

Deliverable

D6.12 Final Demonstration M24

Version: 1.0 Due: 2019-11-15 Completed: 2019-11-27

Project co-funded by the European GNSS Agency (GSA) within the H2020 Framework Programme		
Dissemination level		
PU	V Public	
PP	Restricted to other programme participants (including the Commission Services)	
RE	RE Restricted to a group specified by the consortium (including the Commission Services)	
со	Confidential, only for members of the consortium (including the Commission Services)	



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".



Authors

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RISE	Stefan Nord

Consortium Members

Organisation	Abbreviation	Country
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Scania CV AB	SCANIA	Sweden
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Asociacion Centro Tecnologico Ceit-IK4	Ceit-IK4	Spain
Baselabs GmbH	BL	Germany
Commsignia KFT	CMS	Hungary
Waysure Sweden AB	WS	Sweden

Document history

Planned revisions:

Version	Description	Date
0.1	First Draft	2019-11-19
0.2	Added agenda, text and pictures	2019-11-25
1.0	Final version submitted	2019-11-27





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1. Summary

This deliverable contains the report from the PRoPART Final Demonstration held at AstaZero premises outside Borås November 21st 2019 in project month M24, covering the report and pictures from the event. The Agenda and Description of the event can be found in Chapters 2 and 3. In Chapter 4, a list of attendees can be found.



FIGURE 1 THE VENUE FOR THE PROPART FINAL DEMONSTRATION EVENT: ASTAZERO PROVING GROUND



Figure 2 Attendees arriving to AstaZero for the PROPART Final Demonstration Event Nov 21^{st}





2. Agenda



PRoPART Final Demonstration Event

21.11.2019 at AstaZero Proving Ground outside Borås

November 21, 2019 09:00 - 16:30 CET

Venue: AstaZero Proving Ground, Göksholmen 1, 504 91 Sandhult, Sweden Meeting room: Enso

AGENDA:

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





Time	Item
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





3. Seminar

At 09:00 AM on Thursday November 21st, around 70 attendees gathered at the registration desk at AstaZero Proving Ground outside Borås in Sweden to pick up their badges and to get a cup of coffee to start networking with other attendees. In the Enso conference room, roll-ups at the far end could be found, describing key topics and achievements from the project as well as a live demonstration of the OS-NMA functionality, created as a service and tool to prevent spoofing of Galileo satellites. At 09:30 the seminar part of the event started with the project coordinator, Mr. Stefan Nord from RISE, welcoming the attendees and by presenting the agenda. He then gave a project presentation with highlight by first showing the PROPART project movie and then by giving some basic facts about the project and its scope.



FIGURE 3 THE PROPART COORDINATOR MR. STEFAN NORD FROM RISE PRESENTS THE PROJECT.

After this introduction, Mr. Matthias Overbeck presented the Galileo role and benefits within the PRoPART project. Worth to mention was the overview of the usage of the E5AltBOC signal as well as OS-NMA. The last presentation before the networking coffee break was given by Mr. Fredrik Hoxell from Scania who presented the vehicle platform and application selected to drive the positioning requirement within the project. He also described the vehicle system and its components.



FIGURE 4 MR. FREDRIK HOXELL FROM SCANIA PRESENTED THE VEHICLE PLATFORM AND APPLICATION.





After the networking coffee break Mr. James Tidd, the CEO of Waysure, presented the details on the PRoPART Positioning Manager (PPM) and with help from Ms. Katrin Dietmayer who also explained the concept of the Deeply Coupled Tracking (DCT) – Vector Tracking.



FIGURE 5 LEFT: MR. JAMES TIDD FROM WAYSURE. RIGHT: MS. KATRIN DIETMAYER FROM FRAUNHOFER IIS.

