



Press Release

Frankfurt / Main – September 12, 2005

As a world premiere, during the 61st IAA Motor Show, INTELLITECH [intelligent technologies] presents live demos of xpark![®], the innovative system for parallel parking that upgrades basic beep-beep systems into advanced parking aid solutions. Thanks to its embedded intelligence, xpark![®] evaluates the parking slot dimensions, and helps the driver easily and quickly park the vehicle in the slot.

Parallel parking is still considered a difficult task in many situations. When parking slots are tight or the traffic is heavy, evaluation errors due to stress are common. Night vision and new vehicle designs (such as SUV) make parking even more difficult. State of the art marketed parking aids offer at best camera-generated rear-views, or audio signals indicating the proximity of surrounding obstacles.

INTELLITECH has designed and developed xpark![®], an advanced parking aid system offering four levels of automation. **xpark![®] SENSE** evaluates the dimensions of the detected slot and indicates to the driver whether it is large enough to park the vehicle. It also indicates the degree of difficulty of the maneuver: easy, medium, hard or very hard. **xpark![®] COACH** assists the driver in executing the maneuver perfectly. Guidance instructions (turn left / right, stop, move forward / reverse) are given through a visual and acoustic user-friendly interface. For a more ergonomic maneuver, **xpark![®] STEER** takes control of the steering wheel while giving instructions to the driver to move forward / reverse or to stop. In the expectation of total “hands-free” parking, **xpark![®] DRIVE** parks the vehicle automatically in the slot.

The most distinguishing feature of xpark![®] is that it simulates expert driver behavior: it parks the vehicle the way a skilled human would do. It computes real-time set points during the maneuver. If the maneuver needs more than one reverse-forward cycle (such as in case of tight slot), the system performs with the suitable number of cycles. Not relying on trajectory planning (pre-calculated track), xpark![®] automatically adjusts to changes in parking environment, and takes into account the driver's actions and intentions. Thus, the system remains robust even when the driver does not follow the instructions precisely.

xpark![®] uses low-cost and widespread automotive ultrasonic sensing technology. For compact or mid-size cars, xpark![®] requires only ten sensors to accomplish the maneuver. At IAA 2005, INTELLITECH presents xpark![®] SENSE, COACH and STEER implemented on a FORD Focus C-max¹ with automatic gearbox and equipped with tactile display, steering wheel actuator and COBRA AUTOMOTIVE TECHNOLOGIES ultrasonic sensors. This xpark![®] demonstrator operates with high performance: only one cycle is necessary to park into a slot of 5.90 meters. It even succeeds through multi-cycle maneuver to park into a 5.15 meters slot, without bumping any obstacle.

¹ length: 4.33m, width: 1.83m, wheelbase: 1.54m, turning circle: 10.70m

Safety is guaranteed: when obstacles are too close to vehicle corners, xpark!® executes a specific collision avoidance maneuver to protect bumpers. At any time, xpark!® can diagnose driver's intention to override the delivered guiding advice. Furthermore, the human-machine interface provides instructions without cognitive saturation: xpark!® only warns of potential hazards that are located on the vehicle path.

xpark!® benefits from worldwide copyrights and patents (15 countries in Americas, Europe and Asia). The xpark!® software components (SENSE, COACH, STEER, DRIVE) can be adapted by INTELLITECH to any vehicle platform. xpark!® will be marketed through licenses, directly granted to VM or to tier 1 automotive suppliers so as to offer VM a complete hardware-software solution.

About INTELLITECH

INTELLITECH [intelligent technologies] is a private R & D company located at Compiègne (70 km north Paris, France), specializing in the design of intelligent systems (software components). Based on Soft Computing techniques, with focus on fuzzy logic, these systems are able to make decision autonomously in an unknown and changing environment. INTELLITECH has developed many driving aid systems by the past for the car manufacturer RENAULT. Among these:

- *Autonomous Intelligent Cruise Control*
- *Transversal monitoring (Lane Keeping)*
- *Auto-adaptive emergency breaking assistance system [WO 02057123]*
- *Diagnosis of driver actions for automatic bus docking [FR 2780696]*
- *Automatic transversal lane control [EP 0927677]*
- *Diagnosis of driver actions and intentions [FR 2787081]*
- *Modeling of driver behavior*
- *Auto-adaptive monitoring of automatic gearboxes [FR 2775749]*

INTELLITECH is also the editor of the xtractis® decision software package, designed for predictive modeling and optimization of complex processes.

Special thanks to Oséo (French Innovation Agency) and WinSoft, for their support and confidence.

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Additional information will be soon available at:

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