving into or out of our client sites.

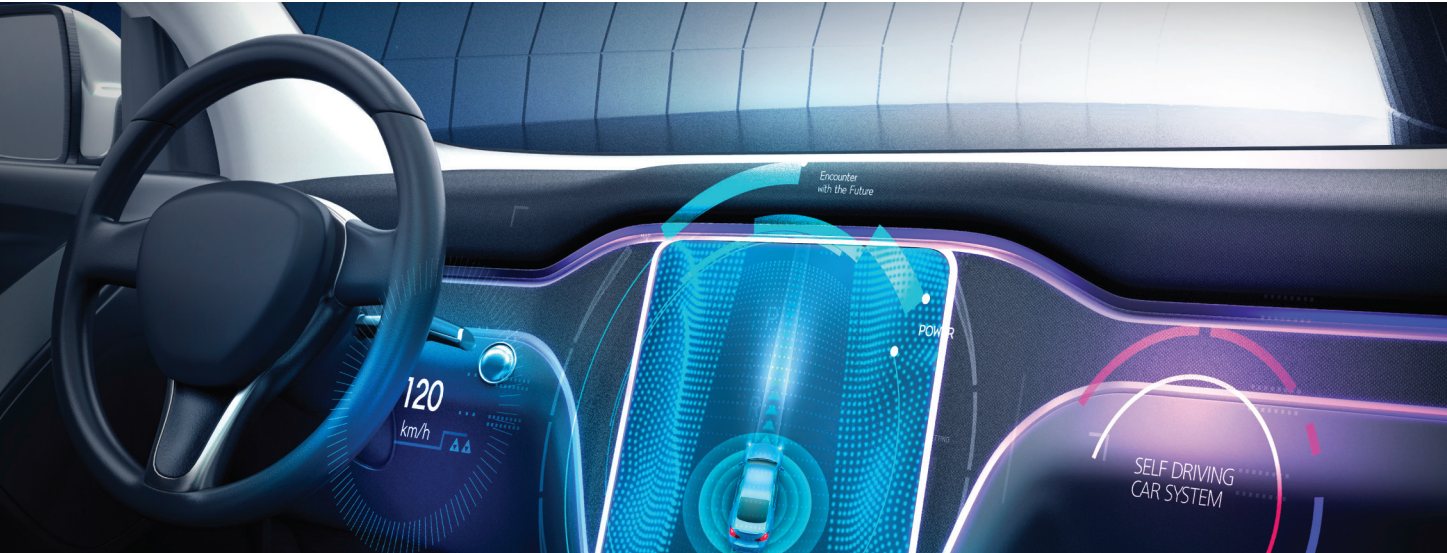
uGPS vs. Other Technologies



By allowing reception with standard GPS receivers, we prioritize user convenience, resulting in more cost-effective maintenance compared to alternative solutions.



Category	Image Matching	Dead Reckoning	IDCITI	Triangulation	Finger Printing
Technology	ML, AI	IMU Sensor	GNSS	TDoA, ToF	RSSI
Solution	LiDAR, Computer Vision	INS	uGPS	UWB, RFID	BLE,Wifi
Description	S/W Approach- requires preprocessing	Needs extra H/W, error accumulates	Supports all kinds of GPS	Environment sensitive; low accuracy	Environment sensitive; low accuracy
Convenience (Need for extra H/W or S/W)	Low	Low	High	Low	Low
Maintenance Cost	High	None	Low	High	High
High-Speed	○	○	○	×	×
Seamless Connection	○	○	○	×	×



uGPS Case Studies

"R&D to Alleviate GPS Shadow Effects in Highway Positioning", 2023

This project was executed in cooperation with  Korea Expressway Corporation



Before uGPS : GPS reception disabled on smartphone



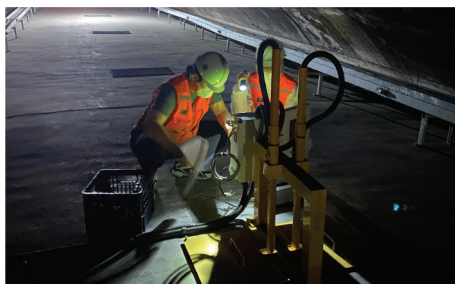
After uGPS : GPS reception enabled



uGPS is installed throughout 2 tunnels of 1.8km and 1.2km length, respectively, positioned near Seoul, South Korea

➡ GPS reception and positioning have been confirmed on vehicles travelling at high-speed

Demonstration cases



Namsan tunnel

Resolves reception constraints in urban, GPS-shaded regions



Ugd Parking Lot in Incheon

uGPS enables GPS within underground parking lots



Jamsil Ugd Bus Terminal

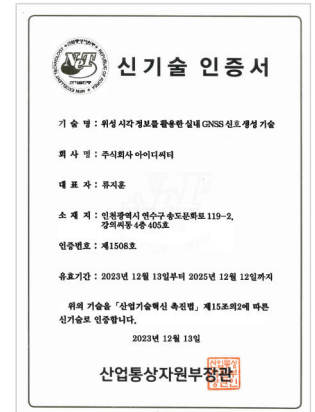
Improve bus arrival time error from 600 to 14 seconds

Patents and Certifications

At IDCITI we pursue continuous innovation to provide higher quality and stable service for the future.

✓ 1 New Excellent Technology certification

- Indoor GNSS Signal Generation Technology Utilizing Satellite Visual Information, Ministry of Trade, Industry & Energy, Republic of Korea



✓ 1 Domestic Patent Registered

- Patent No. 10-2444912 System and method for providing indoor GNSS

✓ 7 Domestic Patents Applied

- GNSS system supporting GNSS shaded areas
- Apparatus and method for measuring indoor position using visual code
- Device and method for obtaining location information indoor space
- Apparatus for outputting pseudo GNSS signal and controlling the same
- Satellite data processing apparatus and GNSS systemsystem
- Apparatus and method for tracking vehicle using RADAR sensor and LiDAR sensor
- Anti-drone system and method for controlling the same

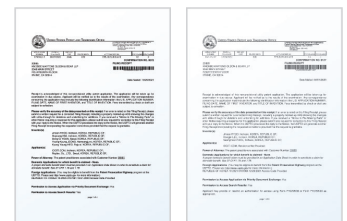
✓ 2 International (US) Patent Applied

- APPARATUS AND METHOD FOR GENERATING GNSS SIGNAL
- GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) SIGNAL OUTPUT SYSTEM SUPPORTING GNSS SHADED AREAS



✓ Academic Papers on uGPS

- uGPS: Design and Field-Tested Seamless GNSS Infrastructure in Metro City, ACM MobiCom '22: Proceedings of the 28th Annual International Conference on Mobile Computing And Networking, October 2022, Pages 636 - 647



✓ Certifications

- KC Certification : R-R-idi-uGNSS
- EMC Certification : RAPA21-E-023
- FCC Certification (US) : 2A3UX-UGPSTUNNEL-V1
- Europe CE(EMC) Certification : CTK-2023-02301
- Europe CE(LVD) Certification : CTK-2023-02677



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