

TEVOGS – Vehicle Onboard Guidance System

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Outline

- ❖ Introduction
- ❖ Intention of use
- ❖ Overview of basic functions
- ❖ Selected basic functions in detail
- ❖ Components
- ❖ Philosophy of operation
- ❖ Mobile and dispatcher clients



Introduction

Maneuvering area of an airport

- = Mixed traffic of aircrafts and airport vehicles

TEVOGS

- = Vehicle Onboard Guidance System with navigation and communication functions
- = System solution to improve situational awareness of airport traffic

➤ A wide range of utilities enhancing the basic situational awareness functions



Intention of use

- Traffic management network for:
 - tracking,
 - supervision,
 - real-time navigation,
 - two-way communication,
 - efficient operation of airport vehicles/airport staff.
- Increases the safety and efficiency of mobile units operating in any weather conditions (snow, rain, fog, ...).
- Prevention of accidents, saving staff time, increase of efficiency → decrease in a budget of the airport.



Basic functions

- Real-time own position and real-time position of all the TE-VOGS clients
- Real-time position of aircrafts and vehicles from the system A-SMGCS
- RWY Proximity Alerts (prevention of RWY incursions)
- Area Alerts (temporarily closed TWYs etc.)
- Points of Interest
- Messaging function
- Automatic updates of client stations (maps and software) are performed via network
- Crossing function
- Navigation function

Basic functions in detail (Points of Interest)



- Easy to create POI
- Default categories of POIs
- Possibility to create message with reference to the POI



Basic functions in detail (Closed Area)



- The dispatcher has the possibility of setting ad-hoc perimeters to restrict mobile units to enter such perimeters, with the exception of rescue or other specific teams.
- Notification is displayed on mobile client display
- Notification cannot be closed by the user.
- Notification is closed when the area is left.