The PRoPART Cooperative Perception Concept was then presented by Mr. András Varádi from Commsignia and Mr. Liang Zhang from Baselabs. Mr. Varádi started with a general introduction of V2X and then moved on to describe the maneuvering requirements that the PRoPART use case put on C-ITS and the concept of "Free Space Distribution" and the needed Collective Perception Service. He then elaborated on the Road Side unit and Traffic Monitoring concept chosen by PRoPART and the novel services of V2X roadside infrastructure needed. After this, Mr. Zhang presented the contributions from Baselabs consisting of an Environmental Model and Situation Assessment needed to represent the surrounding environment by fusing data from truck and traffic sensors.



FIGURE 6 LEFT: MR. ANDRÁS VARÁDI FROM COMMSIGNIA. RIGHT: MR. LIANG ZHANG FROM BASELABS.





The final PRoPART presentation was given by Ms. Ainhoa Cortés from Ceit-IK4. She covered the concept of using UWB ranging as an additional positioning sensor solution in situations where GNSS is blocked e.g. under bridges or in tunnels.



FIGURE 7 MS. AINHOA CORTÉS FROM CEIT-IK4 PRESENTED UWB RANGING CONCEPT DEVELOPED IN PROPART

The final presentation was given by Mr. Flavio Sbardellati from GSA, who also is the Project Officer for the PRoPART project. Mr. Sbardellati presented the EGNSS Outlook and Opportunities in his presentation "Autonomous Driving powered by Galileo".



FIGURE 8 MR. FLAVIO SBARDELLATI FROM GSA PRESENTED "AUTONOMOUS DRIVING POWERED BY GALILEO"





4. Demonstrations

After the seminar was finalized, the attendees were divided in 2 groups in order to have a smooth demonstration. The demonstration consisted of 2 main parts:

- 1. UWB Demonstration
- 2. Multilane demonstration

UWB Demonstration

The UWB demonstration was carried out on the "Garage Plane" in proximity of the reception building. Here the attendees were presented a demonstration that showed the possibilities of UWB ranging and its accuracy compared with GNSS-RTK in combination with sensor data fusion. The demo was built on the RISE RC car platform which gave the audience a close look and feel for the technology. The demonstration was prepared by Mr. Benjamin Vedder and Mr. Joel Svensson from RISE, with support from Javier San Martin from Ceit-IK4.



FIGURE 9 PICTURES FROM THE UWB DEMONSTRATION AT ASTAZERO "GARAGE PLANE"





Multilane Demonstration

The Multilane Demonstration showed the Scania Automated Lane Change application enabled by PRoPART developed technologies. The abilities were demonstrated by using 3 different scenarios:

- 1. "Gap and Merge" Two cars in the left lane gradually creates a gap and when the system considers the gap large enough, an automated lane change is performed.
- 2. "Overtake and Merge" One car in the left lane temporary blocks the lane for the truck, but after accelerating creates a gap and an automated lane change is performed
- 3. "Block" One car in the left lane continuously blocks the lane and the truck will not perform an automated lane change.

Before the demonstration, the attendees had a chance to have a look on the truck and its sensors.



FIGURE 10 PREVIEW OF THE SCANIA TRUCK AND ITS SENSORS AND ANTENNAS

Then they were taken to the top floor at the Multilane Control Tower and were introduced to the different scenarios and what to expect during the demonstration. Offline simulations based on previous logged data from real test drives were shown.



FIGURE 11 LEFT: USING PRO-SIVIC TO VISUALIZE THE SCENARIOS. RIGHT: UWB SENSOR RECORDINGS.





After that, the 3 scenarios were shown. In order to enhance the visualization, video was streamed from the truck cab as well as from one of the cars. At the same time, the scenario was also visualized with real time positioning on a 3D-simulation. After the demonstration session attendees gathered at the reception to have a networking coffee break and to give time for additional questions and for the coordinator to give some interviews. At 16:30 pm the event was closed, and the attendees left the premises. For more information, visit the project website at www.propart-project.eu.



FIGURE 12 LEFT: USING PRO-SIVIC TO SHOW IN REALTIME. RIGHT: PERCEPTION LEVEL FUSION.



