SAAM

Swiss Association for
Autonomous Mobility

Swiss Association for Autonomous Mobility **(SAAM)**

Context

Since 2015, over 29 automated vehicles have been operating in Switzerland, making it one of the most AV-oriented countries in Europe.

Challenges

- Bundling and use of synergies
- Communication between stake holders
- National cooperation

Pilot projects in Switzerland

tpg	Belle-Idée – GE	SwissMoves	Fribourg – FR	embotech	Zürich – ZH
MBC	Cossonay – VD	BERNMOBIL	Bern – BE	swisstransitlab	Schaffhausen – SH
EPFL	Lausanne – VD	SBB CFF FFS	Zug – ZG	Zugerland Verkehrsbetriebe	Zug – ZG
P	Sion, Uvrier – VS	tpf	Marly – FR	VBZ Zürich Linie	Zürich – ZH
FH Berner Fachhochschule	Bern – BE	DTC Dynamic Test Center	Vauffelin – BE	swisscom	Zürich – ZH

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The path to deploy Autonomous Mobility in Switzerland

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Cooperating

- Build up & bundle competencies
- Dialog with federal & regulation offices

Sharing

- Gathering data & information
- Interdisciplinary working groups

Implementing

- Use Cases
- Road safety as a priority premise

Current Members

All Major Mobility Actors Under One Roof

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Automobil Club der Schweiz · Automobile Club de Suisse · Automobile Club Svizzero
amag
auto schweiz suisse · MENSCHEN · MÄRKTE · MOBILITÄT
BERNMOBIL
BASEL ERFAHREN · BVB
ETAT DE FRIBOURG · STAAT FREIBURG · Service de la mobilité SMo · Amt für Mobilität MobA
REPUBLIQUE ET CANTON DE GENEVE
Canton of Zurich · Department for Economic Affairs · Office for Economy
CERTX
DTC · Dynamic Test Center
embotech
ETH · Eidgenössische Technische Hochschule Zürich · Swiss Federal Institute of Technology Zurich
n|w · Fachhochschule Nordwestschweiz
Flughafen Zürich
GESTE
helbling
Hes·so · VALAIS WALLIS
holo
LOXO
mobility
movinno
PAVE EUROPE
pix moving
Planzer
P
SBB CFF FFS
swisscom
SwissMoves
swisstransitlab · solutions for smart cities
TCS
TGA · TECHNISCHE GESELLSCHAFT ARBON
Verkehrsbetriebe Biel · Transports publics biennois
tpf
tpg
UNIVERSITÉ DE GENÈVE
VBZ · Züri Linie
VCS Verkehrs-Club der Schweiz · ATE Association transports et environnement · ATA Associazione traffico e ambiente · vcs ate ata
vnl · SCHWEIZ · VEREIN NETZWERK LOGISTIK
VÖV UTP · Verband öffentlicher Verkehr · Union des transports publics · Unione dei trasporti pubblici
VVST · VERSICHERUNGEN · ASSURANCES
WeRide
Zugerland Verkehrsbetriebe
zhaw

Industry | Road organisations | Public transport operators | Start-ups | Universities & Research Institutions

Vision

Switzerland's future mobility system is shared, intermodal, connected and sustainable. Automated driving is an integral part of the overall mobility system and will be partially orchestrated. It will be developed and operated in a customer-oriented and integrative way, ensuring safety and international interoperability.

Mission

As the leading AV platform in Switzerland, SAAM aims to:

- Strengthen the AV ecosystem in Switzerland
- Facilitate the deployment of new mobility services
- Spread public and political awareness
- Accompany new policies

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SAAM

A Fun, Thriving And Dynamic Organization

Ambitions

- Funding Models
- Implementation
- International network & ranking
- Knowledge sharing
- Legal framework
- Organisation
- Public Awareness
- Technology development

SAAM Days

- Project pitching
- Brainstorms in groups
- Introduction of new members
- Presentations from stakeholders
- Ambition Working Groups
- Field trips

Projects & Working Groups

- Project initiation
- Project developments
- Cash & in-kind contribution
- Interdisciplinary Working Groups on specific topics

Board of Directors

SAAM
Swiss Association for Autonomous Mobility

Hans Wicki

Council of States – Nidwalden

President of SAAM

Emilio Frazzoli

ETH Zurich

Professor of dynamic systems

Jürg Wittwer

Touring Club Switzerland (TCS)

Chief Executive Officer

Dominique Scheller

PostAuto

Head of Development & Innovation

Robert Bichsel

Siemens Mobility

Product Owner

Marc Châtelain

Transports publics genevois (TPG)

Chief Operating Officer

Marco Fuster

BERNMOBIL

Head of Corporate Development

Thomas Probst

University of Fribourg, SwissMoves

Professor of Law

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Federal Ordinance on Automated Driving (OAD)

What's now allowed in Switzerland?

