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Automated driving
Fully automated vehicles

Draft Consolidated Resolution on the safe deployment of highly and fully automated vehicles

Submitted by France, Germany Japan, Netherlands, Spain, and United Kingdom of Great Britain and Northern Ireland

This document aims at contributing to an annotated outline prepared by the WP.1 Chair on the basis of Informal documents no. 1, 4, 14, and 15 and other relevant documents submitted to the September 2017 WP.1 session.

THE GLOBAL FORUM ON ROAD TRAFFIC SAFETY OF THE UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE,

RECOGNISING the potential for the safe deployment of automated road vehicles technologies to improve road traffic safety, mobility, and other socio-economic factors, both in ways that can now be foreseen and in ways that cannot yet be predicted, that could help to deliver the United Nations Sustainable Development Goals, and desiring to avoid further obstacles that could impede the development of such beneficial technologies,

CONSIDERING the impact of new vehicle technologies on the main goals of both the Convention on Road Traffic done at Geneva on 19 September 1949, and the Convention on Road Traffic done at Vienna on 8 November 1968, that have contributed to, and will, significantly and promisingly, contribute to reducing the number of fatalities and injuries caused by collisions,

BEARING IN MIND that the Conventions should not hinder the safe deployment of highly and fully automated vehicles,

DESIRING to establish greater uniformity globally on domestic regulations relating to the deployment of highly and fully automated vehicles, to improve road safety and mobility, and facilitate international road traffic,

RECOMMENDS Governments to eliminate potential divergences as far as possible, and to incorporate into their domestic legal framework provisions which could recognise the principles set out below,

FURTHER RECOMMENDS Governments, which are not yet able to ratify, or accede, to either international instruments, nevertheless apply the provisions of those instruments, and this consolidated resolution, forthwith to the fullest extent possible.

Preamble

1. The Consolidated Resolution is intended to guide Parties to the Convention on Road Traffic done at Geneva on 19 September 1949, and the Convention on Road Traffic done at Vienna on 8 November 1968 (after this: Geneva and Vienna Conventions), with respect to the safe deployment of highly and fully automated vehicles and their automated driving systems, to support the enhancement of road traffic safety, mobility and socio-economic progress.

2. This Resolution does not supersede the legal obligations arising from the Conventions and their subsequent Protocols.

3. Rather, this Resolution represents a new approach, respecting and complementing the provisions of the Geneva and Vienna Conventions by applying their principles in the context of highly and fully automated vehicles, so they can be used safely. It also makes further recommendations on issues outside the scope of the Conventions.

4. These provisions will evolve as technology develops, and as experience and evidence accumulate regarding the deployment of automated vehicle technologies. As this Resolution is continually under development, the explicit inclusion of a principle or topic should not be construed as the implicit exclusion of any other. Nor does it prevent the development of binding legal instruments on similar topics if this is deemed necessary in the future.

5. Therefore, governments [including those at a sub national level] should work with civil society and industry to ensure that the principles outlined in this Resolution are incorporated into their domestic traffic frameworks in a way that recognises their specific context.

Definitions

1. For the purposes of this Resolution the following expressions shall have the meanings hereby assigned to them:

(a) "Automated driving system" means the combination of hardware and software that can exercise dynamic control of a vehicle on a sustained basis, regardless of whether it is limited to a specific operational design domain;

(b) "Highly automated vehicle" means a motor vehicle equipped with an automated driving system which will require a driver to exercise dynamic control to begin, or complete, the journey when the automated driving system is not active;

(c) "Fully automated vehicle" means a motor vehicle equipped with an automated driving system, which can exercise dynamic control of the vehicle for an entire journey. Such a vehicle may also offer a manual mode, allowing a driver to exercise dynamic control of the vehicle;

(d) "Strategic control" means carrying out the functions such as trip scheduling, and selection of destination of waypoints and destination, and choosing whether to activate or deactivate the automated driving system;

(e) "Dynamic control" means safely carrying out all the real-time operational and tactical functions required to move the vehicle.

General Provisions

2. The driver's ability to control a vehicle can be made up of two elements[1]: the strategic; and the dynamic (tactical and operational).

3. A driver should, at all times, be able to exercise strategic control and may:

(a) exercise dynamic control; or

(b) engage the automated driving system.

4. Governments and industry should ensure that drivers are aware of how to properly operate their automated vehicle, including not engaging the automated driving system outside of its prescribed capabilities and within its operational design domain.

5. When engaged, the automated driving system should prioritize road safety, endeavour to compensate for human errors, including those of other road users, as far as possible. Such systems should also comply with applicable domestic traffic rules, including those referring to:

(a) safe interaction with other road users, including with road traffic safety, and law enforcement, authorities; and

(b) maintenance of smooth traffic flow and safe performance of any manoeuvre.

Drivers of Highly and Fully Automated Vehicles

6. When the automated driving system is engaged, the driver of a highly automated vehicle should adapt their behaviour based on the functionalities of that system, according to its designed and given capabilities and limitations, and in conformity with applicable traffic rules. This also applies to drivers of fully automated vehicles if they choose to exercise dynamic control.

7. If the driver does not adapt their behaviour to these functionalities, the automated driving system should be able to continue operating safely.

8. A driver should possess the necessary skills and capability to drive an automated vehicle. Governments should create or adapt the necessary legal permits as set out in regional, national or domestic legislation for driving road vehicles, so that this can be demonstrated.

Conditions of Vehicles

9 Governments should work with industry so that automated vehicles are in conformity with any applicable international or domestic law for the construction, technical certification, and registration of vehicles. These laws should include provisions for appropriate, and consistent, Human Machine Interfaces [for communication with both the driver, and occupants of automated vehicles, and with other road users].

10. Governments may need to adapt vehicle registration, safety inspection and other requirements as appropriate for highly and fully automated vehicles. Confirmation that the automated driving system complies with national road traffic rules, including after any update, may be needed.

11. A highly or fully automated vehicle should record the necessary data to determine if the automated driving system is engaged, especially in case of an unexpected event that could impact road traffic safety such as a collision or violation of traffic rules. This data should be recorded, secured and made available, in accordance with regional or domestic privacy regulations, as necessary.

Further Recommendations

12. Governments should review their liability regimes to deal with events such as a traffic rule violation or a collision, when the automated driving system is engaged.

13 To facilitate international road traffic, governments:

(a) should make all applicable traffic rules regarding the deployment of highly and fully automated vehicle readily available; and

(b) may wish to co-ordinate such regimes with other countries insofar as this is practical or possible.

14. It is recommended that governments:

(a) define domestic provisions for the licensing and safe operation of highly and fully automated vehicles;

(b) support, with specific educational measures, the safe interaction of other road users with automated vehicles to reduce safety risks; and

(c) research the efficacy of automated driving systems with respect to improving road safety and mobility.

Final Provisions

15. THE FORUM INTENDS that this resolution will improve road safety, mobility, and other socio-economic factors, act as a way of continuing to improve international traffic, and thus benefit one and all.

DONE at Geneva on .2018.

[1] http://jamichon.nl/jam_writings/1985_criticial_view.pdf, and http://standards.sae.org/j3016_201609/