



Intelligent Parking Aid System

S E N S E

C O A C H

S T E E R

D R I V E



Park like an expert. fast & easy.

xpark!® is the first parking aid system which simulates expert driver behavior for outstanding results at low cost. Benefits for users: enhancement of driving comfort and safety, reduction of repair costs.

xpark!® unique technologies

Thanks to its innovative Soft Computing techniques, xpark!® emulates the parking strategy of a skilled driver.

Proprietary algorithms, based on the intelligent fusion of heterogeneous data, give xpark!® its robustness in unknown and dynamic environments.

End-user centered design of xpark!® guarantees proper management of system-driver interactions, in order to deliver high value information and guidance.

4 levels of assistance

- 1 xpark!® SENSE** - Detects parking slot. Evaluates degree of difficulty of parking maneuver (easy, medium, hard, very hard), and indicates whether it is large enough to park. Warns of potential front/rear hazards located on the vehicle path.
- 2 xpark!® COACH** - Provides the driver with optimal guiding advice to easily park the vehicle through visual and acoustic user-friendly interface (turn left/right, stop, move forward/reverse).
- 3 xpark!® STEER** - Takes control of the steering wheel during parking maneuver while giving instructions to move forward/reverse or to stop.
- 4 xpark!® DRIVE** - Parks the vehicle automatically in the slot!

XPARK!® FEATURES

Simulates expert driver behavior without any trajectory planning

Handles tight parking slots with suitable number of cycles

Auto-adapts to changes in parking environment and to driver's actions and intentions

Uses widespread ultrasonic sensing technology



Intuitive interface.



S E N S E



C O A C H

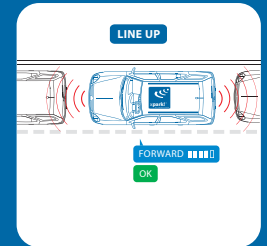
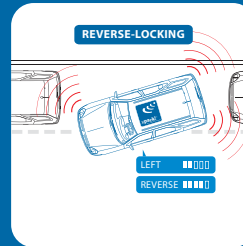
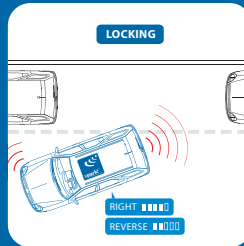
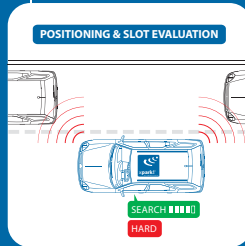


S T E E R



D R I V E

xpark!® analyses the parking situation step by step and computes set points in real time, simulating an experienced driver's strategy. It auto-adapts to changes (obstacles moving during manoeuvre). xpark!® takes into account the driver's actions and intentions, when he/she does not follow guiding instructions precisely.



Parking cycle in 4 sequential phases

xpark!®: high-performance intelligent parking aid system

- Robust slot evaluation with ± 30 cm error
- Tight slot situations with suitable number of cycles
- Good accuracy at speeds from 5 to 20 km/h
- Good accuracy at a lateral distance 0.50m - 1.40m/parked cars
- Collision avoidance with rear corner of front obstacle
- Collision avoidance with obstacles on opposite side
- Situations with curved car trajectory/not parallel to the slot
- Situations with posts/trees/poles
- Situations without curb/with undetected curb

xpark!®: limited OEM investments

- Existing vehicle sensors via CAN (ABS/gyro/steering angle)
- 10 automotive ultrasonic sensors
- Fewer memory than environment mapping technique
- Fewer processing power than trajectory planning
- Visual/acoustic/kinesthetic HMI, according to each VM
- Easier implementation of xpark!® STEER and DRIVE with emerging X-by-wire technologies

xpark!®: marketed through licensing

- Adaptation to any vehicle platform
- Worldwide protection by copyrights and patents (15 countries)
- Licensing of patents and software components to VM or to tier 1 automotive supplier



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