Automatisiertes Fahren auf Nationalstrassen

- Autopilot may be activated
- Releasing the steering wheel is allowed
- The driver must be able to take control of the vehicle immediately

Automatisiertes Parkieren

- No driver needed in designated parking areas
- Applies to marked spaces or lots
- Authorised by local/cantonal authorities

Fully Driverless Vehicles

- Allowed on approved routes authorised by cantonal authorities
- Remotely monitored by control centers based in Switzerland
- EU Type approval 2022 or exemption for Switzerland

Projects in Switzerland

Autonomous Airport Shuttles

Self-driving shuttle bus for employees connecting key areas of Zürich airport via a dedicated route. WeRide shuttle

Autonomous Passenger Vehicles in Furtaal

Introducing a dozen autonomous vehicles and shuttles in the Furttal region near Zurich to further develop public transport.

LOXO Alpha

First driverless vehicle in Europe authorised to run on public roads, delivering goods from a supermarket to a commercial areas close by.

Autonomous Bus in Arbon

Explores the use of autonomous electric buses to connect Arbon's historic old town with key locations , medical centers, and cultural institutions.

AV Shuttles integrated in PT - ULTIMO

On-demand, shared, door-to-door automated shuttles integrated into the TPG's public transport network at the Belle-Idée site in Geneva.

Automated Ride Pooling

Feasibility study for the deployment of automated ride-pooling vehicles in the canton of Zug, aiming for implementation by 2025.

Autonomous Transports to Dynamic Hubs

Planzer's and LOXO's pilot project introduces autonomous vehicles to optimize parcel delivery in cities, transporting goods from central hubs to transfer points.

Autonomous Bus Depots

Introducing the first viable autonomous bus depot: "AutoDepot". This approach relies on intelligent infrastructures, safe movements and remote supervision.

Remote Supervision

Definition of requirements and conditions to remotely supervise automated vehicles in Switzerland and corresponding training programs.

Switzerland : the place to be.

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Legal framework
Driverless vehicles are permitted to operate in Switzerland.

Research & Development
Switzerland comprises the best universities worldwide and state-of-the-art technologies in AVs.

Proven track record
With already 20+ automated vehicles operating, Switzerland is ready to welcome more.

Political Stability
The Swiss neutrality gaves way to an open market and a stable geopolitical environment.

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Simple access to market

› SAAM is the central contact point for all activities in the field of automated mobility in Switzerland.

› This allows direct & easy access to this thriving environment.

Membership Advantages

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Active Membership — CHF 20’000/year

- **SAAM Days:** Monthly workshops to present activities, propose projects, and brainstorm.
- **Exclusive Updates:** Newsletters and SAAM Day recaps.
- **Expert Support:** Access professional advice.
- **Projects:** Initiate projects with SAAM’s ecosystem.
- **Resources:** Access SAAM documents, articles, and mobility insights.
- **Event Discounts:** Exclusive rates for events and conferences.
- **Networking:** Connect with members and stakeholders.
- **Visibility:** Featured in SAAM’s communications materials.
- **Leadership:** Apply for a seat at SAAM’s Board of Directors.
- **Governance:** Take part in the General Assembly with voting rights.

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Projects in Switzerland

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Furttal Region – automated vehicles and shuttles

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This project seeks to bring autonomous vehicles onto the roads for passengers in the Furttal region - and thereby further develop public transport.

Status: Ongoing

Furttal Project

SBB CFF FFS · Kanton Zürich · swisstransitlab solutions for smart cities

- **Public Transport Enhancement:** Understand the added value of automated mobility in public transport and the business model (service models, costs, operations, and roles).
- **Key Areas of Operation:** Otelfingen, Boppelsen, Hüttikon, and Dänikon.
- **Expansion planned to additional municipalities:** 221 km route network
- **Vehicle Types:** Initially, up to four automated passenger cars with minibuses added in 2026.
- **Sensors & Remote Monitoring:** Advanced sensors and remote monitoring ensure safe and efficient operations.
- **Impact:** Enhanced public transport accessibility, operational efficiency, and scalable model for wider use.

