



## Indoor Micro-Localization Solution



When the blind or visually impaired (B/VI) or those who speak English as a second language (ESL) visit museums or public facilities, they often face guidance challenges that make autonomy difficult. Braille maps and placards remain the standard for determining position and direction for B/VI persons in particular, a problematic solution at best, as Braille signs often require assistance and do not allow the B/VI to simply move about on their own.

With a proven history of solving tough challenges, CACI is proud to introduce a groundbreaking innovation – EdgGuide. A micro-localization solution providing an augmented autonomy experience for B/VI persons, ESL speakers, and others, EdgGuide enables true freedom of movement in indoor spaces.

EdgGuide capitalizes on CACI's expertise in ultra-wideband indoor precision location and orientation technology. Using a system of wall-mounted beacons that don't require an external network, a patron can wear a sensor that communicates with these beacons to provide audio and haptic sensory feedback.

EdgGuide uses a custom mobile application that can be paired to a sensor at the entrance of a venue. With EdgGuide, a patron can inquire about their physical location at any point with a high degree of accuracy and can listen to pre-recorded audio information (ESL speakers and audio learners, for example, could listen to exhibit information in their native language). EdgGuide users can also be easily directed from one point to another within the venue.

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## Key Features

- 802.15.4 ultra-wideband positioning technology providing 20 cm indoor accuracy
- Wall-mounted beacons transmit signals via an internal mesh network
- Beacons can be easily powered by multiple methods, minimizing facility integration costs
- iOS® application to query position inside the building, providing direction to points of interest or a companion wearing another sensor
- AutoCAD plug-in for ease of facility integration and planning

## Benefits

- EdgGuide provides an augmented autonomy experience for B/VI patrons and employees
- EdgGuide can assist in building emergencies, such as evacuation scenarios
- CACI provides testing and support through the EdgGuide integration process, from floor plan analysis to application installation
- EdgGuide system designed for easy integration with "smart buildings" and "smart city" environments

## Denver Museum of Nature and Science Pilot

CACI is partnering with the Blind Institute of Technology (BIT) and the Denver Museum of Nature and Science (DMNS) to demonstrate how EdgGuide technology can change museum experiences for B/VI patrons. In the words of Mike Hess, Founder and CEO of BIT, "I would just like to take my son to the museum without anybody helping me."

EdgGuide enables a range of mobility at the DMNS and museums like it. From floor plan analysis to consulting on the installation of beacons, sensors, and preloaded applications, CACI provides testing and support throughout the integration process.

Once engaged, EdgGuide hardware is in constant communication with the user, keeping track of the patron's location in the museum at all times. The museum patron will also be able to check current location, attractions in their general area, and how far they are from particular points of interest like cafes or gift shops.

### Pilot Phase One

**Point of Interest** - Empowered with an easily manageable set of equipment, patrons can fully experience the DMNS using EdgGuide's narration about the surrounding area. Hands-free audio announces when EdgGuide users move into a new region or near a point of interest. Manually selecting the "Where am I?" prompt lets a patron know where they are at all times, and they can select an exhibit or point of interest as their destination. EdgGuide tracks their distance from the destination and announces when they arrive.

### Pilot Phase Two

**Micro-Localization** - With the addition of two small sensors clipped to each shoulder, EdgGuide users have all the same point-of-interest features, plus a game-changing localization tool. EdgGuide sensors use haptic sensory feedback to steer patrons directly to their destination. Localization works with a "buddy feature" as well, so if patrons and their companions get separated, EdgGuide can easily locate their other companions.

### Complimentary Project

**Demo on Stilts** - For those who want to see how EdgGuide works but can't visit the DMNS, "Demo on Stilts" is the perfect solution. Using a custom iPad® application and beacons attached to tripods, a fully-functional EdgGuide system can be set up anywhere in about one hour, depending on the size of the space.

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