



## Navtech selected by prestigious university to drive autonomous vehicle research

University finds Navtech's OEMsensor provides excellent performance in low visibility.



### The challenge

#### AUTONOMOUS NAVIGATION IN LOW VISIBILITY

The Centre for Applied Autonomous Sensor Systems (AASS) at Örebro University in Sweden has trialled various sensor technologies to aid its research into autonomous and teleoperated machinery.

Örebro is a major player in progressing the field of localisation and mapping. It is specifically focusing its research on finding an autonomous technology for the harshest conditions, such as mines, that has the ability to navigate in smoke and dust, where LiDAR and visual cameras are inoperable.

The University heard about Navtech Radar when researching the Oxford Radar RobotCar Dataset project delivered by Oxford Robotics Institute (ORI), in which Navtech's CIR sensor was the key enabling technology. Impressed by the performance of Navtech's sensor, Örebro was keen to investigate and test it so contacted us requesting a trial for its application.



### The solution

#### PROVING THE CAPABILITIES OF RADAR FOR AUTONOMY IN HARSH CONDITIONS

Through its research, Örebro University was impressed by the excellent range and accuracy provided by Navtech's CIR radar and noted its high throughput and refresh rate, in addition to its low latency.

Operating successfully in impaired visual environments was crucial to AASS's research and the researchers determined that the Navtech radar outputs the raw data as a complete polar image, building a data-rich picture of the surroundings, regardless of the environment.

The AASS researchers tested the CIR sensor in multiple environments such as dust, mist and smoke, comparing the results to those of other technologies, such as LiDAR.

The researchers were able to report excellent benefits from the long maximum range that's available from the CIR sensor in clear conditions as well as impaired.



Compared to other sensors we have worked with, the Navtech radar provided excellent performance out of the box and was easy to integrate with standard robot software frameworks. We are looking forward to working much more with this sensor in the future, which will surely make low-visibility navigation considerably easier."

**Martin Magnusson,**  
Associate Professor at Örebro University

## The summary

### NAVTECH SELECTED TO HELP DRIVE MORE EXTENSIVE RESEARCH INTO AUTONOMOUS VEHICLES

As a result of the successful trial of the CIR sensor, Örebro University has now purchased a sensor to further facilitate the extensive research of autonomous vehicles in harsh environments.

The AASS team will be using the radar in several applications, including construction, mining and forestry robotics, as well as industrial indoor applications where visibility may be low due to mist or smoke.

### ABOUT NAVTECH SENSORS

Navtech Radar has been delivering high-performance sensors for industrial environments since 1999.

The Navtech CIR sensor is unique in its ability to provide high-resolution, 360° data from a compact and industrial-grade unit, that requires zero maintenance and has very high reliability.

Navtech's intelligent, innovative radar technology provides reliable detection and monitoring for a wide range of applications, driving towards a future of full industrial automation and optimum productivity.

## Benefits



### Increased uptime

Unrivalled availability, able to perform whatever the conditions.



### Improved safety

Designed for mission-critical applications where safety is essential.



### High quality

Built and designed in Oxford by radar experts for the past 20 years.



### Easy to install

Compact design with Software Development Kit for quick integration.



### Robust design

Designed for long-term automation projects in the harshest environments.



### Cost-effective

Unlike traditional mining operations, radar sensors reduce the need for manned operators.



### Low maintenance

Zero maintenance or cleaning with recommended five-year service interval.



### Fully automated

Reliable detection, high-resolution imaging, 360° scanning capability.



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