Sweden 4 Platooning
TS AF Result conference
2020-09-16

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Presentation agenda

• What is platooning?
• Why Platooning
• Why Multi Brand Platooning
• Project Facts
• Sweden4Platooning Project Video
What is platooning?

- A train on rubber tyres hooked up with an electronic tow bar

- Wireless communication directly between vehicles to exchange status information

- First vehicle driven manually, following vehicles automatically controlled longitudinally or both longitudinally and laterally

CAM:

PMM:

CAM: Cooperative Awareness Message

PMM: Platooning Management Message

Platooning variants:

- Manual following
  - First vehicle driven manually, following vehicles automatically controlled

- ACC
  - Radar and camera communication

- CACC
  - Radar and camera communication with additional electronic components

- CAM + PMM
  - Radar and camera communication with additional electronic components
  - On-board services: Through-view (V2V) Platooning Talk (V2V) Joining procedure
Why Platooning

- Improve safety
- Improve traffic flow / road capacity
- Improve fuel economy & reduce CO2
- Improve transport efficiency by platooning with fully automated follower trucks (driver in the first vehicle only)
- The driverless following vehicles will have efficient and safe monitoring by an operator: The driver in the lead truck!
- Paving the way for driverless heavy vehicles on public roads
Why Multi Brand Platooning

- Transport companies fleet is of mixed brands
- Increases platooning impact
Project Facts: the project

3 year project:
2017-01-01 to 2019-12-31
(EUTS part prolonged to 2020-12-31, KTH performing research)

➢ A joint project between 6 partners
  ➢ Volvo Technology Corporation
  ➢ Scania CV AB
  ➢ DB Schenker AB
  ➢ RISE ICT
  ➢ KTH (Royal Institute of Technology)
  ➢ Trafikverket (Swedish Transport Administration)

➢ Budget: 39 MSEK of which 18 MSEK was funded by FFI
  Split between 2 programs
  ➢ TSAF Traffic Safety and Automated Vehicles 4.6 MSEK
  ➢ EUTS Efficient Connected Transport Systems 13.4 MSEK
Project Facts: S4P way of working

8 work packages addressing different aspects of platooning:
- WP1 Project Management
- WP2 Use cases and functional safety
  - Define the overall use case scenarios, e.g., activation, join, leave, maintain, dissolve platoon
  - driver <-> driver and driver<->system interactions
  - Functional safety aspects of platooning
  - Hazard analysis of system-of-system
- WP3 On-board functionality
  - Communication hardware/software, minimum performance requirements, user interface
- WP4 Off-board functionality
  - Investigating when/where/how platooning should be performed
- WP5 Pilot and evaluation of CACC
- WP6 Demonstration of platooning
- WP7 Business modelling
- WP8 Dissemination
  - Standardization, publishing of research results in journals and at conferences, workshops

The cooperation between all partners was excellent!
Project Facts: results, main achievements

➢ The project has performed a pilot study where a transport company (Nordanå Transport AB) transported freight on public roads (Malmö-Jönköping) with cooperative longitudinal controlled vehicles, one Volvo and one Scania.

➢ The S4P V2V communication protocol has been handed over to the EU project ENSEMBLE. (All European truck brands develops and performs multi brand platooning tests)

➢ Cloud based services and business models for Platooning (still under progress).
Project Facts: results, main achievements

➢ Business models analysis: Article “Truck Platooning Business Case Analysis”

➢ Demonstration of dual brand semi-autonomous platooning, with active driver in the first vehicle only was performed at AstaZero.
Sweden4Platooning

Link to S4P Final Conference 2020-03-11

Show the video
Thank you for listening!
**Project Facts: results, publications**


