

**MULTIPOS**  
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*Final Press Release*

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**Abstract:** This is the final press release published in <http://www.publicnow.com/> under the title “Combining multiple positioning methods enables better services”. The full link is <http://www.publicnow.com/view/EB7949D4381FB16BE7B58150484D1D1555D86F7B?2016-12-07-07:30:08+00:00-xxx4238>. It was also published on the Coordinator’s web page at <http://www.tut.fi/en/about-tut/news-and-events/combining-multiple-positioning-methods-enables-better-services-x173125c2>.

**Disclaimer:**

## Combining multiple positioning methods enables better services

**By combining global navigation satellite systems with other positioning and navigation technologies, smart devices will be able to navigate with improved accuracy and even create their own maps to an accuracy of centimetres, both outdoors or indoors.**

Smartphones and other modern mobile devices use global navigation satellite systems (GNSS) to determine our position to an accuracy of a few metres. More importantly, they can also use data from other sensors and maps to make us aware of our environment. For instance, by using smartphone apps, we can avoid traffic jams or areas with dangerous levels of air pollution, be guided to local amenities and even receive special offers at the local shop.



The next revolution in positioning and navigation is already underway. By combining GNSS with other positioning and navigation technologies, such as identifying independent signals that assist positioning or analysing the way in which the device is turned and moved, smart devices will be able to navigate with improved accuracy and even create their own maps to an accuracy of centimetres, both outdoors or indoors. This means that we can be guided to the exact shelf in a supermarket, an available parking space or a relative's bedside in hospital.

This work has been boosted by **MULTI-POS**, a prestigious Marie Skłodowska-Curie Initial Training Network, funded by the European Commission, from 2012 to 2016. It brought together a network of experience to support and develop a group of 16 selected research fellows who addressed the challenges of wireless localization in three key areas of interest. First, using the mobile network to access Location-Based Services, such as local information for health and emergency services, entertainment, social networking or localised advertising. Secondly, ensuring that the device can maintain a consistent level of accuracy and precision regardless of the location (i.e. inside, outside, previously mapped or unmapped areas). And thirdly, integrating and making the most of all positioning and navigation information and identifying new sources of information that might improve the way we navigate.

To encourage the generation of new ideas, each of the researchers worked with a university or company they had not worked with in the past. The experience that each of them has gained will place them among the topmost candidates for any job in this multi-billion-euro industry.

The project was led by Tampere University of Technology, supported by 18 other universities and private companies across Europe. They provided the supervision and mentoring to allow the researchers to develop novel solutions and ensured that they bridged the gap between high-end research and commercial application of the products and services created.

Apt examples of the outcomes of the project include innovative joint research across multiple sites for a low-complexity GNSS signal detection circuitry, combined architecture for multi-dimensional GNSS signal quality enhancements, position and orientation estimation using millimetre waves from 5G communication systems and detection of cyclic frequencies in a mixed CDMA and OFDM signal for cognitive positioning systems that exploit any available radio signals for position estimation.

Over the past three years, the research fellows have published over 60 papers and produced a series of videos available on You Tube and accessible through the project's website to share their work. In early 2017, Springer International Publishing will also bring to the market a book entitled 'Multi-Technology Positioning', edited by the supervisors and contributed to by the research fellows of the MULTI-POS network.

### Further information:

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Visit the project website: <http://multi-pos.eu/>

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