Geneva’s 15 Automated On-Demand Shuttles

15 automated shuttles in the sub-urban areas of Geneva. The vehicles are integrated in the on-demand service provided by the “TPG Flex” - Geneva Public Transport (TPG).

Status: in progress

TPG – Belle-Idée site, Geneva

The only human interaction within the 100% automated system is the client who uses the vehicle.

- **100% on-demand**
- **Door-2-door**
- **Dynamic routing**
- **Ride pooling**
- **No timetable**
- **No fixed routers**
- **Virtual stop points**
- **Remotely supervised**
- **Goods delivery**

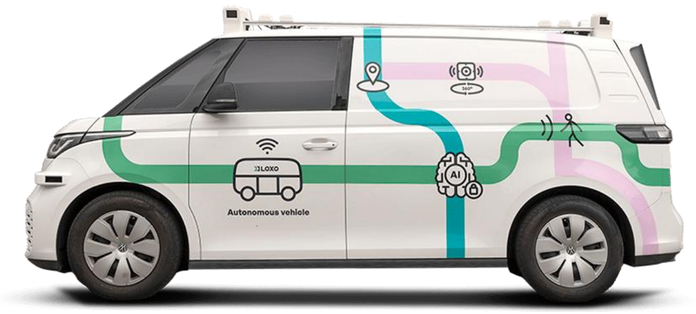
LOXO & Planzer – Dynamic Micro Hub

The Swiss parcel service 'Planzer Parcel' and the tech start-up LOXO are joining forces to test highly automated Level 4 driving (without safety driver in the second project phase) in Bern city centre. This project is adding a new sustainability dimension to city logistics, i.e. last-mile parcel distribution.

Status: in progress

LOXO

Retrofitting an existing commercial vehicle for urban logistics.



LOXO

- **Retrofitted Volswagen "ID Buzz" into an L4 automated vehicle.**
- **Two-year pilot in Bern with no safety driver in the second project phase**
- Vehicles with **interchangeable box chassis** for parcel distribution. transferring parcels to smaller electric vehicles for last-mile delivery
- Transport parcels from a **railway center** to **13 strategic points across a 67km network**.
- After the pilot, Planzer and LOXO plan to **expand the service to other Swiss cities**

Feasibility Study for 40 Ridepooling AVs

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Evaluation to integrate a fleet of automated ridepooling vehicles into Zug's transportation ecosystem

Status: on going

Zug Alliance On-Demand mobility

- Business Model
- Use case
- Integration with Public Transports
- Urban Planning
- Energy Targets

Self Controlled City Liner – 8.3 m Bus in Arbon

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The project explores the use autonomous electric buses to improve public transportation and connectivity within the city with mixed traffic — particularly between the historic old town, cultural sites, medical centers, lake boarder and municipal offices. The prove of the successful application of teleoperation to supervise and guide the bus from the control center is final target of the project

Status: First autonomus bus ride Aug, 14th, 2025

SCCL Project

TGA TECHNISCHE GESELLSCHAFT ARBON

STADT ARBON

EUROBUS

- **1st in Switzerland automated 8.3 m bus**
- **Enhance accessibility, particularly for the elderly and tourists, beeing fully handicapped accessible**
- **Act as a model for future urban transport**
- **Provide a flexible, scalable and cost-effective public transport system by using teleoperation**
- **Decrease shortage of bus drivers**

Zurich Airport's Self-Driving Shuttle for Staff

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Zurich Airport is launching one of Europe's first autonomous shuttle services within an airport, in partnership with WeRide. This initiative aims to build the regulatory framework for AVs on the airside while also improving employee transportation.

Status: in progress

- **Project Launch:** Pilot service begins Q2 2025, connecting employee areas via a dedicated route.
- **Shuttle Specs:** Fully autonomous Robobus from WeRide, seats up to 8 passengers.
- **Rollout Plan:** Starts with safety driver onboard; transitions to remote monitoring planned for 2026 (Level 4).
- **Partners:** Led by Flughafen Zürich AG with support from WeRide and in collaboration with Krummen & Kerzers.

LOXO – Migronomous

First driverless delivery vehicle remotely supervised in Switzerland.
This vehicle runs on public roads in Ebikon (canton Luzern), delivering autonomously the employees of Schindler with groceries from the Migros store located 1 km away. Groceries can be ordered using the Migros app.

Status: completed

LOXO

Order groceries and have them delivered to you by the LOXO Alpha vehicle.

