DELIVER

Design of Electric Light Vans for Environment-impact Reduction

MOTIVATION AND OBJECTIVES

CO_2 emissions, noise emissions and other negative impacts caused by present urban delivery concepts and specifically by commercial vehicles are unsustainable in present and future European urban life. Fully electric light commercial vehicles (LCV) not only offer zero local CO_2 emissions and close-to-zero noise emissions. The possibility to integrate the electric motor into the wheel further increases the design freedom.

The DELIVER project's objective was to explore and identify conceptual design options for the next generation of electric delivery vehicles. The project partners, which bundle different competence fields throughout Europe, developed and built an innovative and sustainable vehicle concept that fulfils the demands of tomorrow.

PROJECT PLAN, MILESTONES AND DELIVERABLES

The project started in November 2011 and continued for 39 months. The most important milestone was the completion of the demonstrator vehicle.

The complete demonstrator vehicle is also the main deliverable of this project. It served for testing and validation of the concept and has been presented on various national and international conferences e.g., the EUCAR Conference 2014.

TECHNICAL APPROACH

DELIVER generated, investigated and analysed innovated design concepts for electric LCVs with in-wheel motors. It delivered an advanced architecture, which enables the same level of safety as known from current conventional vehicles with maximised energy efficiency, optimised ergonomics & loading space at affordable costs as well as good levels of comfort and driving performance.

ACHIEVEMENTS

In a joint effort, the DELIVER partners have built-up a demonstrator vehicle, which is showcasing the main derivate of the DELIVER vehicle family and its unique design. The demonstrator is dedicated for urban delivery services and comprises some novel features such as a rotating seat to allow easy access and egress for the driver also on the curb side of the road. Since there is no B-post on the right hand side, a very large opening can be provided for loading.

The fully electric drivetrain comprises a Li-NMC battery system and Michelin Motorized Wheels, offering excellent driving performance and allowing the payload area to be large and flat. Above all, this vehicle is locally emission free and reduces noise emissions significantly – perfect for urban use.

Length / Width / Height	4,485 mm / 1,885 mm / 2,000 mm
Wheelbase	2,750 mm
Kerb weight (incl. 75 kg driver)	1,500 kg
Gross vehicle weight	2,200 kg
Payload mass / volume	700 kg /4 m^3
Drivetrain	2-speed in-wheel motors on rear axle
P_{max} / T_{max}	57 kW / 42 Nm (per wheel)
Acceleration 0 - 100 km/h	10.3 sec (at kerb weight) / 15.4 sec (at GVW)
Top speed	100 km/h
Range (half laden)	120 km

Budget	4.3 M€	**Funding**	2.8 M€
Duration	39 months	**Start**	November 2011
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Partners	ika, CRF, VW, Liberty Electric Cars, Michelin, POLIS, SP, HPLP, CADEM, MOBIT		
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