

## MoveOn Framework

The overall MoveOn environment is brought to life via:

- Creation of small to medium-scale spoken language resources (speech corpora) for developing on-motorcycle voice driven information services on a combined command-and-control/natural language system in three European languages (English, German and Greek).
- Creation of a noise database covering the different driving conditions.
- Robust automatic speech recognition combining head nods interaction under different driving conditions.
- Modular support for multiple modalities through a multi-modal and multi-sensor framework architecture.
- Design of a low cost communications-and head nods-enabled helmet encompassing state of the art noise reduction features compliant with helmet manufacturing safety standards and prototype development.
- Information access and wireless communication environment for motorcycle drivers (nomadic users).
- Proof-of-concept zero-driver-distraction interface showcased through the use of evaluation scenarios.
- Organisation of two 1-day public showcase and dissemination events in Germany and Greece and a 3-day evaluation workshop in United Kingdom within 2008.
- Organisation of a 2-day Pan-European Workshop in Milan, in 2008, showcasing the project results, aiming for increased industrial participation and also inviting refereed presentations from International prominent Research activities.



MoveOn

European Network

## MoveOn Partners

Systema Technologies S.A. (Coordinator)



Athens - Greece

<http://www.systematechnologies.eu/>

Pininfarina S.p.A



Torino - Italy

<http://www.pininfarina.it/>

The University of Reading



London - United Kingdom

<http://www.rdg.ac.uk/>

Microtech International Ltd. Sp. z o.o.



Wroclaw- Poland

<http://www.microtech.com.pl/>

Fraunhofer - Gesellschaft zur Forderung der angewandten Forschung e.V. for its Fraunhofer Institute Media Communication (IMK)



Sankt Augustin - Germany

<http://www.imk.fraunhofer.de/>

University of Patras, The Wire Communications Laboratory



Patras - Greece

<http://www.wcl.ee.upatras.gr/>

West Midlands Police Authority



Birmingham - United Kingdom

<http://www.west-midlands.police.uk/>

Thales Communications S.A.



Paris - France

<http://www.thales-communications.com/>

## Contact

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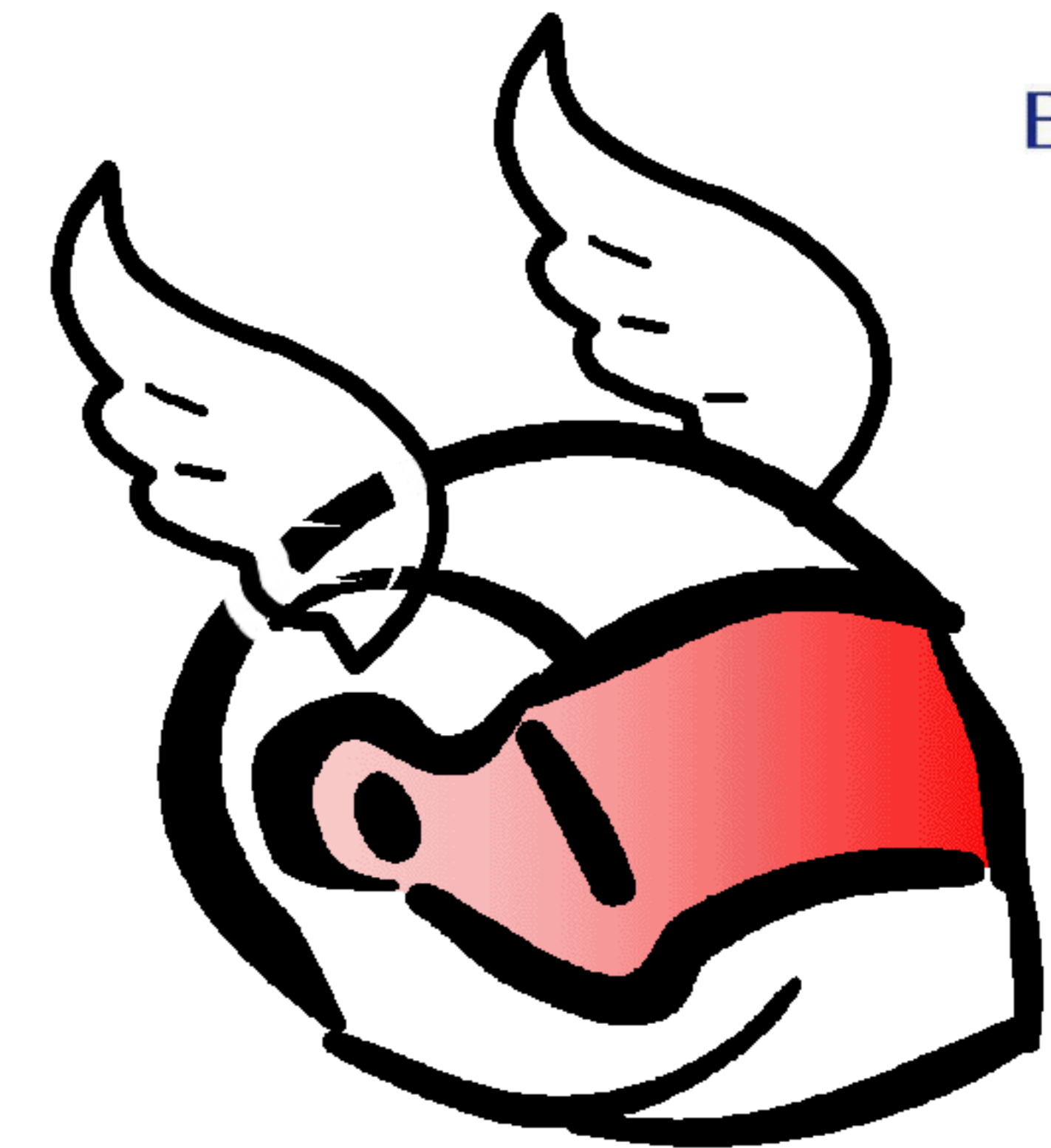
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European Commission



