

Mobility

THE EUROPEAN PUBLIC TRANSPORT MAGAZINE

ISSUE 19 www.mobility-mag.com

EUROPE: €26 - REST OF THE WORLD: €32



Building to meet demand &

Enhancing the travel experience

MET
Inspiro eyes world r

SURFACE
Gaining a face & perso

TRAIN
Al Sufouh back-or

TICKET
Caprice promotes good pra

ALTERNAT
Personal Rapid 1

URBAN
Urban lighting looks

HEADING TOWARDS ADVANCED ROAD TRANSPORT

The overall objective of the CityMobil* project is to achieve more effective organisation of urban transport, resulting in a more rational use of motorised traffic with less congestion and pollution, safer driving, a higher quality of living and enhanced integration with spatial development. The city of tomorrow is in need of integrated traffic solutions that provide the required mobility in an efficient, safe and economic manner.

Enhancing the urban transport services offered to citizens implies increasing the comfort they offer, minimising their environmental impact and providing a high Quality of Service. These objectives are fulfilled by the introduction of several new public and private transport models that make use of technologies ranging from advanced cars – with driving assistance and guidance systems – to driverless personal vehicles – able to operate without human interaction.

CityMobil will demonstrate and validate these solutions in several European cities, with two kinds of demonstrators: small and large scale. The Castellón project described in this article, is – together with Rome and Heathrow [see *Alternative Transport*, p.128] – one of the three large-scale demonstrators developed.



Fig. 2. Example of a stretch of dedicated lane segregated from normal traffic

Hybrid solution

Up and running since June 2008, the Castellón demonstrator forms part of a much bigger transport plan aimed at connecting several cities – Benicàssim, on the coast, Almassora or Vila-Real – with the city of Castellón. This plan is headed by Valencia regional government (GVA), a partner of the CityMobil consortium (see box). The CityMobil demonstrator concerns the stretch connecting the university to the centre of Castellón – the main city in one of the most touristic areas on the east coast of Spain. It is a hybrid public transport system, segregated from normal traffic by the use of a reserved platform and making use of electrical trolley bus vehicles with optical guidance systems circulating over the platform. Such a system has been selected to combine the cargo capacity, accessibility, speed and regularity of a railway-based

solution with the flexibility, adaptability and smaller costs of a road-based alternative.

The vehicles used in Castellón are hybrid powered by a tramway catenary when running through the reserved platform and powered by an internal combustion engine when driving outside. This provides considerable flexibility in operations, which is especially useful in areas where a catenary cannot be built or on route to the vehicle depot. This demonstrator system provides a lower cost alternative to light rail while offering the advantages of dedicated rights of way.

Optical guidance

Furthermore, the optical guidance used allows the vehicle to automatically follow an identified path signalled with ground marks, acting against the direction of the vehicle, while the driver supervises the route and acts over the steering wheel only for obstacle avoidance, when needed.

Fig. 1 Electrical traction vehicles used in Castellón



CityMobil is funded by the EC 6th Framework Programme. Its consortium consists of 28 partners, comprising city and regional public authorities, manufacturers and suppliers of advanced transport systems, universities, research institutes and public transport organisations from 10 European countries:

U.K.

ULTra

University of Leeds – Institute for Transport Studies

University of Southampton, Transportation Research Group

TRW Ltd, TRW Conekt

Italy

Centro Ricerche FIAT

Centro Studi sui Sistemi di Trasporto S.p.a.

Comune di Roma Dipartimento VII Politiche della Mobilità

Dipartim. di Idraulica Trasporti e Strade – Univ. degli Studi di Roma ‘La Sapienza’

Ingegneria dei Trasporti

Istituto di Studi per l'Integrazione dei Sistemi

Germany

DLR – Deutsches Zentrum für

Luft- und Raumfahrt, Institute of

Transportation Systems

Rheinisch-Westfälische Technische

Hochschule Aachen, Institut fuer

Kraftfahrwesen Aachen

Spain

ENQ

ETRA Investigacion y Desarrollo

Fundación Comunidad Valenciana

Región Europa

Generalitat Valenciana

Switzerland

EPFL Swiss Federal Institute

of Technology

GEA

France

INRIA – Institut National de Recherche

en Informatique et Automatique

ROBOSOFT

Belgium

POLIS – Promotion of Operational Links

with Integrated Services

Transport & Mobility Leuven

Netherlands

RUPS Consultancy & Project manage-

ment B.V.