LOXO

- **First driverless vehicle in Europe authorised to run on public roads.**
- **Automated goods vehicle** delivering at the **doorstep**
- The most **advanced sensors** with powerful algorithms to detect objects and people in a **360° view**.
- A trained human **teleoperator** monitors the actions of the vehicle fleet and can intervene in operations.
- The LOXO vehicle is engineered and built in **Switzerland**.
- The vehicle is **safe and compliant** to standards.

AutoDepot - Automated bus depot prototype

SAAM
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After a comprehensive pre-study that validated the economic, technological and legal feasibility for a viable automated bus depot concept, the next phase will aim to develop the first prototype. We are currently building a consortium of forward-thinking partners to bring this project to life. More information: AutoDepot project.

Status: initial consortium in progress

Automated Bus Depot prototype

Understanding the technological, economical and legal implications of automated bus depots.

SwissMoves

- **Intelligent infrastructure**: communicating with drive-by-wire buses
- **Controlled and safe movements**: max bus speed of 3 km/h
- **Remote supervision**: central management system oversees operations
- **Efficiency gains**: 1500 hours saved per year for a 100-bus depot
- **Cost savings**: CHF 600,000 saved annually per depot in Switzerland, over €1 billion across Europe
- **Enhanced productivity**: drivers focus on passenger service

Source picture: adobe stock

Ultimo – European Union project

The ULTIMO project will create the very first economically feasible and sustainable integration of AVs for MaaS public transportation and LaaS urban goods transportation. ULTIMO aims to deploy in three sites in Europe.

Status: Ongoing

A user centric holistic approach, applied throughout the project, will ensure that all elements in a cross-sector business environment are incorporated to deliver:

- **large-scale on-demand**
- **door-to-door**
- **well-accepted**
- **shared**
- **seamless**
- **Integrated**
- **and economically viable CCAM services**

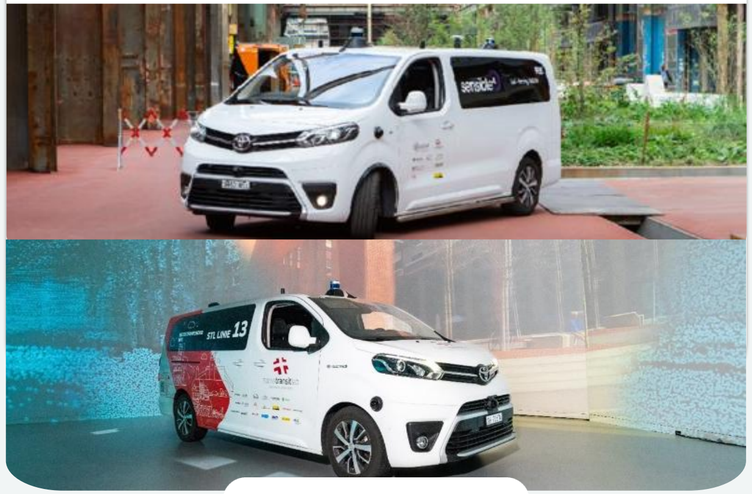
Line 13 - Retro-fitted automated shuttle in Schaffhausen

This vehicle launched by the Swiss Transit Lab covers a part of the city center of Schaffhausen. This dual-mode automated vehicle will serve the first and last miles. The service will constantly improve thanks to the close involvement with its users.

Status: completed

Dual-mode Bus In Schaffhausen – Line 13

Serving the "first/last mile" of the Schaffhausen public transport network.



swisstransitlab
solutions for smart cities

- **Operation running:** The bus has operated on public roads in Schaffhausen (Switzerland) from April 2023-Dezember 2024.
- **Robust operation:** By running in all weather conditions, Line 13 set new standards for automated driving in Switzerland.
- **Technology**: a Toyota vehicle retrofitted by Sensible 4.
- **Platform for more**: The bus is used to develop services for the mobility of the future.
- **Test platform**: companies and researchers can deploy their own technologies on the vehicle and thereby gain valuable insights.

The first luggage robot on public roads in Saas-Fee

PostBus has introduced a luggage robot for the first time on Swiss roads in the car-free city of Saas-Fee.
The vehicle received authorisation for remote supervision on public roads.

Status: completed

"Robi" luggage robot

Implementing a goods robot that follows its users from the bus to their destination.

- **Automated goods vehicle**
- **Last mile operation**
- Offers a local **Bus2Door mobility service** for travellers on foot and with luggages.
- The vehicle **follows its users** on foot until their destination.
- First vehicle on public roads that is **remotely supervised**.

