

Proving Ground Management System

Operating a proving ground at its highest level.

mm-lab

PGMS - the integrated solution



PGMS safety
involving all parties affected



PGMS efficiency
for customers and operators



PGMS operations
supporting all responsible parties

Safety is of paramount importance!

The mm-lab PGMS solution sets a new standard for safety and efficiency on Proving Grounds.

PGMS makes safety an integral part of business processes

- by immediate notification of the supervisory staff in case of safety-critical events
- thanks to the [unique collision awareness system CAVE!](#) on all test modules
- by recording safety-relevant data from test scenarios and test vehicles already starting with the registration of test drives
- by means of safety instructions for application engineers already at the customer's reception

Safety and efficiency are indispensable for a successful operation on test sites. The Proving Ground Management System (PGMS) of mm-lab supports operators to achieve their goals to the benefit of their customers. The unique collision awareness system CAVE!, Voice-over-IP based communication

and a wide set of operating functions form the basis of this comprehensive solution. The modular expandability of the PGMS results in a high flexibility for operators. Easily mountable On-Board Units (OBU) accelerate the installation process and connect test vehicles to the PGMS operation center. The PGMS

is adaptable to existing environments and can be completely integrated with the available infrastructure like barrier control, signaling equipment and IT systems for operation and administration.



Standardized applications or individual building blocks - the result is always an individually adapted end-to-end solution.



Collision Awareness (CAVE!)

... analyses all vehicle movements and increases safety by providing audio-visual warnings on the OBU. Even at limited visibility, test drivers receive a clear picture of their surroundings based on a high accuracy vehicle positioning with lane detection and vehicle maneuver prediction.



Safety Monitoring

... provides a carefully weighted set of information to the proving ground operator. This information enables the operator to immediately take measures according to the needs of the specific situation.



Access Control

... enables operators to control entries to the test tracks based on the booking data and the current utilization. Customers get informed on the resource status. Access control requires the PGMS OBU only and makes tags for barriers and gates obsolete.



User Management

... is an essential aspect of proving ground business. It enables customers to manage their user data by themselves and provides data access for authorized staff. Since user data are very sensitive data the PGMS User Management attaches great importance to data security.



Booking System

... provides customers an easy access to resources and services. They use the Booking System for requesting test tracks or other resources through the Customer Web Portal. The operator processes the requests through the integrated resource management.



Reception

... supports check-in and check-out procedures for handling of OBUs, keys, shipments and other resources. It is also capable to manage driving licenses and reminds of expired safety trainings.



Voice Communication

... enables voice connections between all parties on the proving ground. It supports announcements, individual communication and communication within a defined (closed) user group. OBUs offer hands-free calling and a high priority emergency call to ensure contact with the control center.



Text Messages

... allow operators to send written information and to request an acknowledgement by the recipient if necessary. As for the voice communication, text messages are sent in a regulated manner e.g. only addressing drivers of the high-speed track.



Video Observation and Surveillance

... ensures that operator staff is aware of incidents on test modules by using cameras, which are controlled from the operator console conveniently and precisely. For instance, cameras can be automatically directed to the vehicle that has raised an emergency call.



Customer Information

... allows proving ground operators to inform customers accurately and always up-to-date about the test facilities. Information is accessible through intranet, internet or on OBUs.



Vehicle Service Management

... allows proving ground staff to plan and register vehicle services such as small repairs or tire change. Services will later be billed to customers account for easy handling of performed work.



Accounting

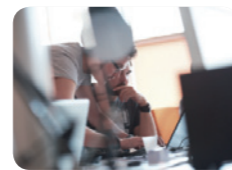
... takes care that invoices are comprehensible, transparent and available immediately. Price lists for tracks and other resources are easily managed and tracks are charged based on pre-defined tariff schemes.



and beyond the Proving Ground

...the PGMS also supports activities outside of the proving ground. Whether test vehicles have to be controlled or VIP events for vehicle presentation drives on public roads have to be organized – the PGMS offers adequate means for such applications.

The mm-lab team stands for in depth Telematics know how combined with a strong customer oriented approach.



Highly qualified engineers work on mm-lab solutions for proving ground management and special fleets. They combine their experience in key technologies such as communication, high-precision positioning and information technology with their expertise in the fields of geo-informatics, software development and software testing and integration.

An in-depth problem domain know-how and the collaboration with certified project managers allow mm-lab to act as a system provider in these areas and to offer customers comprehensive end-to-end-solutions that take into account the individual requirements and the existing system environment of the customers.

In addition, the mm-lab team supports customers through their engineering skills in the implementation of their own projects, particularly covering Telematics applications in the automotive sector and in special fleets.

The mm-lab team has proven track records at automotive manufacturers, suppliers, system providers, municipalities and special fleet operators.

mm-lab itself is certified according to ISO 9001:2015 and ISO IEC 27001:2013.

Telematics Solutions

mm-lab offers dedicated end-to-end solutions for

Proving Ground Management/ Test Management

- Proving Ground Management System
- CAVE! - Collision Warning
- External Test Management
- Driver Guidance

Special Fleets

- Waste Management
- Winter Service
- Street Cleaning
- Special Fleet Management

Telematics Services

mm-lab provides its special know how and experience to its customers

Engineering Services

covering different working areas e.g.

- Connected Vehicles
- Geo-Engineering / high-precision Positioning
- Communication
- Toll Collection

Consulting Services

- Business Process Analysis
- Tender Support
- Market Analysis
- Project Management



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