

eCOMPASS

eCO-friendly urban Multi-modal route PLanning Services for mobile uSers



eCOMPASS addresses the high *environmental impact of urban mobility* by introducing new mobility concepts and establishing a methodological framework for *route planning optimization*. eCOMPASS aims at delivering a comprehensive set of *tools and services* for end-users to *enable eco-awareness* in urban multi-modal transport.

At a Glance

Project acronym: eCOMPASS

Project type:

Collaborative Project, Small or medium scale focused research project (STREP)

Programme:

7th EU Framework Programme

Project coordinator:

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Project partners:

Computer Technology Institute & Press “Diophantus” (CTI); Centre for Research & Technology (CERTH); Swiss Federal Institute of Technology (ETHZ); Karlsruhe Institute of Technology (KIT); TomTom International B.V. (TomTom); PTV Planung Transport Verkehr AG (PTV)

Start date: 1 Nov 2011

End date: 31 Oct 2014

Total cost: € 4.075.023

EU funding: € 2.650.000

Project website:

<http://www.ecompass-project.eu/>



Objectives

eCOMPASS addresses high-demand urban mobility aspects, primarily aiming at reducing the environmental footprint of the mobility of people and goods in urban areas. The project primarily investigates two mobility scenarios with significant contribution to urban CO₂ emissions and energy consumption:

- mobility of private car *drivers*;
- mobility of *goods* through fleets of vehicles carrying light or heavy cargo.

The first point is addressed through intelligent on-board navigation systems that seamlessly provide ‘green’ route recommendations, i.e., those routes with minimal environmental footprint and fuel consumption. The second point is dealt with by the development of a logistics and fleet management system used by back-office staff and on-board systems used by the drivers.

In parallel, eCOMPASS aims at developing advanced web and mobile services that will facilitate the use of complex urban public transportation networks, thereby making ‘green’ passenger transport more appealing. These services aim at city dwellers requesting door-to-door route planning and tourists who receive personalized recommendations for daily sightseeing itineraries (using public transport) guiding their visit to a subset of city points of interest.

Approach

eCOMPASS identifies four types of stakeholders (cf. Fig.1) : private vehicle drivers, freight transportation and logistics companies, public transport users, and providers of real-time traffic and public transport data. eCOMPASS combines *eco-aware* navigation and fleet management as well as *context-aware personalized* public transportation route planning services to help people adopt eco-friendlier ways of travelling in urban environments:

- *Eco-awareness*: eCOMPASS car navigators coach drivers providing them with incentives for sustainable driving behavior. Eco-awareness is also promoted through enabling route planning that takes into account forecast traffic conditions as well as recommending transfers to public transport services, whenever feasible. Furthermore, freight vehicle journeys are scheduled so as to evenly distribute the overall traffic load and therefore reduce CO2 emissions.
- *Context-aware and personalized*: web and mobile services providing multi-modal public transport route planning taking into account contextual information (such as location and time) as well as various user constraints and optimization criteria (e.g., time, ticket price, number of transfers to other services, minimum use of particular modes such as walking etc).

Description of Work

eCOMPASS will run for 36 months. The work involves five main activities:

- User requirements and system architecture specification (M1-M12).
- Design, development and assessment of routing optimization algorithms (M1-M36).
- Development of the Content Gateway Module that enables interoperability between the eCOMPASS framework and external data sources (M1-M20).
- Applications development and integration (M21-M28).
- Pilots tests in the City of Berlin (M4-M36).

For further information:

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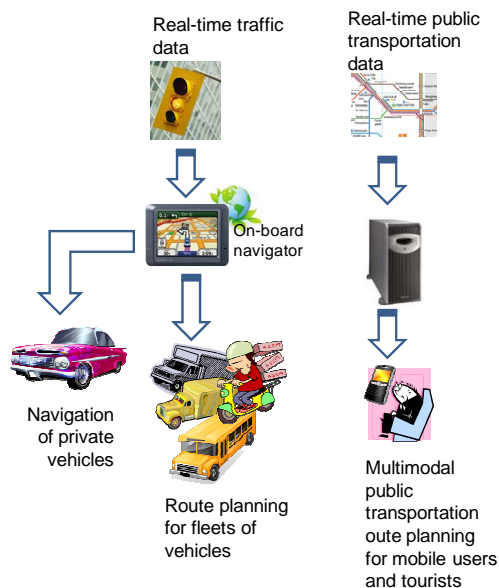


Fig. 1: eCOMPASS end-users & services

Use Cases & Pilots

eCOMPASS' services will be evaluated and validated through specific use scenarios, designed and specified in detail during the "User requirements and system architecture specification" activity. The corresponding pilot tests will be run in the City of Berlin using road infrastructure elements and vehicle fleets as well as individual car traffic and public transport data.

Expected results

The expected outcomes of eCOMPASS are:

- A private vehicle navigation system seamlessly offering visualization and narration of recommended vehicle routes through conventional on-board navigation devices.
- A truly eco-aware fleet/logistics management system contributing to automating logistics management and the route planning of vehicle fleets.
- A multi-objective, multi-modal public transport route planning service provided through web and mobile applications.
- Solid algorithmic foundations for the proposed route planning services.
- Evaluation methodologies and impact analysis based on the pilot tests.
- New transport-related services, scientific publications and recommendations to standardization bodies.