EU Project: CHORUS

- Goal 1: coordination between the fleet management and the global traffic management.
- Goal 2: develop a standardised tool to facilitate decision making in mobility planification for decision makers.

Status: Project kick-off in June

CHORUS

- 20+ partners
- Project budget: CHF 8 million
- Swiss budget: CHF 2 million
- SAAM budget: CHF 300'000
- Duration: 4 years

Swiss ecosystem:

- Swiss coordination: SAAM
- Geneva: TPG, UniGe, Geneva canton
- Bern: Loxo, Planzer, SwissMoves
- Zürich: Planzer, ZHAW, Dietikon city, Zürich Canton

Source picture: adobe stock

EU Project: ERAS

ERAS prepares for the socio-economic transition to automated mobility by developing necessary skills, knowledge, and solutions to address job impacts and support an inclusive labor market using real life AV demonstrators.

Status: waiting for amendment.

- 12+ partners
- Project budget: CHF 2 million
- SAAM budget: CHF 115'000
- Duration: 2 years

- Evaluate use cases and their employment impacts.
- Model CCAM's labor effects
- Propose labor market interventions and reskilling programs.
- Identify regulatory barriers and recommend policy reforms for CCAM growth.
- Guide on leveraging project results

Source picture: adobe stock

TaaS – Transport as a Service (Digital Twin)

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The project aims to produce a Digital Twin for the future implementation of Transport as a Service (TaaS) and smart ecosystems in business parks and residential areas using automated, on-demand and safe transportation of people, goods and utilities.

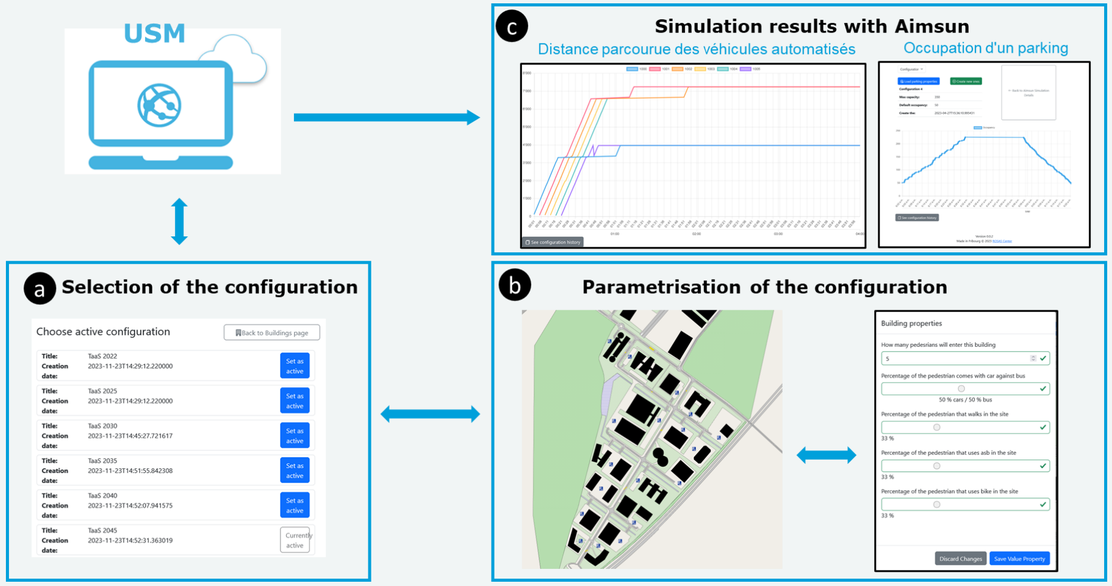
Status: completed

TaaS Digital Twin

A digital reproduction of an area to optimise its mobility system.

SwissMoves

- The **requirements** to implement smart mobility in a designated area are integrated in a **digital model.**
- The **digital model** helps to **analyse and validate the mobility system** using a **Universal Model Simulation (USM).**
- An **economic** and **legal** analysis complete the digital twin, enabling TaaS to **scale-up** and include all dimensions.



