



PRoPART

Precise and Robust Positioning
for Automated Road Transports



European
Global Navigation
Satellite Systems
Agency



PROPART

Precise and Robust Positioning
for Automated Road Transports



HORIZON 2020

PROPART FINAL DEMONSTRATION EVENT

AstaZero, 2019-11-21

Stefan Nord

RISE Measurement Science and Technology



PRoPART Final Demonstration Event – Agenda



Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration

PRoPART Final Demonstration Event – Agenda



Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration

PRoPART Final Demonstration Event – Agenda



Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration

PRoPART Project Presentation and Highlights

- **Call:** Applications in satellite navigation – Galileo
- **Topic:** GALILEO-1-2017: EGNSS Transport applications
- **Budget:** ~3.5 M€
- **EU Grant:** ~3.0 M€
- **Project start:** 2017-12-01
- **Project End:** 2019-11-30

Project acronym:	PRoPART
Project title:	Precise and Robust Positioning for Automated Road Transports
Grant Agreement Number:	776307
Programme:	H2020-GALILEO-GSA-2017 (H2020-GALILEO-GSA-2017-1)
Contract type:	Innovation Action
Start date of project:	2017-12-01
Duration:	24 months

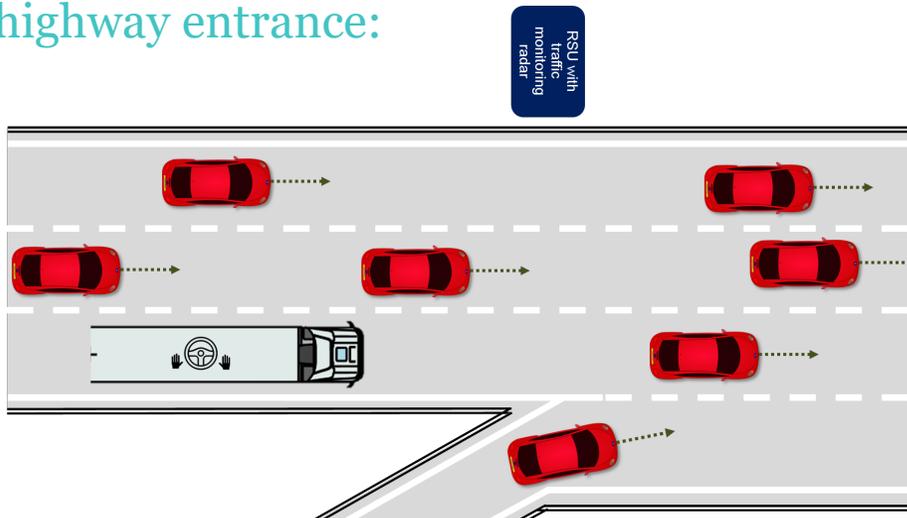


HORIZON 2020

PRoPART Project Presentation and Highlights

- The starting point of the project was the final event of the H2020 project AUTONET2030 at AstaZero in October 27 2016.
- The idea was to develop a robust positioning solution using a use case that AUTONET2030 did not have time to do:
 - A connected cooperative automated vehicle application:

Crowded highway entrance:



Connected Automated Driving that shares sensor data with other vehicles and the infrastructure requires **reliable absolute positioning and accurate time.**

PRoPART Project Presentation and Highlights

- PRoPART has developed and enhanced an existing RTK (Real Time Kinematic) software solution developed by Waysure, by **exploiting the distinguished features of Galileo signals(*)** as well as **combining it with other positioning and sensor technologies**.



