New Alliance helps you find 'needle in a haystack'

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Image: Gwan Kho

When was the last time you had that frustrating experience in a large supermarket, where you've been walking around in circles trying to find a small item?

Or, maybe you once found yourself wandering for ages around a huge airport or shopping centre, trying to find a toilet?

Problems such as these, and other many other needle-in-a-haystack scenarios cannot be solved with GPS, but they are waiting to be solved by a new industry alliance based on indoor navigation that is being launched today.

The In-Location Alliance, of which Nokia is a founding member, includes more than 20 companies across different industries.

The alliance will be working together on the innovation and promotion of a new standard-based short-range wireless technology that will make it possible to locate objects or positions indoors with extremely high accuracy using mobile devices.

High Accuracy Indoor Positioning (HAIP) based on Bluetooth low energy

Nokia has focused on and promoted the Nokia High Accuracy Indoor Positioning (HAIP) Solution, using a modified new generation, low energy feature of the Bluetooth® 4.0 specification, that allows for an accuracy of one metre. The technology can also be extended to an accuracy of 20cm with additional changes.

The modification to the standards-based Bluetooth Low Energy has been developed and prototyped by Nokia, and the changes are being formalised by Bluetooth Special Interest Group body.

The indoor location of a component in a position or on an object can be calculated by HAIP antenna elements installed in the ceiling or the area from the reception of the wireless signal that is transmitted by the component. The components can be installed in a mobile device, or they can be made as separate tags, which can be attached to any asset.

The key criteria for the indoor positioning technology are high accuracy, low power consumption, mobility, and the low cost. The solution has to be easy to implement and easy to use.

The Alliance members are confident that the key criteria have been met and technology demonstrations have already been designed and deployed in trial sites.

Why an alliance?

If Nokia has made so much progress, why is there the need for the alliance?

According to Nokia's Jouni Kämäräinen, chair of the In-Location Alliance:

"We are seeing the value of cooperation with companies that are interested in bringing out products based on indoor positioning; we are accelerating the market deployment of these indoor positioning solutions and services and with the alliance we can predict that companies will be more willing to invest and start implementing of these features into mobile devices."

Jouni hopes that, with other industry players in the alliance, the alliance members can bring the technology to the market sooner and also extend the technology in the future and provide new use cases and opportunities.

Creating an eco-system

With an alliance working together, consumers will ultimately benefit since different applications, systems and devices will work together. Also a standards-based solution (as opposed to a proprietary one) will make it low cost and easier to deploy.

Jukka Rantala, who has worked on the commercialisation of the HAIP solution for Nokia, said:

"We are building an eco-system for companies to bring the indoor positioning solution to every building in the world and therefore we need to have companies who are representing different roles in the value

chain, like telecom operators, system manufacturers, application developers and handset manufacturers other than Nokia."

The In-Location Alliance will work together in three areas:

- Continue working together on system architecture based on a standard based indoor positioning solution.
- Alliance members will prepare and execute pre-commercial pilots and practical demonstrations starting in the second half of 2012.
- Alliance members will brainstorm and evaluate new use cases and new business opportunities based on indoor positioning technology.

In the real world

It is that third area, where the alliance looks at how and where an indoor positioning solution, like HAIP, might be used, that is particularly exciting because that is how we will be using the technology in our daily lives.

One of the possible new applications is the ability to receive special offers, coupons and advertisements to your phone when you go past a shop. Other use cases in large factories are also being explored.

The indoor positioning technology could also help you find objects in your home, guide you towards your departure gate at an airport, track the players on a football match or work as a safety and monitoring device for an elderly person at home alone.

Picking up on the theme of possible uses, Jouni says:

"You can use the mobile phone as a navigation tool at the airport or in a

shopping mall. If you are in a big arena, like football stadium, then you could connect yourself to your friends because you can get your location and your friend's location."

"We can see the benefits of indoor positioning technology, especially in big venues, such as hospitals, railway stations, factories, museums and schools. We've even had discussions with ship owners who would like to offer better services for their passengers on cruise ships," says Jouni.

"The Compatibility and Industry Collaboration (CIC) unit in the Nokia Chief Technology Office wants to promote standards and open interfaces to ensure multivendor environment and interoperability", adds Jouni.

Next steps

HAIP could become a reality much sooner than expected.

There is work underway within the Bluetooth Special Interest Group by its member companies to evolve the specification to enable high accuracy indoor positioning. The technology can be deployed in in new phones, tablets, laptops or any kind of handheld device.

As a new industry standard, indoor positioning functionality will not add any significant cost to the price of new handsets. Companies may choose to use it as a premium service where there is a cost to the end user at the point of use.

What makes it exciting is that so many different use cases are still being explored, and many of which are yet to be thought of. This could be the strength of the alliance: to make it happen quicker and to make it happen in many ecosystems.

Jouni says:

"This Alliance is a new form of cooperation and should be seen as a bold answer to heavy and inflexible standard based institutions. We are aiming to focused objectives and concentrate on pilot programs. At the moment we have more than 20 companies who are in the Alliance, we would welcome more companies to join."

Provided by Nokia