MoveOn



Information Society  
Technologies



<http://www.m0ve0n.net>

## MoveOn Objectives

MoveOn addresses the development of an innovative multi-modal and multi-sensor helmet for motorcycle drivers. The project is aiming to produce an interface system adaptable to commercial motorcycle helmets plus to design a custom motorcycle helmet to ergonomically integrate the MoveOn environment.

The MoveOn environment comprises of the MoveOn helmet interface, middleware to manage multi-modal and multi-sensor data and application scenarios targeting Police motorcyclists' needs. Multi-modal and multi-sensor middleware will be encompassing functionalities of robust speech-processing, of multi-sensor fusion supporting the provision of driving risk estimation data, and of controlling information channeled to drivers thus implementing a zero distraction interface.

The MoveOn environment accommodating the afore-mentioned components is being evaluated in a structured combination of command-and-control with natural language Police-situated context at real time field experiments.



MoveOn environment: Multi-modal/multi-sensor helmet, robust speech-processing system, Police application

## MoveOn Workplan

Based on methodologies for assessing the user's distraction, while interacting with the prototype system, MoveOn aims at identifying driving conditions in which the motorcyclist's attention is disrupted endangering the motorcyclist's safety. This initial step is combined with on the field controlled experiments to conclude a set of multiple sensors attached to the motorcycle frame.