TNO Netherlands Organisation for

Applied Scientific Research

Uniresearch BV

Norway

SINTEF

Israel

Technion – Israel Institute of Technology

Sweden

UPPS – City of Uppsala



INCLUDING A GUIDANCE SYSTEM TAKES STEERING OF THE BUS OUT OF THE DRIVER'S HANDS FOR ALL OR, AS IN THE CASE OF CASTELLÓN, PART OF THE ROUTE



The marks are read by a camera located on the front-top of the vehicle and analysed instantly to establish the difference between

the real and reference trajectories. A servo-control device includes a motor that acts against the steering to cancel out this difference, guiding the vehicle. Including a guidance system takes steering of the bus out of the bus driver's hands for all or, as in the case of Castellón, part of the route. This dramatically reduces the need for the bus to perform any lateral movements within a lane of traffic and, therefore, makes it possible to implement dedicated busways where road space is in short supply or where conventional bus lanes could be impractical. Furthermore, it also allows – by

means of precise automated docking – to improve physical access to the bus by minimising the vertical and horizontal gaps between the bus stop and the bus.

Figure 2 shows an example of the structure of the dedicated lane and how it makes use of the space available. The optical guidance marks on the platform are also shown.

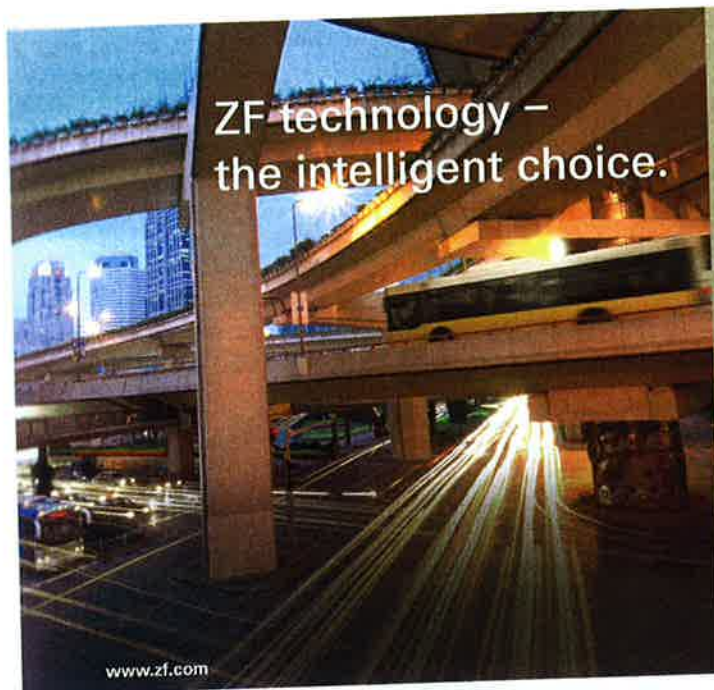
Performance & expectations

The performance and user acceptance of the system has been analysed within CityMobil by meas-

uring several indicators, namely usefulness, ease of use, reliability or integration with other systems, among others. Analysis of these indicators has proved the reliability and usefulness of the concept, particularly for students and people travelling to/from Castellón university. Although the system currently in service still covers a short stretch, it has proved its potential as a reliable and flexible solution and expectations are high for when the whole is completed and connecting the main cities and tourist sites in the area ●

*Antonio Marqués & Alma Solar
ETRA I+D*

**for more information
visit www.citymobil-project.eu*



Because EcoLife takes the strain off drivers and your budget.



Higher performance, lower costs – EcoLife makes all this possible. This modern and superior automatic transmission cuts operating costs for buses thanks to its significantly longer service life. Furthermore, TopoDyn Life software reduces overall consumption and a primary retarder enables wear-free braking. And the environment? EcoLife protects natural resources, cuts exhaust emissions, reduces particulate emissions – and it is quieter, too. EcoLife. A breakthrough in efficiency, ecology, and convenience.

Driveline and Chassis Technology