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CASE STUDY

EUROTECH SUPPORTS ADVANCED ITALIAN URBAN TRANSPORT CONCEPT.

The electric powered VIP Multipurpose Vehicle being developed in Italy is set to make a positive environmental impact on city transport networks. A range of Eurotech products have been utilised in 2011 in the vehicle control unit (VCU) and multimedia control unit (MCU) of prototypes, part of the innovative technology enhancing the performance and safety of this advanced vehicle.

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The VIP Multipurpose Vehicle (VIP MPV) is an innovative multifunctional people carrier that promises to be an excellent solution to meet the needs of inner city transport, being adaptable for car share schemes, taxi services or as a useful addition to municipal transport resources. It is also ideal for travel between urban centres and outlying destinations

Electric VIP Vehicle

The vehicle is being produced by specialist engineers Cabel Costruzione Elettroniche, supported by Regione Toscana (Tuscan Regional Transport Authority) and in collaboration with three other companies based in the Tuscan city of Pistoia: Argos Engineering, Filoni and Calamai & Agresti. The VIP MPV addresses the Region's need for a mode of transport offering a range of practical benefits to its traffic problems, including high degrees of safety and flexibility. It provides a useful alternative to cars, taxis and buses, carrying small independent groups of passengers direct to their destinations and with no negative effect on a city network's carbon footprint.

Tuscany has a population of 3.75 million within an area of approx 23,000 sq km and is a world famous tourist destination, with its provincial capital of Florence alone receiving more than 10 million visitors per year. Regione Toscana is responsible for coordinating with local agencies the logistical management of the region's road and rail networks, ports and airports and has a priority to reduce the environmental impact of traffic in an area of exceptional natural beauty, cultural and historic interest.

This makes the environmental benefits of the VIP MPV particularly attractive and the Tuscan authorities are considering the vehicle for potential applications such as shuttle services between the city centre and the airport or train station. Other Italian regions and international authorities are also taking an interest.

Together, the organisations involved in this project bring expertise from the industrial, aeronautic, automotive and railway sectors to the project, including Cabel's experience in the production of driverless metros. This specialist expertise is shared by Eurotech, which has undertaken a range of transport projects including the supply of vehicle mounted systems for both the Italian tram network and PRT (personal rapid transport) units serving passengers between Terminal 5 and outlying car parks at London Heathrow Airport.

Currently in prototype phase, the VIP MPV marks an important new stage in the progress of electric powered transport, with a modular design providing variable configurations and seating capacities to transport small groups of up to seven people in high standards of comfort. It is particularly well configured and equipped for wheelchair passengers and those with limited mobility.

Inside the VIP Vehicle

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TECHNOLOGICAL INNOVATION

This exciting project offers the opportunity for door to door passenger delivery via a zero emissions vehicle that is relatively noiseless and well suited to reducing traffic congestion and pollution in the environment of the historic cities of Tuscany. Furthermore, the VIP MPV incorporates sophisticated leading edge technology that enhances its safety and driveability in the most innovative ways.

Eurotech is playing a major role in this project, supplying a range of dashboard computerisation that manages the controls of the vehicle and the multimedia resources that make it so unique. The vehicle's functionality includes autopilot, remote control of onboard systems and visual monitoring of the driver's eyes and dilation of pupils in order to analyse his or her state of awareness for safety purposes. Active intervention will occur in cases of dangerous lapses in driver attention through tiredness or unfitness to drive through alcohol or drug abuse.

Part of the VIP Vehicle Dashboard

Another of the major features for safety and convenience is the VIP MPV's system for data projection onto the vehicle's windscreen, including vehicle speed, the status of the engine and lights and navigation maps. The projection system will also show the driver the location of the street's edges, a major asset in the case of fog.

The VIP MPV's innovative control system allows all systems in the vehicle to interface with each other via an intranet created among the systems enabling them to coordinate internally and interact with external events and remote site input.

Within the vehicle control unit, the Central Processing Unit (CPU) is provided by the Eurotech ALUDRA ultra low power fanless processor board incorporating a high performance 1.6GHz Intel® Atom™ processor and connecting with a range of Eurotech PC/104 modules delivering communication and power supply functions. The CPU for the multimedia control unit, delivering the leading edge video safety features, is the Eurotech ANTARES with an Intel® Core i7 processor, again offering high performance, low power fanless operation.

Eurotech's ALUDRA Single Board Computer

With a maximum weight of 1800kg and measuring 3.9m long x 1.8m wide x 2.1m high, the vehicle is produced from an advanced aluminium alloy. The VIP MPV has a GPS monitored maximum

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speed of 70km per hour and the latest generation electric power system incorporates high capacity batteries that provide a journey range of 150 to 200 km before recharging.

Cabel has over 30 years experience in the electronics field and has worked in development, testing and production of products across a wide range of sectors. Involvement in transport has included the Eurotunnel project and the tram systems in Lille, Boston and San Francisco.

Claudio Lazzerini, Chief Executive Officer of Cabel Costruzione Elettroniche, explained that Eurotech's understanding of the project and their high level technical support was an invaluable part of the solution they had to offer. *"Eurotech's experience in the transport field has delivered the ideal systems for the VCU and MCU functions of the VIP Multipurpose Vehicle. The Eurotech CPU PC/104 has a configuration that is particularly appropriate to automotive applications and Eurotech have been consistent in responding rapidly and comprehensively to our requirements, providing us with the benefit of their direct support here in Italy. Their assistance in meeting the challenges of this project has been an important factor in helping us towards the production of a successful prototype."*

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