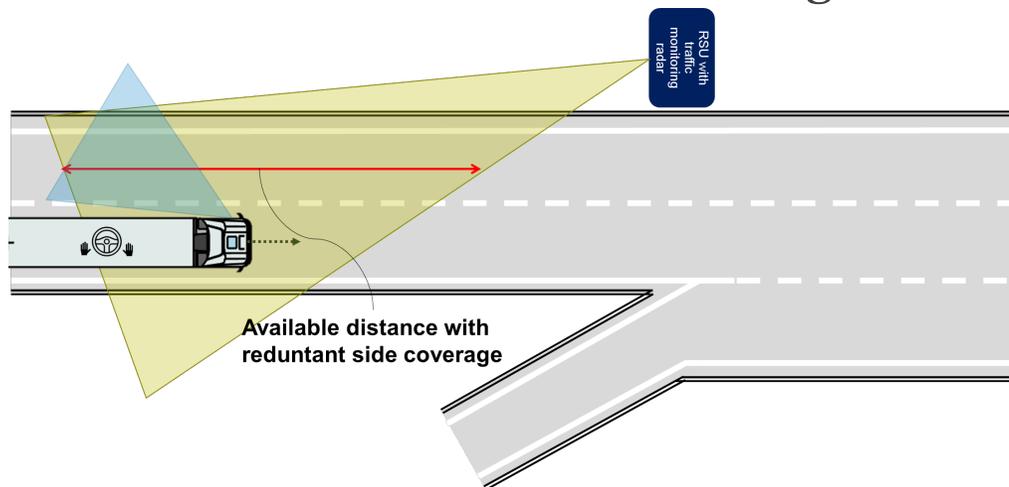
PRoPART has also investigated a **low-cost Ultra Wideband (UWB) ranging solution for redundancy** and robustness in areas where the coverage of GNSS is poor e.g. in tunnels or in urban canyons.



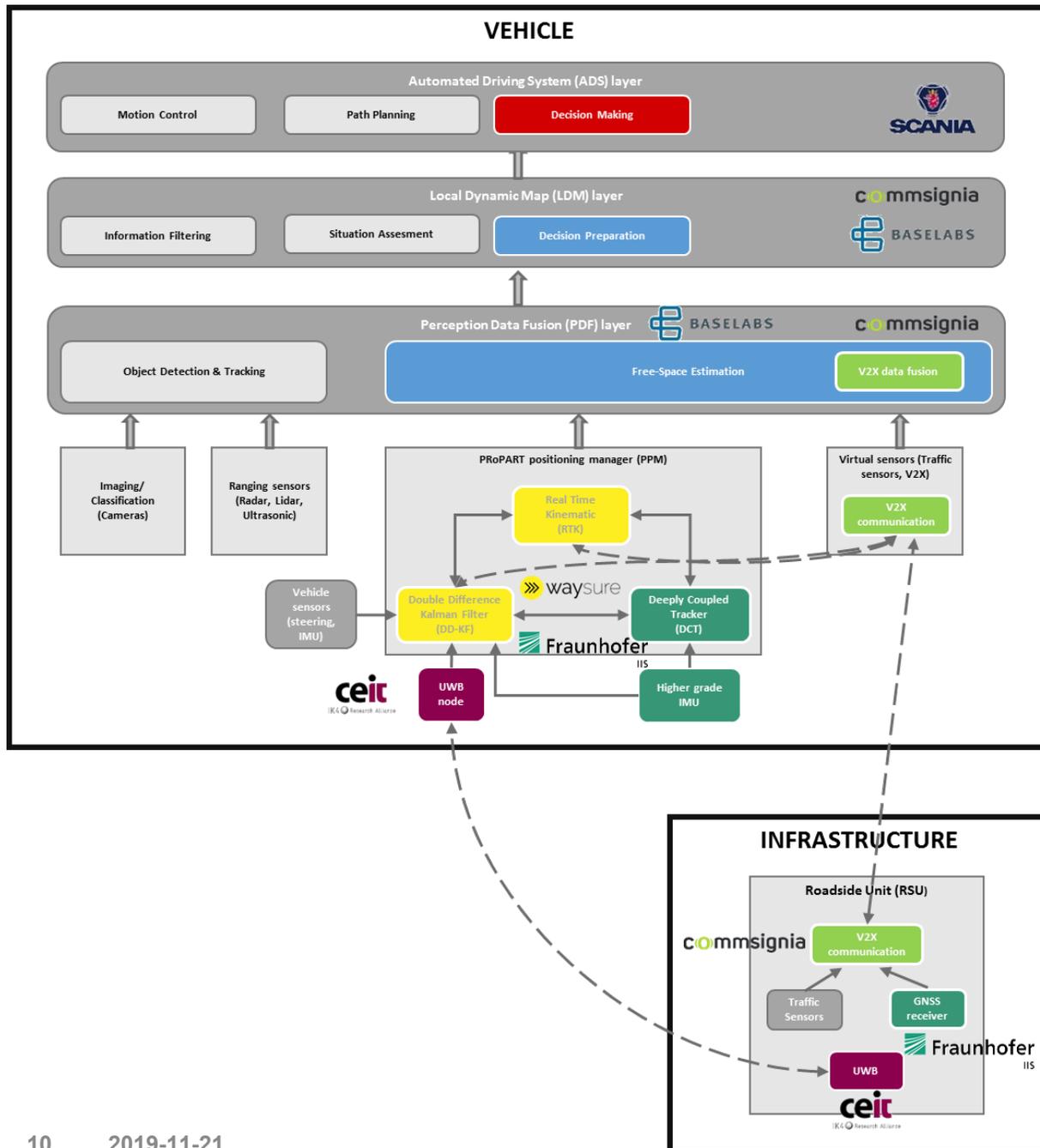
- (*) Utilise Galileo specific features in combination with other GNSS systems. Particularly:
- Higher multipath mitigation because of Binary Offset Coding.
 - Substantial improvement of the reliability of the carrier phase ambiguity resolution using E5AltBOC

