Beacon-based indoor routing as a mobility service app

Autumn 2018

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- Orientation-based routing and information application for groups with special needs
- Enabling car independent lifestyles
- Inclusive and barrier-free public transportation

Location:	Munich, Germany
Organisations involved:	City of Munich
	Stadtwerke München
	Münchner Verkehrsgesellschaft mbH

What is the solution?

In Munich, people travelling on public transport often get lost and do not find the route to their connection or to the best exit inside public transport stations. This is an even bigger challenge for the visually or hearing impaired, and as a result, these groups often avoid public means of transport. Seamless door-to-door mobility for all citizens and a truly inclusive mobility system are therefore the key goals of this measure. An indoor routing system based on 'beacons' (explained below) is thus being implemented inside a pilot public transport transit point. It will provide indoor routing information to facilitate transit between different means of transport. In the long term, the measure's objective is to develop an app that provides a routing function for the deaf and visually impaired to use when using various forms of public transport, making individual trip planning with multiple means of transport possible.

How does it work?

For this measure, a routing application for the deaf and visually impaired will be implemented based on existing services of the local public transport corporation (MVG). This will be supported by installing beacons inside public transport stations. The beacon sends bluetooth signals to users that have installed the corresponding app on their mobile devices. The beacons can locate users as they approach, and upon receiving the bluetooth signal the app directs users with verbal instructions, such as on which side trains are located or how many steps are in a staircase, tailored to the destination they wish to travel to.

During the development phase, the beacons will be temporarily installed in a public transport station in Munich so that the application can be tested in cooperation with the local association of the deaf and visually impaired. As a result of this measure, further opportunities of using beacons for indoor routing in all public transport stations will be explored.

Expected results

The implementation of the service is expected to increase the target groups' confidence and ability to make independent use of multimodal transport (services). Other impacts include:

- Accessible and safe public transport for the visually impaired or deaf through the use of indoor navigation, location-based information.
- Visually impaired and blind people increasingly use public transport because of comfortable indoor navigation and location-based information.

Business model

A detailed business model has yet to be established. The measure is funded, up to 70%, by the CIVITAS ECCENTRIC project, and 30% from the City of Munich's Utility Company (Stadtwerke München, in German). It is part of the overall basic public services which are carried out in the system of the City of Munich and its public transport provider MVG. The planned budget to implement the solution is about 300,000 euro.

Partners involved:

Public Transport Munich (MVG - Münchner Verkehrsgesellschaft).

Indoor.rs – Delivers the algorithm for the beacon technology.

Osram Licht AG – Manufacturer of the power supply connected beacon.

Technical authority for the public transport stations in Munich (Technische Aufsichtsbehörde, in German).

Timeframe:

Research & Development: Eight Months

Procurement & Implementation: 15 Months

Demonstration & Monitoring: 13 Months

Conclusions & Recommendations: 12 Months

Contact details

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