Further information :
- bulletin.ch
- Innosquare (video & poster)
- SwissMoves

Minimum requirements for the remote supervision of automated vehicles in Switzerland

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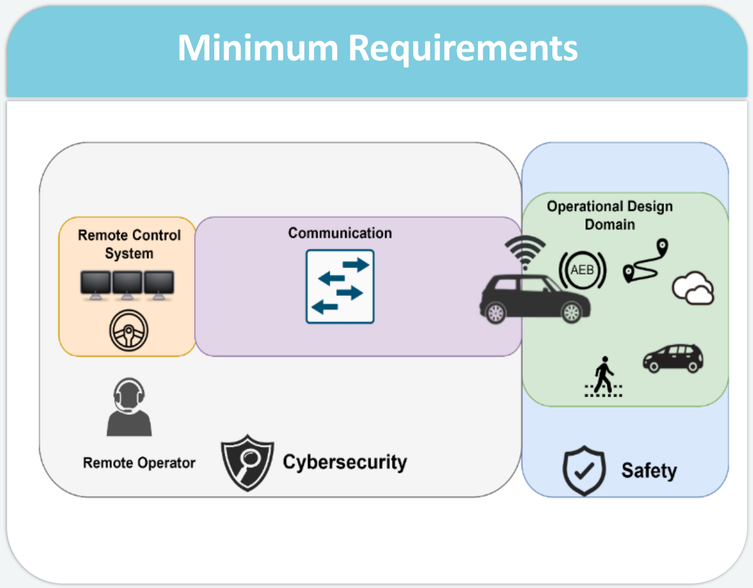
As of 1 March 2025, the Swiss Ordinance on Automated Driving (VAF/OCA) entered into force. This project focuses on the ordinance's third use case, which for the first time defines the minimum requirements for remote-operation systems to guarantee the safe and reliable running of automated vehicles. This use case concerns driverless vehicles that move without a driver on board but, under the ordinance, must be monitored in real time by an operator located in Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Status: completed



ROSAS Center Fribourg
HEIA-FR HTA-FR
SwissMoves

CERTX

LOXO

eraneos powered by AWK

Key findings:

1. **Latency tolerance**: Latencies of up to 850 ms do not impair manoeuvrability at low speeds (max. 6 km/h).
2. **Scenario Relevance**: The issue of false-positive obstacle detection was confirmed as a critical real-world problem but can be addressed with the current LOXO and BFH system
3. **Operator Challenges**: Targeted training is essential to handle high latencies and complex manoeuvres.
4. **Taxonomy**: A classification system for five Remote Operation Levels (ROL) was developed, distinguishing between Monitoring, Tele-assistance, Tele-operation, Tele-driving, and Remote Controller Driving

On-site Remote Driving without OEDR sensors | Teleoperation with OEDR sensors | Teleassistance

Remote Operation Level	ROL 1	ROL 2	ROL 3	ROL 4	ROL 5
Designation	Remote Controller Driving	Tele Driving	Teleassistance Operation L1	Teleassistance Operation L2	Monitoring
Task	Full control of the vehicle Act like a normal driver Communication	Full control on the vehicle Act like a normal driver Communication	Path drawing Speed control Lights or other control Communication	Path drawing Path confirmation Communication	Supervision Communication
DDT responsibility of operator	Full	Full	Speed application	None	None
OEDR responsibility of operator	Full	None	None	None	None
Remote driver support system active	Collision Avoidance System AEBS*	Collision Avoidance System AEBS*	Vehicle fully automated	Vehicle fully automated	Vehicle fully automated
Responsibility	On-site Operator	Remote Operator	Automated Vehicle	Automated Vehicle	Automated Vehicle
Operator location	< 6 m	On the territory	On the territory	On the territory	On the territory
Speed limitation	6 km/h	6 km/h	Road limitation	Road limitation	Road limitation
Operational safety criteria (MRM trigger)	Remote controller communication	Video latency Driving data command latency	ADS operational Internet connection	ADS operational Internet connection	ADS operational Internet connection
Typical situation	Tele Driving not possible - Bad Internet connection - Bad visibility through camera	Teleassistance L1 not possible - ADS not able to drive autonomously - Complex manoeuvre (e.g. put vehicle at the side of the road)	Teleassistance L2 not possible - Vehicle stationary for too long - Improve traffic flow - Priority agreement situation	Vehicle need confirmation or new path - System limitation - Obstruction on the driving path - Vehicle uncertainty - Complex situation	- Automated Vehicle in normal operation - Part of troubleshooting procedure

*AEBS = Advanced Emergency Braking System
*OEDR = Object and Event Detection and Response

Further information :
- SAAM Project-Info
- SAAM Blog Deep dive into
- SAAM Blog Driving Regulations OCA/VAF
- SwissMoves LinkedIn Post
- Full Research report