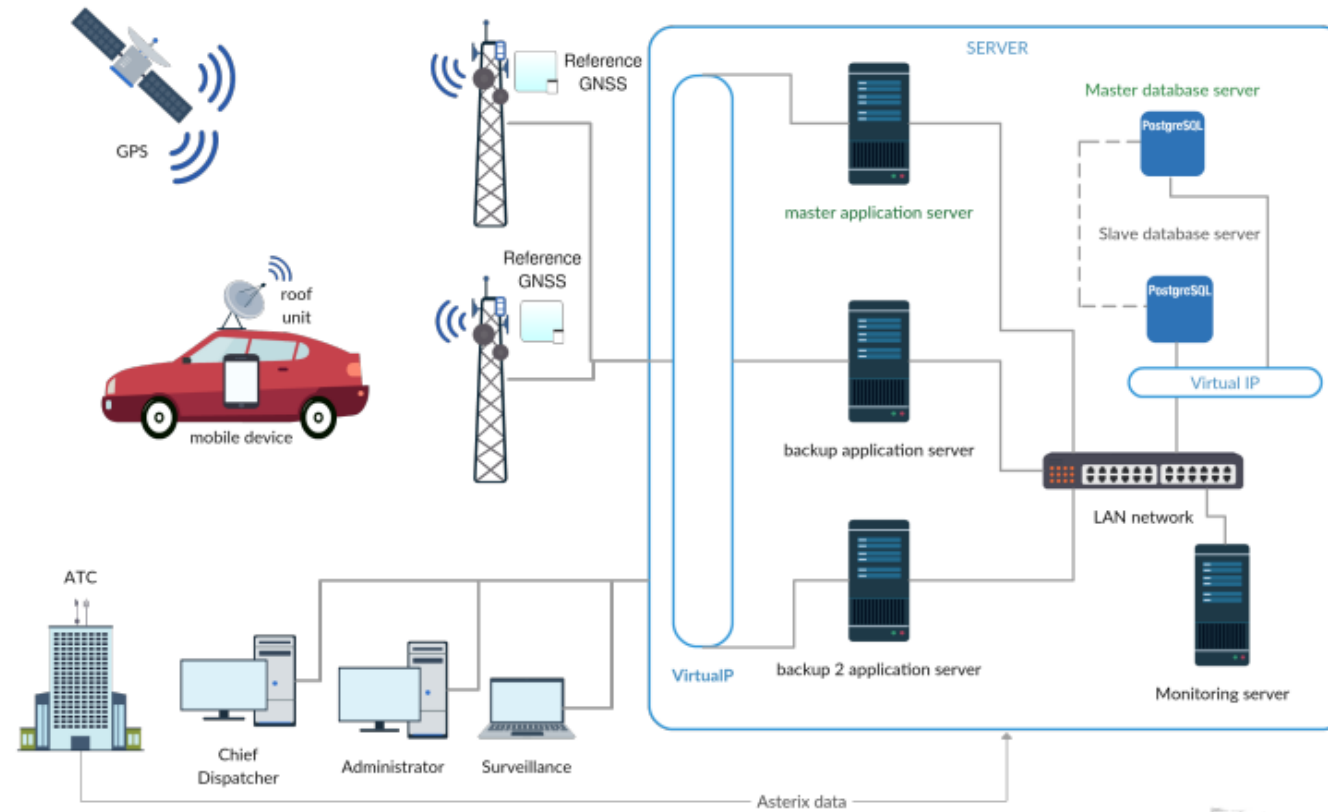




Components

- TEVOGS Server
 - *Processing data*
- TEVOGS Dispatcher
 - *Management of TE-VOGS, different levels of authorization*
- TEVOGS Mobile Client
 - *Mobile clients for vehicles. Can be also used as static client*
- Wireless Network
 - *AeroMACS (WiMAX) or LTE*

Network Diagram





Philosophy of operation

Each mobile client has a status in the TEVOGS system. The system handles clients according to its status.

Status of the client:

IDLE - switched off or without connection to the system

READY - switched on, with position, with connection to the system

INSERVICE - switched on, with position, authorized in TEVOGS

WARNING - some parameters at decreased level

ERROR - some features failed (loss of position, loss of connection,...)

Changeover of status:

IDLE → READY → INSERVICE → READY → IDLE
→ WARNING
→ ERROR

Client status and its representation



State name	Service	Position	Communication	Toolbar Graphics
IDLE	OUTofSERVICE	NO	NO	☰ Map IDLE 🔒 📶
ONPOSITION	OUTofSERVICE	OK	NO or POOR	☰ Map ONPOSITION 🔍 📶
ONLINE	OUTofSERVICE	NO or POOR	OK	☰ Map ONLINE 🔒 📶
READY	OUTofSERVICE	OK	OK	☰ Map READY 🔍 📶
INSERVICE	INSERVICE	OK	OK	☰ Map INSERVICE 🔍 📶
WARNING	INSERVICE	POOR	OK	☰ Map WARNING 🔍 📶
WARNING	INSERVICE	OK	POOR	☰ Map WARNING 🔍 📶
ERROR	INSERVICE	NO	OK	☰ Map ERROR 🔒 📶
ERROR	INSERVICE	OK	NO	☰ Map ERROR 🔍 📶
ERROR	INSERVICE	NO	NO	☰ Map ERROR 🔒 📶



Mobile Client

- **Mobile (vehicle) Client = Roof unit + Mobile device**
- Connection between the Roof unit and Mobile device: WiFi
- Components:
 - Roof unit: AeroMACS (WiMAX) or LTE
 - Mobile device: Android OS tablet or mobile phone
 - Mobile device holder: BRODIT or other brand of car holders
 - Security strap with power feed

Mobile Client - Photos



- Roof unit with with magnetic holder, security strap with power feed and with LED indication of status



- Mobile device in BRODIT car holder



Dispatcher Client

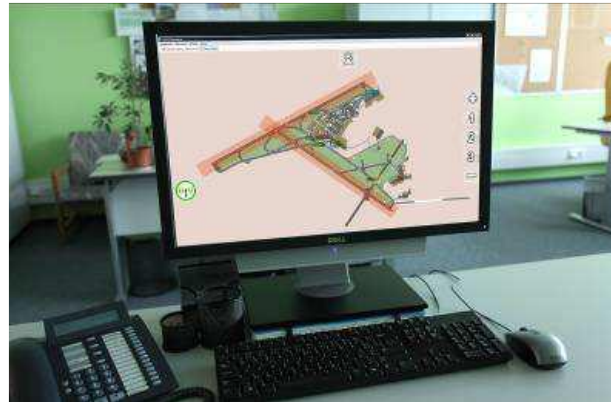


Dispatcher versions:

- Administrator
- Chief dispatcher
- View-Only dispatcher for surveillance

Dispatchers of professional groups

- Maintenance
- Fire brigade
- Fuel supply
- Birdwatchers





Summary

- ❖ Introduction, intention of use, main ideas and functionalities
- ❖ Components and their functions
- ❖ Mobile and dispatcher clients

Thank you for your attention.