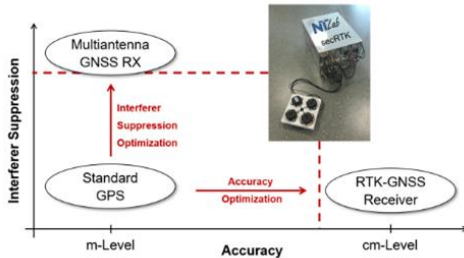


Improved satellite navigation

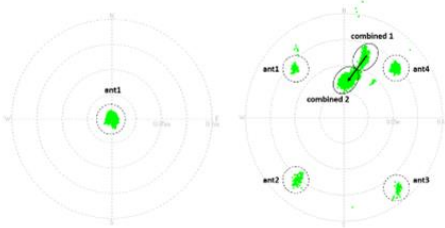
Antenna array receiver combined with RTK positioning

Invention

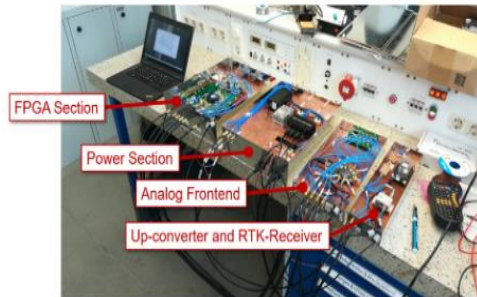
Precise positioning is the key criterion in satellite navigation. Ordinarily, GNSS receivers are used that enable global positioning with a high degree of precision. The problem: They are highly susceptible to interference. An invention from Münster University of Applied Sciences steps in here: An RTK (real-time kinematic positioning) and antenna array receiver configured as a correction unit for a conventional GNSS receiver. While the RTK technology provides the high sensitivity, the antenna array receiver filters out interference and estimates the direction of the received satellite signals for beamforming. The result: High-precision positioning in the centimeter range. Both technologies were previously considered to be difficult to combine, if at all.



GNSS receiver design space



Position estimation of individual antenna array receiver



RF-shielded version of secRTK demonstrator

An invention of Münster University of Applied Sciences.

Commercial Opportunities

Because the antenna array receiver system is designed as a correction unit, the commercially available GNSS receivers can continue to be used and interference resistance can be significantly improved. There is significant commercial interest in reliable positioning of cars, trucks and trains in logistics, agricultural engineering and geodesy.

Current Status

A patent application has been submitted to the German Patent and Trade Mark Office. Further IP applications for protection in other countries are also possible within the priority year. Initial test and trial runs (see images) have already been conducted: Functional capability was demonstrated. We offer interested companies the possibility of licensing and further developing this technology in collaboration with the inventors from Münster University of Applied Sciences.

Relevant Publications

secRTK – A Jamming Resistant RTK-Receiver: Prototype Architecture and Results of First Measurement Campaigns, NAVITEC, 5 April 2022

Competitive Advantages

- High-precision positioning in the cm range
- Reduced interference
- Can be combined with conventional GNSS receiver systems
- Improved satellite navigation

Technology Readiness Level

123456789

Technology validated in relevant environment

Industries

- Electronics
- Instrumentation
- GPS/GNSS

Ref. No.

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