Automated shuttles and getting around in snow and ice – connected and automated vehicle activities in Finland

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**START YOUR AUTOMATED VEHICLE TESTS IN FINLAND TODAY**

- Testing of all automated vehicles (SAE levels 1–5) is possible in road traffic in Finland using a test plate certificate and associated test plates.
- Fast and interactive approval process.
- The vehicle must have a driver inside or outside the vehicle.
- The test plate certificate holder must submit a report to Trafi on the trial results describing e.g. how the trial plan was implemented, and whether any deviations were encountered.
- First test plate certificates granted in July 2016, 7 certificates given out so far.

www.trafi.fi/automated_vehicle_trials

**AUTOMATED DRIVING 24/7/365**

1. Automated shuttles supporting public transport
   - For the fifth year running, automated shuttles are operated on Finnish city streets.
   - Projects like Sohjoa, aIGO, RoboBusLine and FABULOS have gathered experience on shuttle operation in public traffic, and regular automated shuttle lines are planned for 2018–2020 in Helsinki and Espoo.
   - Both cities have set a goal to have automated shuttles in operation as part of their public transport system by 2020.

2. Automated winter driving
   - Testing and validating complete Level 4 autonomous driving system in Arctic open road conditions
   - LIDAR based positioning in environment without land marks, lanes or built environment
   - Positioning accuracy and repeatability, UWB tech requirements and winter weather impact studied
   - Distance error of ±27 mm achieved in UWB aided positioning

   Improving positioning on snowy roads using radar reflectors
   - Snow has a very strong influence on the detectability of radar reflectors
   - Road side furniture (poles etc.) can not be effectively used as radar reflectors on its own

   Automated driving functions and 5G networks
   - Automated valet parking
   - Receiving supporting information using 5G prototype networks
   - Seeing through fog using LIDAR

**CONNECTED DRIVING WITH HYBRID COMMUNICATION**

- Pilot deployment of C-ITS utilising cellular networks as the basic communication infrastructure
- Key results
  - Services were well accepted
  - If high uptake is achieved, societal benefits expected
  - Benefits come from the reduction in number of accidents
  - Relatively inexpensive and easy to deploy
  - Main challenge will be to get drivers to use the service
- Development still needed for safe use
  - More analytics needed to ensure reliable warnings

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