PRoPART Project Presentation and Highlights

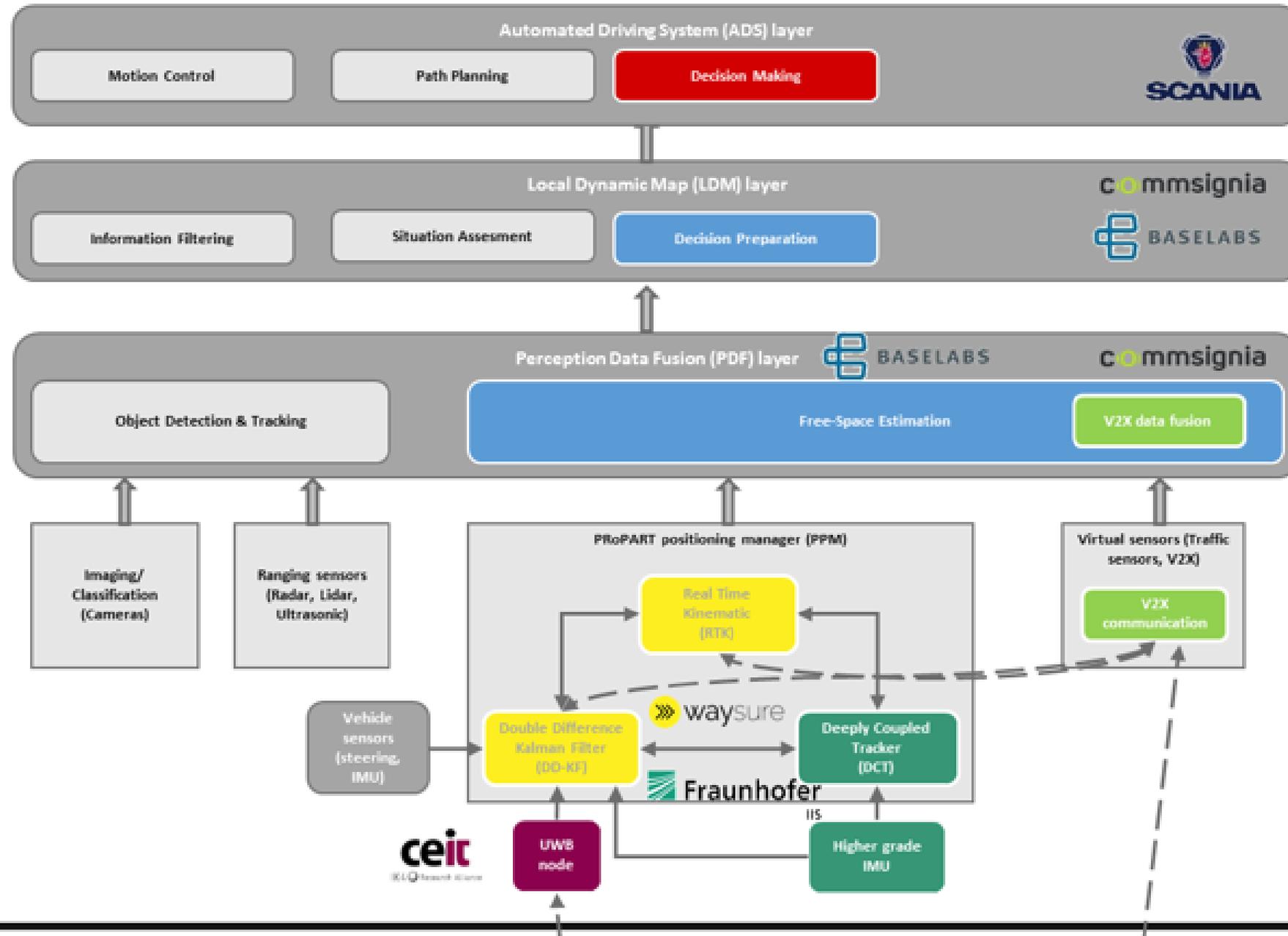
- During a transition period, a lot vehicles will neither be connected nor automated.
- **PRoPART has implemented an RSU (Road Side unit)** with high precision positioning that uses **both UWB and a traffic monitoring radar sensor** that supplies ranging, object perception **and EGNSS RTK correction data** via ETSI ITS-G5 to the connected automated vehicle so it can make safe decisions based on robust data.
- **PRoPART has also implemented perception layer sensor fusion** that uses information collected in the LDM (Local Dynamic Map) from the RSU:s as well as information from the on-board vehicle sensors and the high availability positioning solution.

