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Scripting Support Extension in Fleets Management Software

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Intelligent Transportation Systems (ITS) play today an important role in vehicle management and safety fields. In fact, vehicle location and fleets management systems are achieving a growing interest in both private and public fields and give a substantial enhancement in related resources usage optimization, decision support process and so on.

More in general, ITS will be part of life in the future, several information-related technologies are already developed and other ones are work in progress: traffic control, management and surveillance, crash prevention and safety, emergency management are only part of a field's list in which ITS have found application. Both commercial and private vehicles are becoming to incorporate many different electronic devices that improve mobility, safety, reducing pollution, cost, travel timer and consequently enhancing road-network efficiency. These systems are result from research activities spread over many different disciplines: computer science, communications, electronics and so on.

Considering now more in depth vehicle location and fleets management systems, ITS involve several research challenges related to the information gathering, collecting, processing, accessing and development challenges related to systems integration, customizations of legacy applications and so on. In fact in these systems several board's information are continually monitored (such as comfort and travelling characterizing parameters, engine control signal, etc.) and stored or transmitted, coupled with the instantaneous location for real time control or future usage. Moreover users must be able to access information in a way that is best suited to their business.

Current ITS systems are complex applications that do not offer the possibility to be extended, customized or integrated with third-party enterprise software. Rarely they supports a web services interface or an API framework that a developer can use to extend , for example, an existing ERP (Enterprise Resource Planning) application. This paper illustrates a new perspective for the ITS systems, from simple and closed applications to open framework of services and APIs with an integrated scripting engine.

In particular this paper focus on an implementation of a scripting support extension that we call Scripting Embedded Engine (SEE).

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The SEE can give to the users the possibility to develop custom code to modify
system's behaviours without the knowledge of the application source code or other
complex low level design details.
Some Use Cases will be illustrated as practical examples of user customizations
provided by the integration of Scripting Embedded Engine into an existing ITS
application.
Traditional fleets management applications are based on client-server architecture
with native GUI. This solution arises many drawbacks such as complex installation
procedures and high running costs.
To overcame these problems, newest fleets management software are designed on web
paradigm and exploiting third-party web services for accessing, for instance,  to
geographic information and routine such as cartography and route planning services.
This allows a customer to use the ITS platform as an outsourcing service reducing
maintenance costs and improving the application accessibility.
The web technology creates only a basis for an easy SOA (Service Oriented
Architecture) integration. In order to have a full SOA compliant ITS application we
have to adopt a really new perspective for the ITS applications design: from a
monolithic and closed application to open framework of services and APIs capable of
user customizations.
In fact, a third-party ERP can take many advantages by linking its vehicles, drivers,
workers (and motion resources in general) directly with real-time and historical data
of the ITS. In the following sections we show a solution that changes the classical
vision of fleets management software, refactoring them adding a software component
called Scripting Embedded Engine (SEE) which provides simple and wide system
extension with user customization.
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