

Monday 10 October, 2011

## THE THINKING MAN'S NISSAN

### NISSAN in Europe collaborates with EPFL to work on futuristic R&D technologies

After scanning the thought patterns of its driver, the car of tomorrow will be able to predict its next move. As the driver thinks about turning left ahead, for example, so the car will prepare itself for the manoeuvre, selecting the correct speed and road positioning, before completing the turn.

It's just one of a series of innovative plans for the future of motoring being investigated by Nissan. The aim? To ensure that our roads are as safe as possible and that the freedom that comes with personal mobility remains at the heart of society.



Nissan is undertaking this pioneering work in collaboration with the École Polytechnique Fédérale de Lausanne in Switzerland (EPFL). Far reaching research on Brain Machine Interface (BMI) systems by scientists at EPFL already allows disabled users to manoeuvre their wheelchairs by thought transference alone. The next stage is to adapt the BMI processes to the car - and driver - of the future.

Professor José del R. Millán, leading the project, said: "The idea is to blend driver and vehicle intelligence together in such a way that eliminates conflicts between them, leading to a safer motoring environment."

Although thought control - via brain-machine interface - is well established in the scientific world, the levels of concentration needed are exceptionally high. The Nissan/EPFL collaboration is developing systems that go to the next stage using statistical analysis to predict a driver's intentions and to evaluate a driver's cognitive state relevant to the driving environment.

Using brain activity measurement, eye movement patterns and by scanning the environment around the car in conjunction with the car's own sensors, it should be possible to predict what the driver plans to do - be it a turn, an overtake, a lane change - and then assist with the manoeuvre in complete safety, thus improving the driving experience.

For the programme, the scientists at EPFL were joined by a researcher from Nissan this summer. Lucian Gheorghe, originally from Romania but who has spent the last 14 years of his life in Japan, joined Nissan's Mobility Research Center after graduating in Computer Science and Artificial Intelligence from Kobe University.

At Nissan, Lucian has been responsible for researching a number of Driver Assist systems as well as searching for new ways of adapting brain science programmes into automobile development.

"Brain wave analysis has helped me understand driver burden in order to reduce driver stress. During our collaboration with EPFL, I believe we will not only be able to contribute to the scientific community but we will also find engineering solutions that will bring us close to providing easy access to personal mobility for everyone," he said.

"As part of our recently announced six year plan - Nissan Power 88 - we are focusing on new technologies. We have already developed a number of advanced safety systems for our cars - such as Intelligent Cruise Control, Distance Control Assist or Moving Object Detection, all systems that constantly scan the environment around the car - and the research being undertaken by EPFL complements this perfectly," said Christopher Benardis, GM Product Economic and Control, Business Development & OC-E Office at NISSAN International SA.

"By developing innovative safety features we will be able to give greater peace of mind to drivers and their passengers and keep Nissan at the heart of a mobile society long into the future."

## **About Nissan**

Nissan Motor Co., Ltd., Japan's second-largest automotive company, is headquartered in Yokohama, Japan, and is part of the Renault-Nissan Alliance. Operating with more than 248,000 employees globally, Nissan provided customers with more than 4.1 million vehicles in 2010, generating revenue of 8.77 trillion yen (\$102.37 billion US). With a strong commitment to developing exciting and innovative products for all, Nissan delivers a comprehensive range of 64 models under the Nissan and Infiniti brands. A pioneer in zero-emission mobility, Nissan made history with the introduction of the Nissan LEAF, the first affordable, mass-market, pure-electric vehicle and winner of numerous international accolades, including the prestigious 2011 European Car of the Year award and 2011 World Car of the Year.

For more information on our products, services and commitment to sustainable mobility, visit our website at <http://www.nissan-global.com/EN/>.