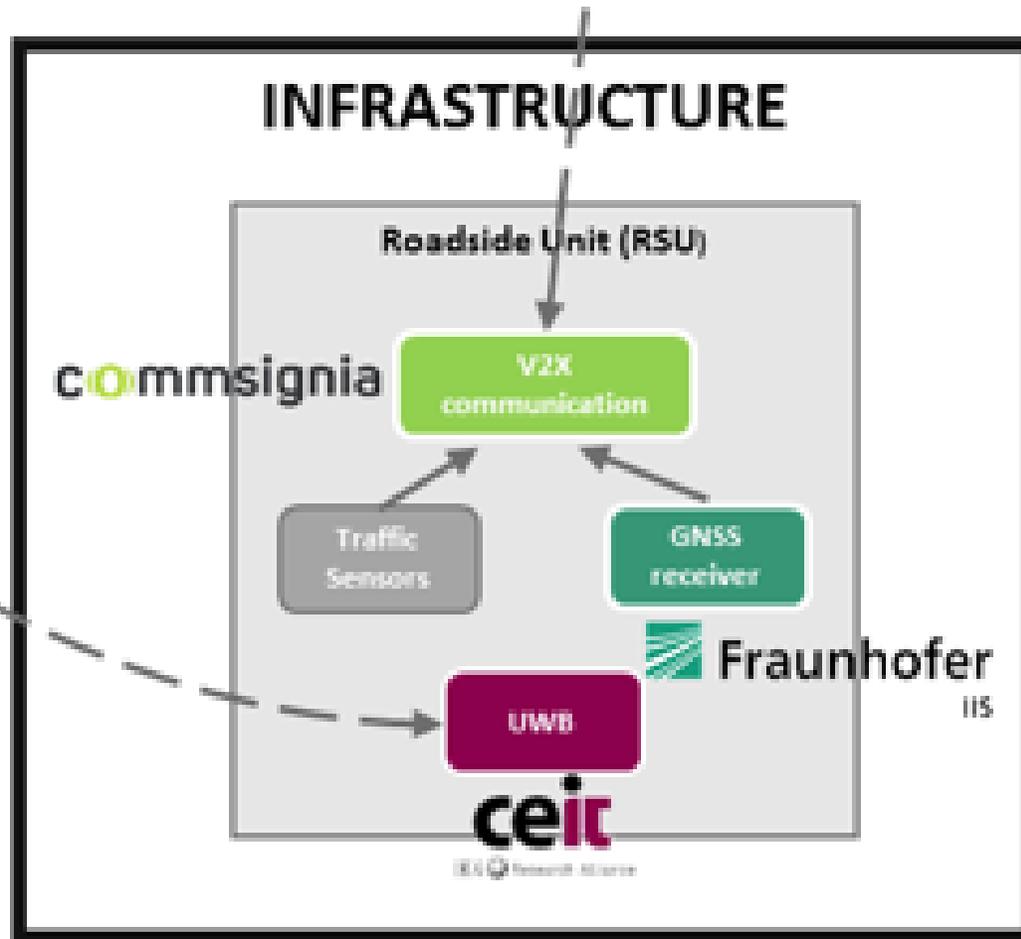


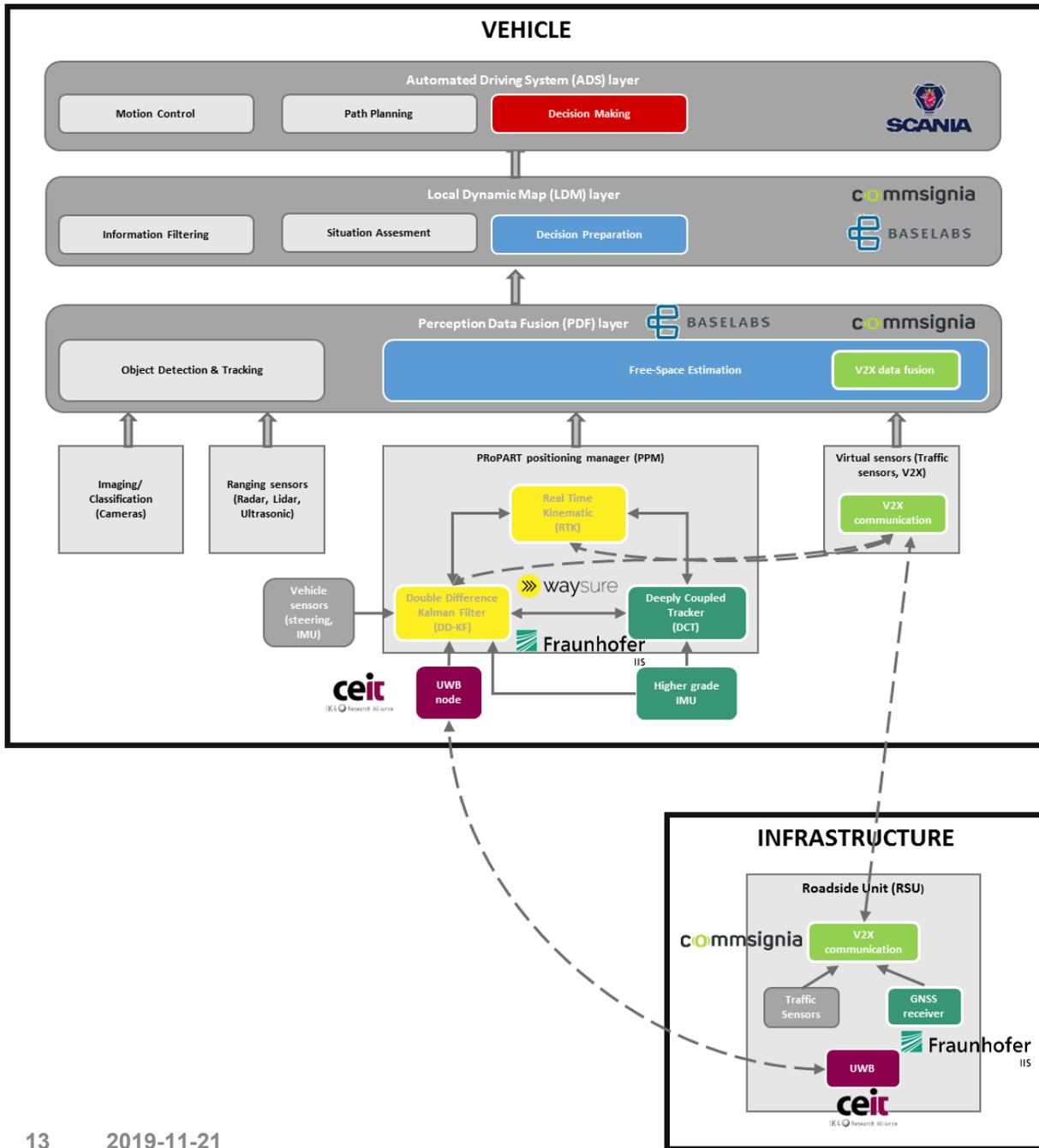
PRoPART System Diagram and partner contributions



