

Improved satellite navigation

Summary

Profile type	Company's country	POD reference
Technology offer	Germany	TODE20220805013
Profile status	Type of partnership	Targeted countries
EXPIRED	Commercial agreement with technical assistance	• World
Contact Person	Term of validity	Last update
Johannes BÖHMER	5 Aug 2022 4 Aug 2024	4 Aug 2024

General Information

Short summary

A German university designed a multi-antenna receiver system designed as a ballast. It enables high-precision position determination with conventional global navigation satellite systems (GNSS) receivers down to a few centimeters. This is of great commercial benefit for motor vehicles in logistics or agricultural technology, among others. Licensees are sought.

Full description

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 a German 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.

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. Licensees from these industries are sought. Further development can be part of the cooperation.

Advantages and innovations

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

Technical specification or expertise sought

Stage of development

Lab tested

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

IPR applied but not yet granted

IPR Notes

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.

Partner Sought

Expected role of the partner

The university offers interested companies the possibility of licensing and further developing this technology in collaboration with the inventors from the German university

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **Big company**
- **SME 11-49**
- **SME 50 - 249**

Dissemination

Technology keywords

- **02008005 - Road Transport**
- **02011004 - Satellite Navigation Systems**
- **02008003 - Logistics**
- **02009008 - Navigation and embedded systems**

Targeted countries

- **World**

Market keywords

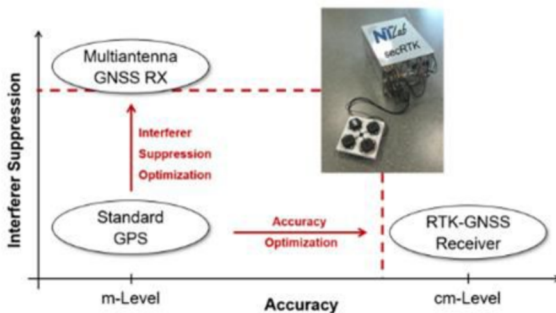
- **09001007 - Other transportation**

Sector groups involved

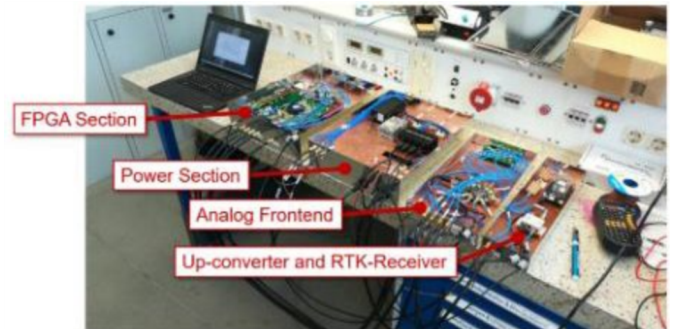
- **Mobility - Transport - Automotive**
- **Aerospace and Defence**

Media

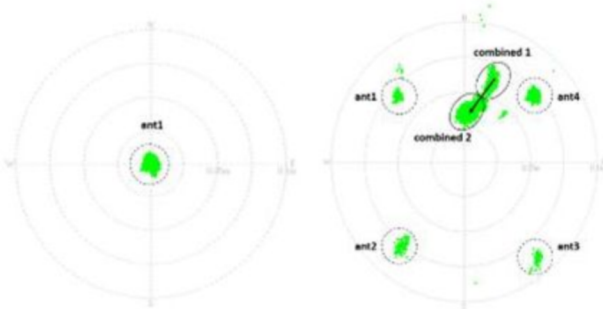
Images



[GNSS receiver design space](#)



[RF shielded version of secRTK demonstrator](#)



[Position estimation of individual antenna array receiver](#)