

High-performance Mobile Mapping System for Forest Road Mapping



Back in 2012, Siteco – an Italian developer of Lidar mapping systems – won the Friuli Venezia Giulia Region tender in its home country by designing and developing a special model of Road-Scanner, a flexible system that can be installed on pickups and quads. The Forest Operational Survey Department wanted to enable its engineering staff to catalogue and update the forest roads in order to develop maintenance programmes and create an inventory of the road network. To achieve this, it issued a tender for the supply of a very versatile mobile mapping system (MMS) that would allow the organisation to update its system dynamically.

The implementation of the MMS system allowed the department's staff to carry out a mobile survey with accuracies that ranged from a few centimetres (in the

case of ordinary roads with a good GNSS signal), to sub-metric values (in the case of forest tracks where the GNSS signal was absent for up to several minutes).

Benefits

The survey provided the detection and the geometric measurement of all the elements of the forest track, and the creation of an associated imagery database, which allowed a visual inspection of the places and the infrastructures. The integration of geometric and multimedia data allowed the use of GIS tools for management, maintenance and update operations. Thanks to the implementation of WebGIS tools, the collected data was made immediately available in a public area and accessible through the Internet.

MMS configuration

Thanks to its flexible configuration, the system can be mounted in the back of a pickup or on a quad and travel through narrow and steep forest roads, carrying out road and path surveys and monitor the state of repair.

The MMS is equipped as follows:

- Applanix POSLV 220 positioning system
- Z+F 5010C laser-scanner(s), that can be used also in static mode for specific inspections, for example, in the case of landslides
- 6 high resolution Basler cameras (2MP)
- In the pickup configuration, a front bar with 3 additional high-resolution Basler cameras that help improving the front view
- In the quad configuration, two lithium batteries assure the power supply for a minimum autonomy of 5-6 hours
- In the quad configuration, the MMS Road-Scanner is controlled through a robust touch screen tablet installed on a support, designed by the Operational Survey Department. This tool does not affect the vehicle driving and allows the operator to manage the survey operations with simple finger movements.

[Find the project datasheet here.](#)