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LTE Software-Defined Receiver for Navigation

Tech ID: 34084 / UC Case 2017-483-0

BRIEF DESCRIPTION

This technology offers a novel approach to navigation by using LTE signals, providing a viable alternative to traditional GPS systems.

FULL DESCRIPTION

A software-defined receiver (SDR) designed to utilize real long term evolution (LTE) signals for navigation purposes. This innovative approach leverages the structured nature of downlink LTE signals to facilitate signal acquisition, extraction of navigation-relevant system information, and signal tracking, ultimately allowing for precise time-of-arrival (TOA) estimates. These capabilities enable navigation solutions that can rival or complement traditional GPS-based systems, especially in environments where GPS signals are weak or unavailable.

SUGGESTED USES

- » Enhanced indoor navigation solutions for malls, airports, and large buildings.
- » Urban navigation where traditional GPS signals are unreliable.
- » Backup navigation systems for critical applications requiring high reliability.
- » Location-based services leveraging existing LTE infrastructure

ADVANTAGES

- » Utilizes widely available LTE signals, enhancing coverage and reliability.
- » Provides an alternative or supplement to GPS navigation, especially in challenging environments.
- » Capable of extracting high-level system information for navigation purposes.
- » Enables precise time-of-arrival estimates for accurate positioning.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,802,978	10/31/2023	2017-483
United States Of America	Issued Patent	11,187,774	11/30/2021	2017-483

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OTHER INFORMATION

CATEGORIZED AS

- » **Communications**
 - » Networking
 - » Optical
 - » Wireless
- » **Security and Defense**
 - » Other
- » **Transportation**
 - » Aerospace
 - » Automotive
 - » Other
- » **Engineering**
 - » Other

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