Real-time

Tracking

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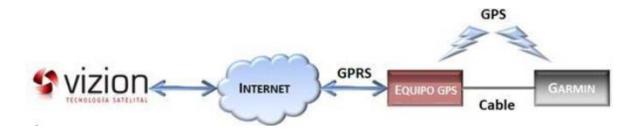**GLOBALIS**
TECHNOLOGY AND SOFTWARE DEVELOPMENT

COMMUNICATION WITH NAVIGATION DEVICE (GARMIN)

Introduction

The VIZION® system includes a functionality of integration with the Garmin navigation device which establishes two ways of communication with the vehicle from a remote monitoring station in a certain time under the scheme described below.

Justification

Due to interaction needs with the vehicle driver, the following two ways of communication using the Garmin device are defined:

1. <u>Management of Stops:</u> This functionality enables to send information on stops to the vehicle driver. This information is received by the GPS device and is afterwards informed to the driver in the Garmin screen.

2. <u>Management of Messages:</u> Using this functionality, text messages can be sent to the vehicle driver. They are received by the GPS and are afterwards informed to the driver in the Garmin screen. Response messages can also be sent from the Garmin device (through the GPS equipment) to the station where the VIZION® system is installed.

Description

Management of stops (geo-referenced spots that the Garmin device uses to calculate navigation)

Spots can be created in three ways:

- Stating latitude and longitude.

- Stating an address.

- Marking a spot in the map.

Spots can have the following possible statuses:
- Created: A stop is under this state once it is created and it is not sent to the corresponding vehicle yet.
- In Transit: A stop is under this state when it is sent to the corresponding vehicle.

- Not Connected Equipment: A stop is under this state when connection cannot be established to the corresponding equipment.

- No Answer from the Equipment: A stop is under this state when connection has been established but the equipment has not sent an answer showing successful connection.

- Received - Unread: A stop is under this state when it has been received but not read yet by the vehicle driver.

- Received - Read: A stop is under this state when it has been received and read by the vehicle driver.

- Active: A stop is under this state when the vehicle driver starts to execute it, i.e. when he traces and starts travelling the corresponding route whose destination is such stop.

- Completed: A stop is under this state when the driver reaches the corresponding destination.

- Cleared: A stop is under this state when it is removed.

Administration of Messages

Messages sent from VIZION® to the equipment: There are three types of messages:

- Informative Messages: Texts sent from the system to the vehicle GPS equipment (visualized by the driver in the Garmin screen) and/or from the Garmin device to the system (through the GPS equipment). This type of messages does not require a response.

- Acceptance Messages: Texts sent from the system to the vehicle GPS equipment (visualized by the driver in the Garmin display) and/or from the Garmin device to the system (through the GPS equipment). This type of messages requires an acceptance response (OK).

- Decision Messages: Texts sent from the system to the vehicle GPS equipment (visualized by the driver in the Garmin display). This type of messages requires an acceptance or rejection response (OK/Not OK).

Messages sent from the equipment to VIZION®

- Response: Informative messages (OK or Not OK).

- Creation of Messages

Messages of the types described above can be created using this screen. It includes:
  o Text Field: Field available to write the desired message.

  o Single selection check to state type of message.

     ✓ Informative
     ✓ Acceptance
     ✓ Decision

Road Map

This functionality enables to import files (in a previously set format) that include the addresses of the places of destination of a certain vehicle (vehicle road map).

- By importing the file with the addresses, they are visualized in the screen in table format as if they were stops created in the system. The following actions can be performed:

- Correction of addresses loaded wrongly in the imported file modifying the text of the wrong address or marking the correct spot in the map.

- Determination of visit priority for each stop.

- A list including the stops and the priorities set can be sent to the driver. If required, the first stop of destination can be activated from the system. In this way, when the driver reaches his destination, the equipment will detect this and the Garmin device will ask him whether he has reached his destination or not. When he answers affirmatively, the subsequent stop will activate automatically based on the priority set.

- New stops can be added from the system when required rearranging the visit priority set previously.