TELENAV

VIVID SEARCH

Makes the Drive Meaningful

Powerful and personalized search simplified for driving.

VIVID Search lets users discover the world around them in personal, smart and simple ways.

Research shows 60% of user interactions with a navigation system start with search. That's why we focused on making search incredibly easy-to-use, powered by advanced personalization algorithms behind the scenes.

Want to find something? Just ask.

VIVID Search works with most smart voice assistants. It's compatible with most voice NLUs, allowing you to ask for the nearest coffee shop and to get a personalized and prioritized list of shops spoken back.

Get personalized and contextual results.

Search results are based on the user's intent. It combines past search patterns and preferences, context (e.g., time, day, location, what's nearby) so the results are highly relevant. Let's say Peet's Coffee is preferred over Starbucks. Peet's is prioritized as a search result, but only if it is within a short driving distance, and only if it's going to be open by the time the user arrives.

Word prediction simplifies search entries.

When you need to type the search, VIVID Search makes it simple with auto-complete and word prediction features to reduce the number of characters you enter. With just a few characters, search understands.

Machine learning continuously improves the experience.

VIVID Search learns. It keeps getting better, more personalized, and more contextually aware with every interaction. A powerful Analytics Learning Engine in the cloud constantly learns user preferences and how it aligns with the user's context like time, day of the week, and location.

Not connected, no problem.

The power of the cloud is there with you even when you've lost connectivity. Search results around the user's home area, and the area where they usually drive, are cached locally, and refreshed whenever the vehicle is connected. That way, when you're going through areas without cell connectivity, you can still get meaningful results.

End-User Experience

Driver-based relevant results.

Our simplified, powerful search delights drivers who discover it does more than merely look-up information. Integrated to tap the best of search, plus location and context-sensitive data, search results are tailored to the individual and their circumstances. With their preferences powering the results, customer satisfaction increases.

Safety is always the priority.

With safe driving being our priority, voice-activated, simplified search means hands-free access, so drivers aren't distracted. At the same time, search results incorporate safety information like road closures, accidents, and hazards. We've packed it all into a single search, so the information provided is quick and easy.

Semantic search feels intuitive.

Drivers can search for a specific address, street, intersection, or city with "near me" locations included. POIs can be searched by name or category (e.g., restaurants, shopping, airports). Anchor points are based on the current location, destination, or any point along the route. As data permits, results will be in the local language.

Contextual search adds meaning.

Contextual search offers results based on their profile. Favorites and common tools reflect their preferences. Additional contextual markers influence results, including current location, destination, route, and more. Time is managed to include the time of arrival, weekdays versus weekends, holidays, and more.

VIVID Search At-A-Glance

PERSONALIZED AND CONTEXTUAL RESULTS

- Results based on past behavior and preferences.
- Combines user intent with context – time, location, ambient conditions.
- Powerful machine learning algorithms continually improve personalization.

ALWAYS ACCESSIBLE AND EASY-TO-USE

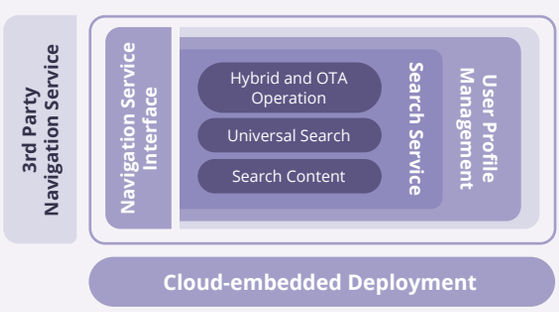
- Search using plain-spoken language that works with any voice NLU.
- Freeform, one-box entry to search for anything – addresses, POIs, and more.
- Auto-suggest and word prediction make search fast and accurate.
- Works offline with regular OTA updates of user's home area.

UNIVERSAL SEARCH FINDS WHAT IS NEEDED

- Wide variety of searchable content, including reserved parking, fuel, charge stations, food, and more.
- Results return rich content that includes reviews, hours, amenities, and prices.
- Content kept fresh with daily, weekly, monthly, and quarterly updates.

FLEXIBLE AND POWERFUL BASED ON RELIABLE DATA SOURCES

- Supports over 200 search input patterns.
- Search by category, place, address, brand, and more.
- Flexible content sources for everything from addresses to weather.
- Extensive localization and able to support 90+ countries and 40+ languages.



Add personalized search to your location-based solutions using the VIVID Search SDK

Adding automotive and mobility-oriented search that delivers a personalized, contextual and simple user experience is easier than ever with the VIVID Search SDK. It is available for Android Automotive OS, QNX, AGL and iOS applications, and is offered as a cloud-based service with RESTful APIs.

Technical Information

HOW DOES IT WORK?

Semantically savvy and location-aware means highly relevant results are based on advanced semantic models connected to user intent and context, such as their location, day, time, previous search history, etc.

Universal search works across multiple IVI domains, allowing users to search for anything – not just destinations. Search can be integrated with the rest of the in-vehicle infotainment applications to provide results for media and in-car commerce, among others.

Auto-suggestion limits keystrokes by recognizing many relevant data points, including addresses, POIs, brands, streets, and cities. This is optimized by user information like popularity and history.

Word prediction speeds up search entry by including information about what's nearby and past user behavior.

Geocoding and reverse geocoding support both point and interpolated. Batch Geocoding supported. Reverse geocoding uses geolocation (latitude and longitude).

Rich point of interest data is updated regularly with dynamic content from multiple sources, including these:

Content	Source	Update
Base POI	HERE, OSM, InfoGroup, TomTom	Variable: daily to quarterly
Rich POI	Yelp, Foursquare, ChargePoint and others	Daily
Geocoding	HERE, TomTom, OSM, DMTI, CoreLogic	Variable: daily to quarterly
Fuel/Charge	OPIS, ChargePoint	Real-time
Parking	Parkopedia, INRIX	
Weather	AccuWeather, SXM	

TYPES OF SEARCH

- One-box (over 200 input patterns)
- Multi-box
- Voice Search (any voice NLU)
- Category (uses adaptive radius)
- Places (using Telenav proprietary relevancy algorithm)
- Address
- Product and Brand Search
- Intersection (mapped to user's intent)

TYPES OF LOCATION BASED-SEARCH

- Around
- Near Destination
- Search around a destination
- What/Where
- POI near POI
- Along Route
- By Radius
- Polygon
- Bounding Box
- Exit Search
- Group Search