# Driving simulator

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# Invention

The invention resides in a low-cost technology to simulate the driving of a motorcycle for play or safety training purposes, ensuring the realism of a high-tech simulator and the complexity typical of video game platforms. The patented simulator with patented gyroscopic effect is an essential tool for the future of two wheels: a tool for the development of new assistance systems, an accessible tool for every driving school to train to manage emergency situations, an exceptional video game platform.

Driving simulation is now able to replace training and technical developments even in the field of sports competitions. The private individual or the research institute can take advantage of the same technologies to increase safety through the development of new devices and specific training, or even simply use recreational applications. For motorcycles, the costs and technical difficulties of the realization severely limit the use of simulators: to date there is no valid compromise between the high realism obtainable with a high-tech simulator and the poor realism results of a trivial instrument from video games.

The proposal of a drive capable of generating gyroscopic effects, applied to an ingenious system of low complexity and low cost, increases the user experience by maximizing the reactivity of the simulator. Indeed, the latter is a key element in the perception of driving realism.

Our approach makes it possible to obtain a behavior of the steering and of the entire simulator consistent with the complex dynamics of the motorcycle, without the need for sophisticated actuators and complex control systems, which are particularly expensive in terms of maintenance to ensure stability of performance.

Drawings
& pictures

# Industrial applications

The technology allows the development of workstations for industrial use dedicated to the development of innovative driving assistance systems, as well as the creation of instrumentation for safe driving training, in particular to manage emergency situations without concrete risks for the user. Playful and entertainment applications are obviously possible: the machine can therefore be used in amusement arcades, private events, exhibition stands, science and technology museums. The patented instrumentation is also a useful support for research activities, in particular in the behavioral and interface between driver, vehicle and environment.

The advantages ensured by the invention lie in the speed and safety in the development of driver assistance systems and in the execution of training activities; in reducing costs for training in safe driving; in the high perception of control of the vehicle in peculiar simulation situations; in extremely low familiarization times (typically, for high-end simulators these reach 4-5 hours); in the availability of research simulators that require reduced maintenance, simple calibration and ease of user adaptation.

## Possible developments

The patent is available under an exclusive and non-exclusive license. The licenses are available for the entire remaining term of the patent titles.

The research group is available for new research activities in collaboration and on behalf of third parties, technical insights, scientific advice, also aimed at raising the TRL of technology.

The TRL of the invention is 4/5.

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