



Robust and Accurate High Precision Positioning for Automated Valet Parking and Multi-Sensor Fusion in Denied GNSS and Degraded Visual Environments

Profound-Radar Parking In The Dark

Profound-Radar is an automotive radar-based localization library for decimeter-level position accuracy in indoor and outdoor environments.



High Precision

Profound-Radar achieves decimeter-level positioning accuracy using radar reflections and two-dimensional HD maps under **adverse and challenging operating conditions**.

Low-Cost Radars

Profound-Radar uses built-in automotive radar devices and does not require expensive and bulky LiDAR sensors, nor it requires installing additional infrastructure.

Customization

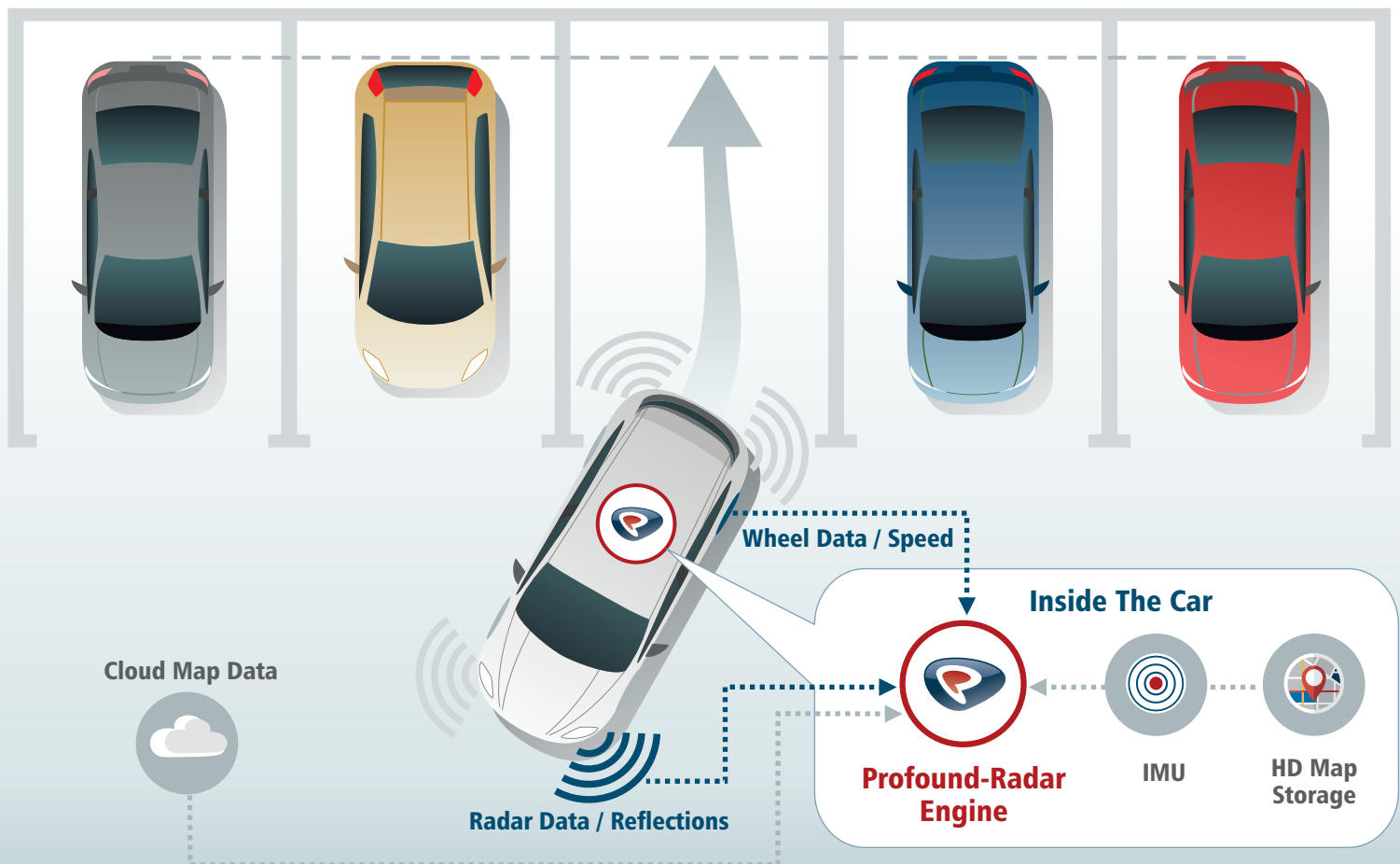
Profound-Radar can be customized to work in different configurations for AVP including indoor and outdoor environments, single-floor, multi-floor, or any combinations.

Robustness

Profound-Radar employs PPI's sensor fusion technology that accommodates other automotive sensors such as wheel encoders and inertial sensors to ensure accurate localization under various conditions.

Versatility

Profound-Radar is a light-weight, fast, and platform-independent library targeting real-time applications and it can be easily integrated into the customer system.



Profound-Radar

Parking In The Dark

Profound-Radar is ready for integration with onboard sensors and systems to support high precision positioning for all levels of autonomy. Profound-Radar enables level-4 automated valet parking (AVP) inside highly structured indoor and outdoor environments under adverse and challenging operating conditions. Profound-Radar is immune to degraded vision conditions, and operate independent of infrastructure.

Key Features

- Fast and platform-independent for real-time applications.
- Radar-based localization for decimeter-level localization under challenging conditions.
- Accepts inputs from other sensors, such as wheel encoders and inertial sensors.
- Flexible map formats including HD maps as shapefile or point clouds maps.
- Customizable floor plan configuration: indoor, outdoor, single-floor, and multi-floor.
- Optional: can be fully integrated with other Profound products such as Profound-IP3 and Profound-DR.

Target Applications

Profound-Radar provides a reliable, precise, and continuous decimeter-level of positioning accuracy targeting autonomous level-4 driving in applications such as:

- Automated valet parking (AVP).
- Automated shuttle services in airports, shopping malls, corporate campuses, etc.
- Level-4 autonomous vehicles in controlled environments.



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