



中国汽车技术研究中心有限公司

China Automotive Technology and Research Center Co., Ltd.

FRAV 3rd Task Report

“Other Road User”

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General Workplan and Milestone

Date	Topic & Target	Contacts	Online Meeting
May	Define the ORU category that an ADS may encounter	Yanhui Yu (CARTAC) yuyanhui@catarc.ac.cn Please feel free to send feedback and comments for ORU classification and definition no later than May 1 st .	Friday 30 April, 2021, 14.30 – 16.00 CET If you like to attend the meeting, please send an email to yuyanhui@catarc.ac.cn

For each specific ORU that ADS could encounter during DDT, our task should provide the following information according to the steps:

Step 1 (May): Define a term for each ORU we categorized, based on its internal properties and safety concerns associated with ADS (example raised in FRAV: police officer)

Step 2 (June): Clarify ADS safety needs regard to different ORU (example: cases where police officer may need to know if ADS engaged)

Step 3 (July): Define the general ADS safety requirements corresponding to ORU's safety needs (example: ADS vehicle should have an indicator of the ADS status for police officers)

Current Consensus

- Safe ADS interactions with other road users (ORU) depend upon the physical, functional, and/or behavioral properties of these ORU. Therefore, ADS requirements should address safety needs raised by these properties or attributes.
- In some instances, the definition of ORU categories based on common properties may be useful in defining safety requirements.
- The work stream should consider the safety needs of individual ORU cases and define terms for categories of ORU as useful in defining the safety requirements.
- Proposes five main categories for ORU (“vehicles”, “pedestrians”, “cyclists”, “animals”, and “obstacles”). “vehicles”, “pedestrians”, and “cyclists” should be covered, but FRAV should consider whether animals and obstacles should be included within to the scope of ORU.
- Category “vehicles”, “pedestrians”, and “cyclists” (and, if needed, “animals” and “obstacles”) require further breakdowns.

ORU Enumerations

Category	Subclass	Enumerations	Further views	
vehicle	Common Vehicle/ Emergency Vehicle/ Special Vehicle	<ol style="list-style-type: none"> 1. Passenger cars 2. Buses 3. School buses 4. Trams 5. Goods vehicles 6. Dangerous goods vehicles 7. Long, large vehicles 8. Vehicles transporting protruding cargo 9. Vehicles towing trailers 10. Vehicles towing combination trailers 11. Special convoys, slow-moving vehicles 	<ol style="list-style-type: none"> 12. Caravans/recreational vehicles, including towing trailers 13. Agricultural vehicles 14. Fire trucks 15. Ambulances 16. Police vehicles 17. Rescue vehicles 18. Street sweepers 19. Road sprinklers 20. Training cars 21. Cranes, NRMM 22. Other automated/connected (V2V) vehicles 23. Disabled (broken down) vehicles 	<ol style="list-style-type: none"> 1. The breakdown depends upon the physical, functional, and behavioral properties of the subsets and their relevance to ADS safety and performance. 2. Traffic laws may be relevant to the definition of ORU categories. 3. Consider the diversity of cases in order to identify common properties that can be the basis for defining categories.

ORU Enumerations

Category	Enumerations	Further views
Pedestrian	<ol style="list-style-type: none">1. Child pedestrian2. Adult pedestrian3. Persons with disabilities4. Hearing-impaired pedestrians5. Visually-impaired pedestrians6. Road-work crews7. Police officer (on foot)8. Police officer (in vehicle)9. Persons directing traffic10. Persons pushing strollers11. Persons in wheelchairs12. Motorists on the roadside (stranded vehicles, changing tire)	<p>Pedestrians share the common property (of being human beings traveling on foot), however the properties of special groups (children, adults, police officers, road-work crews, persons with disabilities plus variations such as persons in wheelchairs, with impaired hearing or vision, pushing a stroller or walking an animal, etc.) raise elements that may be important to safety.</p>

ORU Enumerations

Category	Enumerations	Further views
Cyclist	<ol style="list-style-type: none">1. Bicyclists2. e-Bike users3. Skaters (roller, skateboard)4. Motorcycles5. Mopeds/scooters6. Powered three-wheelers7. Quadricycles	

ORU Enumerations

Category	Enumerations	Further views
Animals	Small size animals	Neither “animals” nor “obstacles” are willful road users or would be expected to consciously interact with an ADS vehicle. Therefore, need FRAV to confirm whether these categories need to be addressed under “other road users”.
	Medium size animals	
	Large size animals	
Category	Enumerations	
Obstacles	Stationary vehicles	
	Debris	
	Construction equipment	

Summary & Next Step

- ☐ Elaboration of ORU category table (Request for comments from FRAV stakeholders);
- ☐ Determine whether “animals & obstacles safety topics” should be considered within the scope of ORU task;
- ☐ Form safety needs related to the categories based on the FRAV topics;
- ☐ Gather inputs;