

PAVE-SCANNER SYSTEM: INTEGRATION BETWEEN LCMS AND LMM

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Siteco Informatica, the Sineco's software and system unit, developed the PAVE-Scanner system, integrating the Pavemetrics LCMS© with different Laser Mobile Mapping (Optech Lynx©, Riegl VMX450© and Siteco Road-Scanner©). The integration of the two high technology equipment, LCMS and Laser Mobile, provides big advantages for the pavement inspection (any infrastructure works, and street furniture) and the PMS applications.

The high-resolution 3D imagery provided by LCMS can be consulted simultaneously with the laser scans, thus improving the scan interpretation/comprehensibility.

The new PAVE-Scanner system has been developed together with the dedicated PMS-SIT software suite, for a complete project planning, execution and data delivery and can be applied for both road and airport pavements.

The post-processing software allows a fully automated production of all the georeferenced data sets: spherical imagery, point clouds, LCMS pavement 3d bit-maps, transverse profiles and rutting, longitudinal roughness IRI and Macrotexture data, cracking and other pavement defects geometry, PCI Pavement Condition Index according to ASTM standards for roads and for airports.

Based on a GIS environment, the PMS-SIT user interface provides the contextual consultation of all the data sets and a full control of the infrastructure maintenance status.

PMS-SIT is completely integrated in the software Road-SIT suite for the Road Information System which includes modules for the consultation of the georeferenced imagery and point clouds surveyed with Road-Scanner or other Mobile Mapping Systems.

With this approach the pavement is managed as an infrastructure component (like bridges, tunnels, guardrails, sidewalks, right of ways, etc.).

PMS-SIT SYSTEM: INNOVATIVE GIS PACKAGE FOR PAVEMENT MANAGEMENT

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PMS-SIT is a complete software application, developed in a GIS environment, for road and airport Pavement Management System. The user interface provides the contextual consultation of all data sets, a full control of the infrastructure maintenance status.

The first target of the application is to allow an effective and immediate monitoring, and the update of the pavement conditions.

The paved surface is organized in a hierarchical pavement grid map on 3 different levels: Branches, Sections and Sample areas.

Each area is associated with the different status indices: functional, structural, roughness, friction, etc.

The GIS representation allows a comprehensive view of the current and historical maintenance status, since all the previously collected inspection data are stored in the database.

PMS-SIT provides features for inserting the defects according to the ASTM 5340-12 and 6433/2003 international standards. They can be detected from the imagery or imported from the Pavemetrics automatic Laser Cracking Management System (LCMS).

The user can define different catalogs of Maintenance Activities, organized according to different criteria: structural or functional type, global or localized extension, etc. Each activity is associated with its unit cost and the impact on the various indices. PMS-SIT allows the assignment of routine maintenance activities to the different infrastructure sections/areas, in order to analyze the activity costs and extend the life cycle of the airport paved surfaces. The activity assignment can be carried out directly in the GIS software or by filtering areas and sections through specific queries, identifying the priority criteria.

PMS-SIT has been developed in cooperation with Sineco SPA, the Italian leader on inspection Engineering.