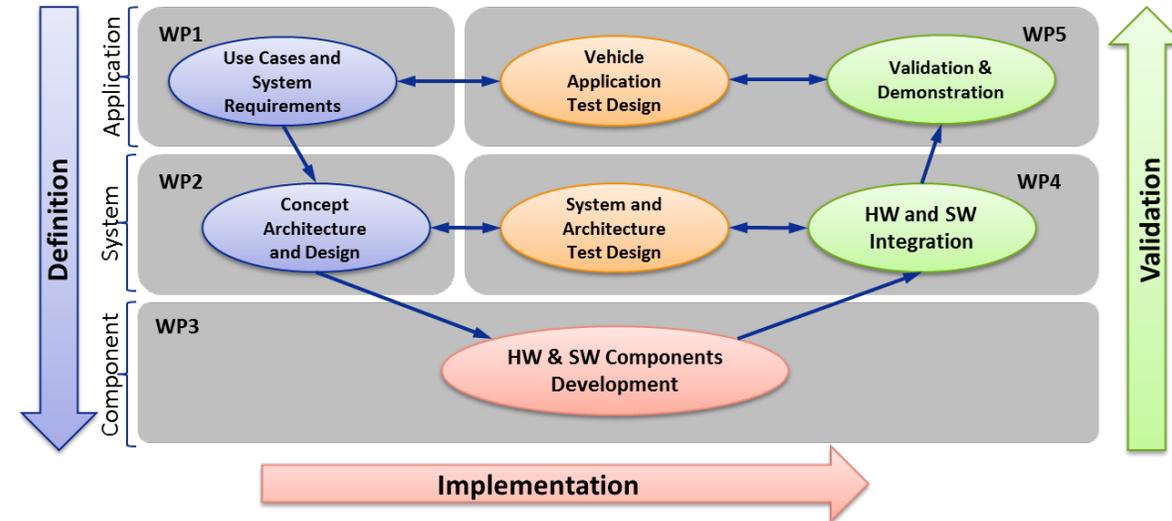
VEHICLE







PRoPART System Diagram and partner contributions



PRoPART Final Demonstration Event – Agenda



Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration

PRoPART Final Demonstration Event – Agenda



Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration

PRoPART Final Demonstration Event – Agenda



Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration



PRoPART Final Demonstration Event – Agenda



Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration

PRoPART Final Demonstration Event – Agenda



Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration

PRoPART Final Demonstration Event – Agenda

Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration



PRoPART Final Demonstration Event – Agenda

Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration



PRoPART Final Demonstration Event – Agenda

Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration



Instructions for Demonstrations

- You either belong to group A or B (check your badge!)

