GROUND VEHICLES MANAGEMENT SYSTEM

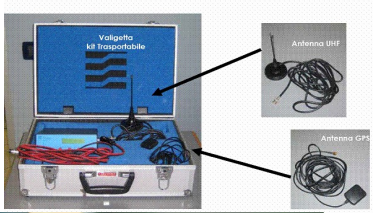
GVMS (Ground Vehicles Management System) is able to:

- manage fleet of vehicles moving into the airport, using a D-GPS and a UHF communication channel;
- display on the SWP (Surface Working Position) the cooperative vehicles positions with label;
- display on board, for the driver, the vehicle position and the location of mission points of interest.

Each vehicle is equipped with an ACE/M (Argos Communication System/Mobile) that allows:

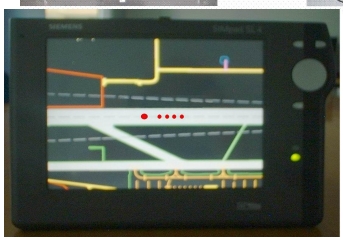
- to send to the Control Tower (TWR) the data for the identification and positioning the vehicle;
- to alert the driver, through an acoustic signal, in case the vehicle enters or exits to/from a restricted zone (i.e. runway);
- to send configured messages to the TWR, depending on the vehicle category, through the red push-buttons;
- to display, on the panel, the messages from the TWR for the driver.

For vehicles that permanently operate in the airport area, ACE/M, GPS and UHF antennas are all installed in a fixed configuration; for vehicles that operate in the airport only for limited periods (i.e. de-icing), only the antennas are fixed on the roof of the vehicle while ACE/M will be installed only when necessary. In both configurations, ACE/M is powered by vehicle battery, after car dash board is switched on.



In case of vehicles that access the airport only on request, ACE/M is provided with a kit, including GPS and UHF antennas, which includes also a lighter connector to power the unit.

The system includes also a touch- screen display mounted in the vehicle that shows to the driver:



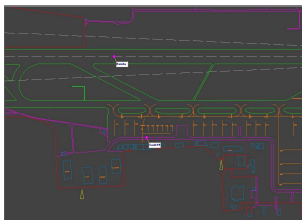
- the position of the vehicle;
- the points of interest of the mission;
- the messages to be sent to and received by the TWR.

The communication channel is a 430 ÷ 470 MHz radio channel, in half-duplex mode with DMA (Time Division Multiple Access) access technique in order to always guarantee the availability of the channel for each ACE/M. Other wireless communication systems are available on request.

The GVMS redundant HW Processing Section is installed in the TWR equipment room.

It operates to:

- implement the TDMA access method and create the RTCM messages for differential GPS;
- process the data reports sent by the vehicle, by defining the position, the label and the message eventually sent by the driver;
- send the messages on TWR LAN to display the GPS tracks on the SWPs in stand alone configuration and to fuse the GPS tracks with tracks from other sensors in the MSF (Multi Sensor Fusion) of A-SMGCS configuration.



Finally, GVMS HMI has 2 menus:

- "DBVM" menu, used by the operator to define all the information referring the cooperative vehicles;
- "operative" menu that shows to the operator the airport vehicles traffic and points of interest.

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