

Indoor
positioning
in 3D

combain
positioning solutions

Combain AI Indoor

World-class accurate 3D Indoor positioning using deep learning
Easy and cost-effective deployment using existing infrastructure

Combain AI Indoor is an Indoor Positioning System (IPS) that delivers accurate location-based services within buildings where GPS is unavailable. Leveraging existing Bluetooth beacons and Wi-Fi access points eliminates the need for extra hardware, ensuring easy and cost-effective setup, even in temporary locations.

Combain AI Indoor provides intuitive tools to manage your indoor positioning. Use the portal to define your building's structure and the app to gather training data. Deep learning algorithms then analyze the data to build a comprehensive building radio environment model using an artificial neural network (ANN). Once published, the model enables indoor positioning for all devices through the Combain Location API.

Tailor your indoor positioning deployment: make it accessible to all Combain Location API users or restrict it to your own API keys. For maximum privacy, integrate Combain On-Prem Location Server for a fully private system operating on your servers.

Combain AI Indoor features:

- **Top-tier accuracy:** Typical median error of 2-5m in public spaces, with deep learning often doubling accuracy compared to traditional IPS.
- **Effortless deployment:** No need for extra hardware or complex setup – simply survey the area to collect training data.
- **Intuitive online portal:** Create buildings, define floors, upload indoor maps, design navigation routes, and add features like stairs and elevators.
- **Accuracy visualization tools:** Pinpoint where additional beacons might improve accuracy.
- **Android AI Indoor Survey app:** Streamlines survey and data collection (requires Combain training for optimal use).
- **Optional setup service:** Combain experts can manage the entire AI Indoor implementation.

Highly accurate indoor positioning with minimal investment in infrastructure

Indoor positioning has become increasingly important in recent years due to the rise of indoor location-based services and the increasing demand for smart buildings.

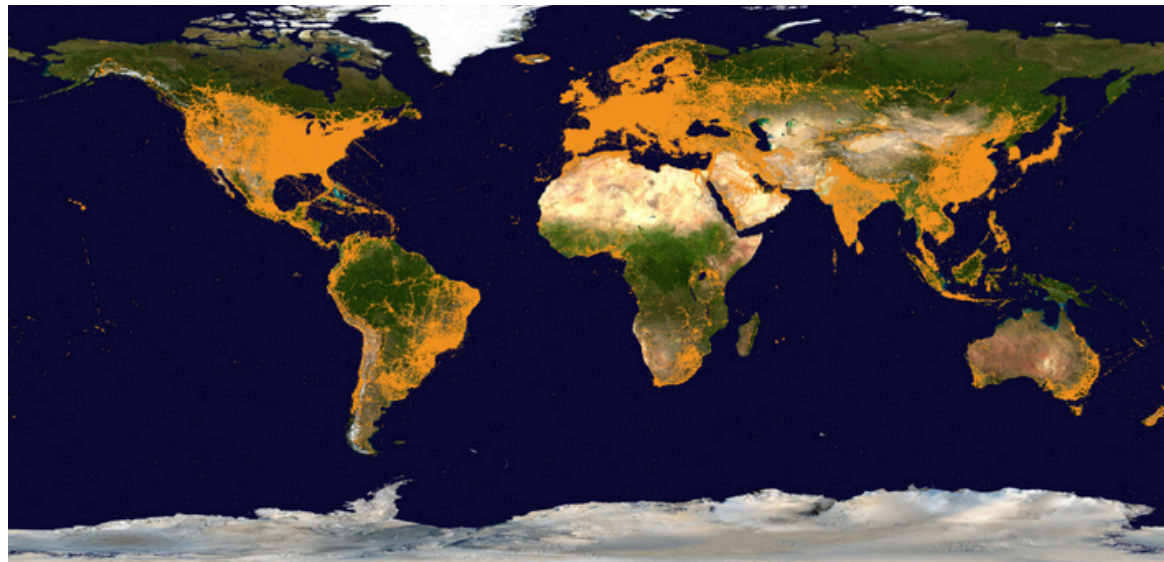
Combain AI Indoor empowers businesses to unlock the following applications:

- **Asset Tracking:** Track the location of valuable equipment and inventory within a building, optimizing operations and improving efficiency.
- **Indoor Analytics:** Gather insights into how people move within spaces. Identify high-traffic areas, popular routes, and potential bottlenecks to optimize building layouts and enhance the user experience.
- **Security & Safety:** Enhance safety in buildings with panic button features and the ability to accurately locate personnel or visitors. This is particularly crucial in large or complex environments like hospitals, industrial facilities, or office complexes.

Overall, Combain AI Indoor has the potential to enhance the user experience, improve efficiency, and increase safety in a variety of indoor settings.

About us

Combain provides a range of global positioning solutions. One of the core assets is the huge crowdsourced global location database.



Combain provides access to this database through

- Combain Location API
- Combain OnPrem
- Combain OnPrem Offline
- Combain Crowd Indoor

Combain improves indoor positioning accuracy with these add-on services:

- Combain Manual Indoor
- Combain AI Indoor
- Combain 5G Positioning Engine

Seamless Indoor & Outdoor

Combain products and services help you to locate devices or people carrying a device, either indoor or outdoor. GNSS has no or poor indoor coverage. Combain has crowdsourced indoor positioning data and created accurate indoor positioning in millions of buildings. Combain also has the Combain Indoor tools to enhance indoor accuracy.

Global Coverage

Combain's products and services help you locate devices globally. Combain has coverage in all 195 countries in the world. One world - one API. Combain works with customers and crowdsourcing partners that help collect data from millions of devices. The data continuously helps to improve the coverage and accuracy of the Combain Location API service.

Private & Secure

By using Combain's products and services, your positioning usage will not be shared with any third party. Your data will not be used for any type of profiling or advertising. Your positioning results, the location of your devices or personnel are your personal data.

TOTAL NUMBERS	
GSM	> 34 000 000
WCDMA	> 77 000 000
CDMA	> 2 000 000
LTE	> 63 000 000

REGION	NUMBER OF CELLS
EUROPE	59 000 000
USA	16 000 000
NORTH AMERICA	23 000 000
ASIA	56 000 000
PACIFIC	17 000 000
AFRICA	10 000 000
SOUTH AMERICA	11 000 000

STATISTICS PER JUNE 2024. SEE WWW.COMBAIN.COM FOR LATEST STATS.

World-class accuracy

Since the beginning, Combain has focused strongly on building an accurate location service. Combain began researching and developing proprietary and patented algorithms to process incoming crowd-sourced data and provide accurate locations.

Combain usually provides a better median error than any other geolocation service. The typical median error seen in urban areas with cell ID is about 100 meters. For indoor environments using Wi-Fi and/or Bluetooth, you can get 2-5 meters and the correct floor after some optimizations with Combain AI Indoor or 10-20 meters "out-of-the-box."

Contact Combain

Visit us at www.combain.com and sign-up for a free trial. Please send an email to sales@combain.com for commercial inquiries.

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