Parking sensor

Ultrasonic parking sensor

Parking sensors are proximity sensors for road vehicles designed to alert the driver of obstacles while parking. These systems use either electromagnetic or ultrasonic sensors.

Ultrasonic systems

Parking sensor on a fender

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The sensors emit acoustic pulses, with a control unit measuring the return interval of each reflected signal and calculating object distances.[1] The system in turns warns the driver with acoustic tones, the frequency indicating object distance, with faster tones indicating closer proximity and a continuous tone indicating a minimal pre-defined distance. Systems may also include visual aids, such as LED or LCD readouts to indicate object distance. A vehicle may include a vehicle pictogram on the car's infotainment screen, with a representation of the nearby objects as coloured blocks.

Rear sensors may be activated when reverse gear is selected and deactivated as soon as any other gear is selected. Front sensors may be activated manually and deactivated automatically when the vehicle reaches a pre-determined speed — to avoid subsequent nuisance warnings.

As an ultrasonic systems relies on the reflection of sound waves, the system may not detect flat objects or object insufficiently large to reflect sound — e.g., a narrow pole or a longitudinal object pointed directly at the vehicle or near an object. Objects with flat surfaces angled from the vertical may deflect return sound waves away from the sensors, hindering detection. Also soft object with strong sound absorption may have weaker detection, e.g. wool or moss.

Blind spot monitors and other technology

Blind spot monitors are an option that may include more than monitoring the sides of the vehicle. It can include "Cross Traffic Alert," "which alerts drivers backing out of a parking space when traffic is approaching from the sides."[4][5][6]

Inventors

Already in the 1970s German inventor Rainer Buchmann developed parking sensors.[7] December 13, 1984 Massimo Ciccarello and Ruggero Lenci (see List of Italian inventors) entered in Italy the patent request for ultrasonics Parking sensors, and November 16, 1988 the Ministry of Industry granted them the Patent for industrial invention n. 1196650.[8]