PRESS RELEASE

5G-Drive's innovations acknowledged by the European Commission's Innovation Radar

2021 started with good news for 5G-Drive with three of its innovations recognised by the EU Innovation Radar and the institutions behind them identified as Key Innovators, namely, VTT Technical Research Centre of Finland, University of Kent, University of Surrey, and University of Luxembourg.

The following three innovations stemming from the project work have been selected, joining 3600+ EU-funded innovations already showcased on the Innovation Radar Platform:

1. *Exploiting Gas Stations for Avoiding Location Tracking in Connected vehicles*, classified as 'exploring'
2. *C-V2X-based Intersection Safety Application for Automated Passenger Car*, deemed as 'business ready'
3. *Indoor Communication and Positioning Measurement for the Support of Localization and Navigation within Building Complexes Supported by a Mobile Robot,* classified as 'exploring'.

Uwe Herzog, responsible for the overall coordination of the project and liaisons between the Project Consortium and the European Commission commented, "As project coordinator, I am very glad that three innovations generated in 5G-DRIVE have received recognition by the EC's Innovation Radar. It is a great honour for the four partners recognised as Key Innovators and the project as a whole. Listing of these innovative 5G-DRIVE project results on the Innovation Radar portal will give them the public attention they deserve."

Innovation 1

Innovation Name: C-V2X-based Intersection Safety Application for Automated Passenger Car

Market Maturity: Business Ready

Key Innovator behind: VTT Technical Research Centre of Finland

Brief description: This innovation is dedicated to enabling automated driving in urban environments, especially at intersections where typical vehicle sensors have limited range. Making left turns at an intersection is particularly complex since the decision-making vehicle requires information about the status of the traffic lights, pedestrian crossings, powered-two-wheelers, etc. The C-V2X/5G based Ue

modules are used to extend the vehicle's situation awareness by connecting the passenger cars, motorcycles, traffic lights, and road-side sensor devices, which translates into lower latency. In addition, 5G connected OBUs and RSU provide data flows to MQTT based data brokers to increase vehicle awareness before entering to the C-V2X coverage zone - about 500 m ahead of an intersection.

Main features:

- C-V2X connected vehicles for sensor data sharing
- Support for left turning at intersections in urban areas
- Avoiding accidents even if cars/road users are not following traffic rules
- V2X based status message of traffic light priorities
- MAP data for planning automated passenger car trajectories
- MQTT based data broker for aggregating intersection sensor data and status messages to the database

Technological novelty:

- An algorithm for automated passenger car trajectory planning
- C-V2X based positioning data sharing and estimating time-to-collision to avoid accidents
- Measurement tool to optimize the right communication channel in terms of latency and network coverage

Key Innovator's message:

"Such recognition from the EC's Innovation Radar platform has further proven 5G-DRIVE's ambition and commitment in bringing innovation to the European and global markets, contributing as high notes to the collection of the project's achievements towards its final stage."

Dr. Matti Kutila, VTT's Research Team Leader

Innovation 2

Innovation Name: Exploiting gas stations for avoiding location tracking in connected vehicles

Market Maturity: Exploring

Key Innovator behind: University of Luxembourg

Brief description: This innovation is about exploiting gas stations to avoid location tracking in connected vehicles. The novel method exploits gas stations for executing the Vehicular Location Privacy Zone (VLPLZ) procedures to break the location tracking of connected vehicles. Leveraging software-defined networking and artificial intelligence, the innovation also considers the optimal and dynamic execution of VLPZ procedures within gas stations to ensure their service continuity and to minimize travelling costs of vehicles.

Key Innovator's message:

"This innovation is empowered by next-generation technologies to allow gas stations to become a practical solution to protect the location privacy of drivers in the era of connected vehicles.

The 5G-Drive project cares about your location privacy, pioneering the vision of Next Generation Gas Stations to avoid vehicle tracking."

Prof. Dr. Thomas Engel, University of Luxembourg

Innovation 3

Innovation Name: Indoor Communication and Positioning Measurement for the Support of Localization and Navigation within Building Complexes Supported by a Mobile Robot

Market Maturity: Exploring

Key Innovators behind: VTT Technical Research Centre of Finland, University of Kent, University of Surrey

Brief description:

Indoor positioning becomes increasingly important to offer brand-new location-aware services and to improve the performance of wireless networks in buildings. The indoor positioning platform in this innovation supports 3G/4G/5G, WiFi and UWB technologies. The platform takes the advantage of wheeled robots equipped with Lidar to obtain precise reference positioning. The digital twin has been integrated to support visualisation and analysis of multiple devices. The positioning platform allows scenarios on multiple floors with different types of positioning and communication technologies. The positioning algorithms cover signal strength, time difference, fingerprinting with correlation, genetic and neural networks, and sensor-based methods

Key Innovator's message:

"VTT have been working on wireless positioning technologies and algorithms since 1997. Positioning is becoming a very promising technology in the 5G era. We are glad to see our work receives this level of recognition."

Dr. Tao Chen, the technical manager of 5G-DRIVE

About the 5G-DRIVE project

5G-Drive is the Horizon 2020 project, coordinated by Eurescom (Germany) that includes 16 additional partners from industry and academia from several European countries. The project has been established to trial and validate the interoperability between European and Chinese 5G networks operating at 3.5 GHz bands for enhanced Mobile Broadband and 3.5 and 5.9 GHz bands for V2X scenarios.

Several project activities, including the definition and implementation of trials are done in parallel with the Chinese twinning project led by China Mobile: 5G Large-Scale Trial.

About the Innovation Radar

The Innovation Radar is the European Commission's data-driven method focused on the identification of high potential innovations and the key innovators behind them in EU-funded Research and Innovation projects. It has the goal of creating a steady flow of promising tech companies that can scale up into future industrial champions. The information about EU-funded innovations and their market readiness is visible and accessible to the public via the Innovation Radar Online Platform (also available as a smartphone app).

Additional Resources

Learn more about 5G-Drive project

Contacts

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Read more news about the project – https://5g-drive.eu/news/
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Learn more about the Innovation Radar

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