Figure 13 Live streaming video from the truck and one of the cars







FIGURE 14 THE FULL PROPART TEAM BEHIND THE SUCCESSFUL DEMONSTRATION EVENT.



FIGURE 15 LEFT: PROJECT OFFICER MR. SBARDELLATI TOGETHER WITH PROPART PROJECT COORDINATOR MR. STEFAN NORD. RIGHT: PROJECT REVIEWERS MR. NARANJO AND MR. KARAMIDAS TOGETHER WITH MR. SBARDELLATI.





5. List of Attendees

Firstname	Lastname	Affilitation
Adam	Eriksson	AstaZero
Ainhoa	Cortés	CEIT
Alexander M	Mitelman	RISE Research Institutes of Sweden
Andréa	Vorádi	Commains I td
Andras	varadi	Commisignia Lta
Andrea	Schenk	Commsignia
Anna	Larsson	RISE Research Institutes of Sweden
Ashok	Krishna	Volvo Cars
Bas	Oremus	Scania CV AB
Ben	Spencer	Route One Publishing
Benat	Bobera	Scania CV AB
Benjamin	Vedder	RISE Research Institutes of Sweden
Carl-Henrik	Hanquist	RISE Research Institutes of Sweden
Caratan	Disek	
Carsten	Rieck	
Charis	Chamalis	Scania
Christian	Strobel	Fraunhofer Institute for Integrated Circuits IIS
Christoffer	Norén	Scania CV
Claes	Winzell	RISE Research Institutes of Sweden
David	Enberg	Waysure Sweden AB
Dimitrios	Karadimas	Vision Business Consultants
Eilert	Johansson	RISE Research Institutes of Sweden
Frik	Steinmetz	RISE Research Institutes of Sweden
Erik	Frick	ActaZaro
Elin	r nut	
Flavio	Suardellati	
Fredrik	Harrysson	RISE Research Institutes of Sweden
Fredrik	Hoxell	Scania CV AB
Gergely	Regula	Commsignia Ltd.
Henrik	Clasen	Aptiv
lain	Clarke	OxTS
lsak	Tiernberg	Waysure
Jacob	Landelius	Antiv
lamos	Tidd	Waxeura Swadan AP
James	Cojudo	Cait IK4
Javier	Cejudo	
Javier	San Martin Iniguez	
Joel	Svensson	RISE Research Institutes of Sweden
Jonas	Fredriksson	ESI Nordics AB
José	Naranjo	Universidad Politécnica de Madrid
Karl	Redbrandt	Scania CV AB
Katrin	Sjöberg	Scania
Katrin	Dietmayer	Fraunhofer Institute for Integrated Circuits IIS
Kenneth	Östberg	Cvd ab
Laszlo	Virag	Commsignia
Laura	Dal Col	Scania CV AB
Leticia	Zamora Cadenas	Ceit
Liana	Zhang	Basalahs GmbH
Magnus	Eak	Valvo Car Corporation
Magaius		
Warcello	CIFIIIO	Scania
Marcus	Olsson	Relox Robotics AB
Marcus	Obst	Baselabs GmbH
Matthias	Overbeck	Fraunhofer Institute for Integrated Circuits IIS
Mattias	Landgren	Einride
Mikael	Nilsson	Volvo Cars
Niklas	Lundin	Einride
Oscar	Jaldehag	RISE Research Institutes of Sweden
Philip	Gertzell	APTIV
Philippe	De Souza	ESI Group
Pär	Degerman	Finride
Pichard	Englund	RISE Research Institutes of Sweden
Runa	Whiten	Value Care
Russ	Willion .	Volvo cars
Rustem	EIEZOVIC	
Samien	Alissa	Lantmateriet
Soheil	Bashirinia	ESI Nordics AB
Stefan	Nord	RISE Research Institutes of Sweden
Stefanos	Kokogias	Scania
Toni	Hille	Baselabs GmbH
Tony	Gustafsson	Zenuity
Torbjörn	Persson	Provinn
Truls	Nyberg	Scania CV AB
Vandana	Narri	Scania
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