Celso: The application of a Light AVM system

Elba island

Smart travellers' information systems

In brief

The "revolutionary" low-cost AVM (Automatic Vehicle Monitoring system) solution for bus transport market, named Celso, which was introduced in Elba during 2017 summer for the management of tourist transport services (providing accessibility to main beaches) contracted by Rio Marina and Portoferraio Municipalities. Celso guarantees all the key AVM functionalities and a more effective assessment of service performances with at least a 70% cost reduction.

For whom is this article intended

The CELSO system it is particularly interesting for public transport companies interested in equipping service sectors (e.g. seasonal transport services with small buses) with the monitoring system but hindered by the high cost of the classic AVM system so far.

Structure of the article

The article provides a clear description of the characteristics of the Celso system and its practical applications in Rio and Portoferraio municipalities (Elba Civitas Destinations site) presenting the points of difference with the standard AVM systems and the added value of the system for small fleets.

The light AVM system to improve the efficiency of summer tourist transport services in the island of Elba

In the summer the municipalities of Rio and Portoferraio implement the public transport service to connect the cities to the nearby beaches to avoid the use of private cars that, impact negatively the island environmental, often have parking difficulties. Municipalities assign these services to private companies specifying the number of trips per day and the precise request to respect the scheduled timetable.
The problems faced to the Municipalities are related to the control by the number of daily trips made by buses and their respect of the timetable at the various stops in order to give to the users a proper time to come away from the beaches. But the respect of timetable is not always possible given the unforeseen events that may occur during the journey.

The CELSO system solves these problems as it daily certifies to the municipality the number of daily made trips and the times of passage at the various stops. Furthermore, a downloadable very useful app in the users' smart phones allows to know in real time the position of the bus so that the users can go to the stop at the right time.

Challenges	Opportunities
- To introduce the great potential of the system to a large group of operators	- Low investment cost (two simple commercial tablets) - No on-board installation - Very useful the related app for the users

Celso application on summer transport services in Elba

Public Transport (PT) plays an important role in EU economy and society and the quality of bus service during the operation is the key factor for the urban sustainability and the most relevant performance indicators on which to work are the reliability and the regularity.

To comply with these indicators, the AVM (Automatic Vehicle Monitoring system - Fleet Monitoring System) is the key system for guaranteeing service reliability by means of fleet monitoring, regulation/ control and to fed information systems and service reporting/performances assessment.
The problem of the AVM system is related to its complexity and considerable cost so is not it is not economically viable for its application to small fleets (for example to a school bus fleet).

To solve these problems the "revolutionary" low-cost AVM solution (Celso) for bus transport market was introduced in Elba during 2017 summer for the management of tourist transport services (providing accessibility to main beaches) contracted by Rio Marina and Portoferraio Municipalities within the framework of CIVITAS DESTINATIONS project and the demonstration of related demo site measures.
Indeed, Celso is the winning breakthrough Fleet Monitoring system, adding to standard AVL (AVM Light) functionalities (service monitoring, regulation, users' information) an efficient assessment of service performance compared to scheduling at remarkably lower prices than any other competitor on the AVM market.

The added value of Celso for Elba island deals with the capability in increasing the PT service reliability and regularity, thus fostering the enhancement of PT quality and finally the PT demand reducing the private modes and related traffic congestion level. This will drive the increase of accessibility and competitiveness of Elba island starting from the tourists up to residents

Celso application on Elba transport Services

Celso was developed by MemEx company (www.memexitaly.it/en) and made available to CIVITAS DESTINATIONS as one of relevant innovations in PT services quality.

Celso was adopted and demonstrated for the management of the summer bus service contracted by Rio Municipality and of the taxi boat service contracted by Portoferraio Municipality (as part of measures for project Elba sharing). Celso allowed Elba Municipalities to monitor the compliance of operated service with contract prescriptions, to have a certified tool to apply bonus/penalties avoiding conflicts with the contracted operator and to make available validated data on service operation for defining mobility policies. Celso performance surpasses competing AVL products requiring any on-board installation (thus reducing implementation and operation costs of the system), it reduces time/resource for performance monitoring process and it assures high quality data to be exploited by Public Transport stakeholders to improve PT services and overall mobility.

Fig1: Rio Municipality route with Celso control of the summer bus service Source: MemEx company, 2019

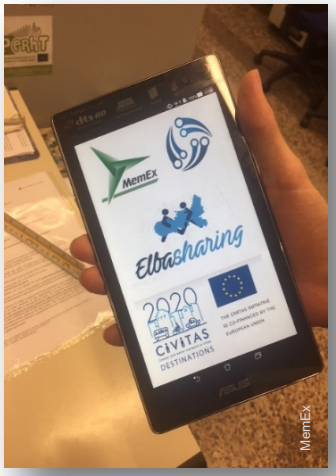

Fig2: Celso app

Celso architecture

Celso has a centre component (Celso Centre) and an on-board component (Celso Mob - driver). The latter is based on an app, for Android tablet devices, with an intuitive interface for drivers.
Celso can be used on board the bus without any installation therefore entailing lower implementation and maintenance costs compared to the standard monitoring systems currently available on the market.

The data collected by the system will concern:

- the time of departure and arrival of services from the terminus and stops along the way,
- the distance travelled by vehicles,
- the punctuality of the service,
- the speed and duration of the journey

The analysis of these information will allow operators and public transport planners to evaluate the quality of the services offered.
In addition to the two components indicated above, the Celso system makes available an app (Celso Mob-user) dedicated to users of the public transport service to whom information on the service being performed by the summer buses and the real-time position are presented. of vehicles in service. Again, through this tool, users have the possibility to leave feedback regarding the quality of the service they have used and in relation to the app itself.

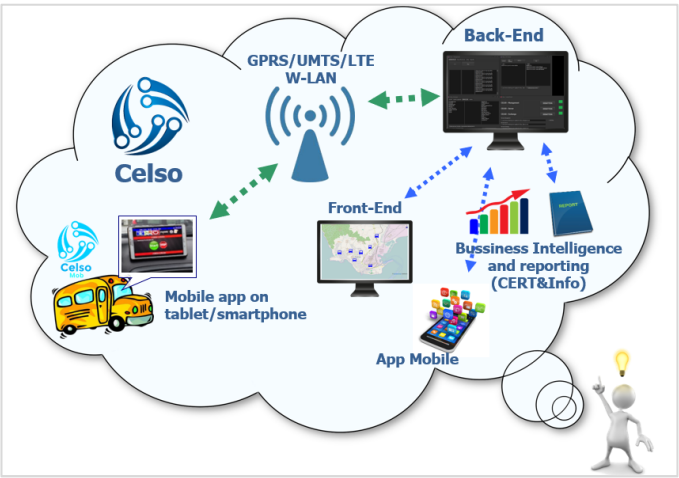

Fig3: Celso system architecture. Source: MemEx company, 2019

Learn more on this topic
www.memexitaly.it

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