12:30-13:30	Group A: Lunch
	Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration
	Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus)
	Group B: UWB Demonstration

- Group A goes for lunch
Group B follows guide to bus transport to Multilane Demo.
- Group A follows guide to UWB Demo by walking.
Group B goes with bus back to Seminar location for lunch.
- Group A follows guide to bus transport to Multilane Demo.
Group B follows guide to UWB Demo by walking.
- Group A and B meet at Seminar location for networking Coffee



We are here!
(Seminar)

UWB
Demo

Bus pick up for
Multilane Demo

Instructions for Demonstrations

- Put on a yellow vest!
- Follow your guide and stay with your group!
- Respect the time schedule
- Photo restrictions apply due to ongoing tests at other test tracks!!!
(only dedicated people with photo permit)
- Smoking is not allowed!!! (only at designated area outside seminar building.
- Enjoy!

PRoPART Final Demonstration Event – Agenda

Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration



PRoPART Final Demonstration Event – Agenda

Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration



PRoPART Final Demonstration Event – Agenda

Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration



PRoPART Final Demonstration Event – Agenda

Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration



PRoPART Final Demonstration Event – Agenda

Time	Item
09:00-09:30	Registration / Welcome coffee
09:30-09:40	Welcome and Agenda <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
09:40-10:00	PRoPART Project Presentation and Highlights <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
10:00-10:20	PRoPART Galileo role and benefits <i>Mr. Matthias Overbeck, Group Manager Precise GNSS, Fraunhofer IIS</i> <i>Mr. James Tidd, CEO, Waysure</i>
10:20-10:40	Vehicle Platform and Application <i>Mr. Fredrik Hoxell, Development Engineer, Scania</i>
10:40-11:10	Networking Coffee Break (with roll-ups / exhibition)
11:10-11:30	PRoPART Positioning Solution <i>Mr. James Tidd, CEO, Waysure</i> <i>Ms. Katrin Dietmayer, Software Development Engineer for Satellite Navigation Receivers, Fraunhofer IIS</i>
11:30-11:50	PRoPART Cooperative Perception Concept <i>Mr. András <u>Varádi</u>, Research Program Director, <u>Commsignia</u></i> <i>Mr. Liang Zhang, Project and Business Development Manager, <u>Baselabs</u></i>
11:50-12:10	UWB Ranging Concept <i>Ms. Ainhoa Cortés, Associate Director of Electronic Systems and Communications Group, CEIT-IK4</i>
12:10-12:25	EGNSS Outlook and Opportunities <i>Mr. Flavio <u>Sbardellati</u>, Market Development Technology Officer at European GNSS Agency (GSA)</i>
12:25-12:30	Instructions for Demonstrations <i>Mr. Stefan Nord, Senior Research Project Manager, RISE</i>
12:30-13:30	Group A: Lunch Group B: Multilane Demonstration (to Multilane with bus)
13:30-14:30	Group A: UWB Demonstration Group B: Lunch
14:30-15:30	Group A: Multilane Demonstration (to Multilane with bus) Group B: UWB Demonstration
15:30-16:30	Networking Coffee Break and F2F meetings (with roll-ups and exhibition)
16:30	End of PRoPART Final Demonstration





PROPART
Precise and Robust Positioning
for Automated Road Transports



THANK YOU!

Stefan Nord

stefan.nord@ri.se

+46 70 511 5931



European
Global Navigation
Satellite Systems
Agency

"This project has received funding from the European GNSS Agency under the European Union's Horizon 2020 research and innovation programme under grant agreement No 776307".

RISE Measurement Science and Technology

www.propart-project.eu



PRoPART

Precise and Robust Positioning
for Automated Road Transports



European
Global Navigation
Satellite Systems
Agency