

**EUROPEAN COMMISSION
DG RESEARCH**

**SIXTH FRAMEWORK PROGRAMME
THEMATIC PRIORITY 1.6
SUSTAINABLE DEVELOPMENT, GLOBAL CHANGE & ECOSYSTEMS
INTEGRATED PROJECT – CONTRACT Nr. 031315**



CityMobil

Towards advanced transport for the urban environment

Deliverable no.	D3.4.3
Dissemination level	Public
Work Package	WP 3.4: Cooperative vehicles and navigation
Author(s)	CRF
Co-author(s)	
Status (F: final, D: draft)	FINAL
File Name	D3.4.3-First technological demonstrator for platooning of advanced city cars-CRF-FINAL-01-09-08.doc
Project Start Date and Duration	01 May 2006 - 30 April 2011

1 Preface

The following document is a CityMobil deliverable which has the status “other”. This means that the deliverable is not a written report, but rather an achievement.

2 Description

Two operational vehicles, and one more additional, have been realized as prototypes representative of a dual mode vehicle concept.

The dual mode vehicle represents a further development of the advanced city vehicle concept, providing automatic driving during platooning to relocate shared cars or in dedicated lanes as with Cybercars.

In dual-mode vehicles, when operating in automated mode, the systems take over the driving task completely. Those systems have to perform emergency brakes and the vehicle will come to a standstill automatically.

The aspects considered into the car design are also specific city-requirements: ecological power-train, comfort for passengers, effective flexible solutions for low-volumes, active controls and safety.

Considering the need of reducing the impact on the environment (particularly in the urban context), safety requirements and cost issues, the prototypes have been based on lower segment normal series production vehicles platforms, with the necessary functionality for driving assistance and/or autonomous driving being realised by adding special actuators, sensors and controllers.

Then, the vehicles realised are two FIAT New Panda, and the third one is a new FIAT 500, equipped with sensors and control systems and characterized as outlined into the following page, with the pictures of the two Panda in La Rochelle.



The design of suspension systems and the tyres also reflects the specific performance requirements of prevalently urban use, in order to provide an adequate level of handling, safety and comfort for the envelope of manoeuvres typically performed in urban driving. In particular, moreover, the design of tyres for is focused on efficiency and economy

Furthermore, due to severe environmental regulations in the urban areas, the powertrain is a pure electric system with Lithium-ion batteries providing a range of up to 200km. Recharge times with a domestic power-supply is in the range of 4-6 hours, whereas with a Quick-Charger system it is possible to achieve 80% of battery capacity in approx. 20 minutes.

It is important to highlight the fact that the noise emissions of vehicles under electric propulsion are extremely low, and this in itself represents an extremely important benefit for vehicles which are primarily designed for urban and suburban operation.

The vehicles have been showed and tested, with public, during the demonstration event at La Rochelle in the last two weeks of September 2008, as showed in the following picture.



Vehicles Data Sheet		
	Vehicle Name:	FIAT New Panda
Owner:	Centro Ricerche Fiat	
Usual Location:	Orbassano (Torino) - Italy	
Initial Manufacturer:	Fiat Group Automobiles	
Modified by:	Centro Ricerche Fiat	
Specifications:		
	Mass	Kg 1057 (curb weight)
	Maximum speed	km/h 110
	Width	m 1.578
	Max width (incl. sensors)	m 1.578
	Length	m 3.539
	Max length (incl. sensors)	m 3.705
	Height	m 1.540
	Max height (incl. sensors)	m 1.540
	Turning radius	m 4.80 (sidewalk to sidewalk)
	Number of passengers	4
Obstacle detection system		
	Type of sensor	Front: Scanning Laser
	Specifications	Sick LD OEM
Communication system		
	Type	WiFi with OLSR protocol
	Specifications	G Cube
Remote emergency switches		
	Type	Remote emergency stop
	Specifications	V2 Elettronica – Wally4 and Handy4
Navigation:		
	Sensors:	Type of manoeuvre:
	Video system + odometry + gyro	Localisation, lane tracking

Vehicles Data Sheet		
	Vehicle Name:	FIAT New 500
Owner:	Centro Ricerche Fiat	
Usual Location:	Orbassano (Torino) - Italy	
Initial Manufacturer:	Fiat Group Automobiles	
Modified by:	Centro Ricerche Fiat	
Specifications:		
	Mass	Kg 1045 (curb weight)
	Maximum speed	km/h 110
	Width	m 1.627
	Max width (incl. sensors)	m 1.627
	Length	m 3.546
	Max length (incl. sensors)	m 3.712
	Height	m 1.488
	Max height (incl. sensors)	m 1.488
	Turning radius	m 4.80 (sidewalk to sidewalk)
	Number of passengers	4
Obstacle detection system		
	Type of sensor	Front: Scanning Laser
	Specifications	Sick LD OEM
Communication system		
	Type	WiFi with OLSR protocol
	Specifications	G Cube
Remote emergency switches		
	Type	Remote emergency stop
	Specifications	V2 Elettronica – Wally4 and Handy4
Navigation:		
	Sensors:	Type of manoeuvre:
	Video system + odometry + gyro	Localisation, lane tracking

