Factbox

MODUM – Models for Optimising Dynamic Urban Mobility

PROJECT TYPE: Specific Targeted Research Project (STREP)
PROGRAMME: 7th EU Framework Programme
Objective ICT-2011.6.6 Low carbon multi-modal mobility and freight transport

PROJECT COORDINATOR:
Transport & Mobility Leuven
Griet De Ceuster
+32 16 317730
griet.deceuster@tmleuven.be

CENTRAL CONTACT:
Transport & Mobility Leuven
Sven Maerivoet
+32 16 317733
sven.maerivoet@tmleuven.be

PROJECT PARTNERS:
- Austrian Mobility Research (FGM-AMOR), AT
- KU Leuven (KUL), BE
- MUSAT Sofia (MUSAT JSC), BG
- Nottingham City Council (NCiC), UK
- Nottingham Trent University (NTU), UK
- Sofia Centre for Mobility (SCT), BG
- Technolution (TNL), NL
- University of Manchester (UNIMAN), UK

DURATION: 1st of October 2011 - 30th of September 2014
TOTAL COST: € 3,068,365.00
EU FUNDING: 75%

For additional information about MODUM, please visit: http://modum-project.eu/

Models for Optimising Dynamic Urban Mobility

MODUM

Current Project Activities and Results

SEVENTH FRAMEWORK PROGRAMME

modum
MODELS FOR OPTIMISING DYNAMIC URBAN MOBILITY

MODUM
Current Project Activities and Results

Urban transport and related congestion problems contribute to up to 70% of CO_2 emissions in an urban environment. Additionally, the transport sector consumes about a third of the total energy needed in the EU. These figures suggest that if Europe is to reduce its CO_2 emissions by making an efficient use of energy, new approaches for optimal management of the complex urban transport should be developed and adopted.

MODUM addresses the environmental footprint in the transport sector, with the aim of developing a new approach for pro-active demand-responsive management of traffic. As such, it enables energy-efficient multi-modal transport choices that accommodate dynamic variations, thereby minimising the environmental impact and improving the quality of life in urban environments. Moreover, MODUM will consider commuters, in combination with both private and public transport, facing dynamic conditions such as unexpected disturbances that are typical for urban environments.

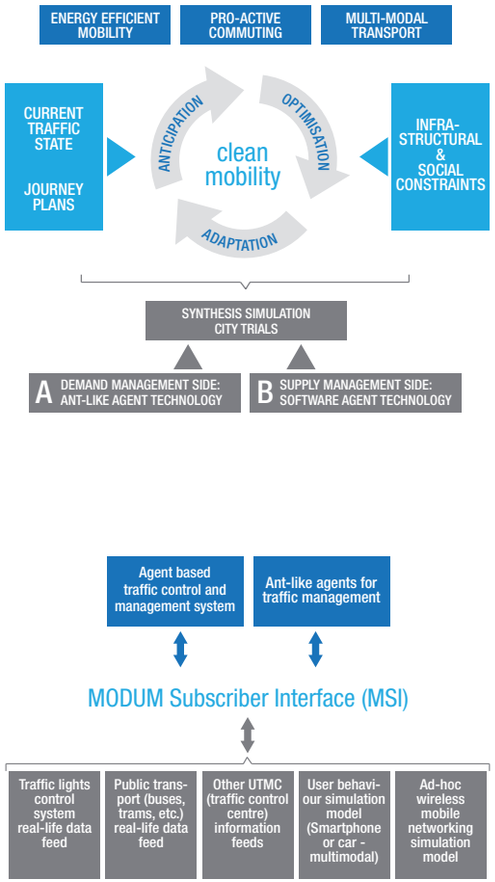
To date the project has undertaken a requirements capture for low-carbon and efficient mobility by means of three qualitative studies. They each rely on a different research technique, namely (1) a survey for collecting critical incidents, (2) a two-round Delphi study, and (3) a series of focus group interviews at different locations (Nottingham and Sofia). The triangulation of these studies has provided an in-depth understanding of current commuting behaviour and practices in addition to the factors that influence such behaviour.

MODUM is currently in the process of synthesising two approaches, 1) a traffic flow self-organising mechanism based on ant-like agent technology and 2) a "reverse" route planning based on software agent technology; using real-time data and declared destinations. The synthesised approach will then be implemented in software, focusing on the telecommunication challenges of a realistic demonstrator. The prototype will provide an implementation of an optimisation approach to traffic management, capable of dynamically adapting the overall flows of traffic to unexpected disturbances. This is done in light of minimising carbon emissions within a complex urban environment in Manchester and Sofia.

It is envisaged that the implementation and application of this technology will produce a consequent reduction in both pollution levels and energy consumption in the transport sector.

- New approach for pro-active demand-responsive management of traffic
- Requirement capture for low-carbon and efficient mobility
- In-depth understanding of current commuting behaviour and practices
- Synthesis of ant-like and software agent technology
- Consequent reduction in both pollution levels and energy consumption

Expected Results



MODUM aims to improve the efficiency of energy consumption and to reduce the CO_2 emissions in the transport sector by building a "clean and efficient mobility", only achievable by an appropriate combination of scientific, technical and social objectives in the area of ICT for the transport sector.

In MODUM scientific objectives push the state-of-the-art in the area of pro-active traffic control and deliver new knowledge in the area in terms of models and requirements (demand and supply side).

The technical objectives take the scientific results and convert them in prototype systems, demonstrating the feasibility and exploring technical challenges arising when the models are to be implemented in technology.

The societal objectives align the technological and scientific results with the society and its people: Prototype devices will be prepared for a number of vehicles for the MODUM test sites in Nottingham in UK and Sofia in Bulgaria.

Thus by achieving all these scientific, technological, and societal objectives, MODUM will enable "clean and efficient mobility".