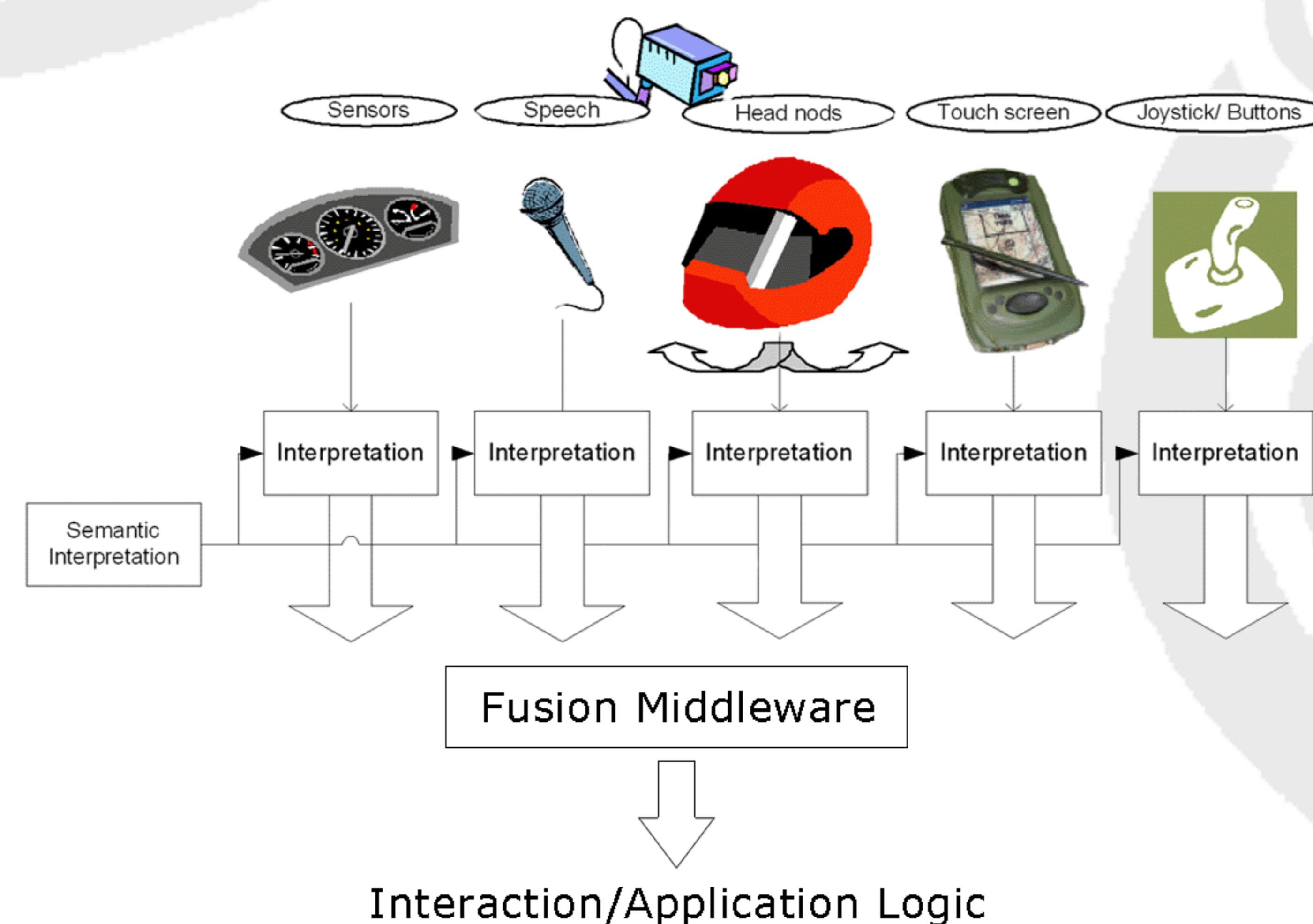
The next step designs and develops a noise database covering different driving conditions and determining the characteristics of the transmission channel and the remote user interface. Speech enhancement and noise suppression are combined with available microphone technologies to finalize dialog management with user modeling capabilities.

In following, the image modality is exploited to determine a head nod tracking module. Hence, complimentary use of speech/head nodding ensures an innovative in-vehicle set-up securing multi-modal fusion to support a "hands-free" and "eyes busy" situation.

The MoveOn prototype aims to be tested and evaluated in real-life Police scenarios involving Police motorcyclists. The evaluation concept addresses law enforcement operations notably:

1. Police Car Chase Scenarios
2. Lone Police Arrest Attempt Scenarios
3. Incident/ Emergency Management Scenarios

### MoveOn Middleware



## MoveOn Prototype

Ultimately, the MoveOn environment is expected to:

- reduce the time needed for information exchange between a mobile unit and a central operations unit,
- as a consequence of the above, improve the operations success rate,
- provide an information channeling mechanism for individual driver's safety on the road.

The final stage of development brings MoveOn partners in possession of:

- an environment comprising of a hardware design (helmet and helmet interface),
- a hardware prototype (helmet interface),
- middleware modules (robust speech-processing, head nod tracking, multi-sensor risk data estimation, multi-modal fusion and channeling),
- a set of applications and application scenarios for Police law enforcement,
- and a knowledge-full set of methodologies experienced in the area of motorbike comfort and safety markets.

The afore-mentioned generic results described in International Exhibitions, Conferences, ICT and Transport Fora underpin future marketing activities.

Updated MoveOn developments are depicted on the showcase site: <http://www.moveon.net/showcase>

### MoveOn Middleware

