

## **Methodical Data Collection for Light Electric Vehicles to validate Simulation Models and fit AI-based Driver Assistance Systems**

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### **Abstract:**

Electric bicycles and cargo bikes have become an indispensable part of today's road traffic. This is caused by the high diversity of applications and available products. Due to the growing interest, the demand of driver assistance systems (DAS) and safety concept for light electric vehicles is increasing.

This paper presents an approach to collect vehicle dynamic parameters for the validation of simulation models. For this purpose, a measurement system is developed to capture and monitor driving dynamic information of the device under test (DUT) in real time. This data is used to fit pre-developed simulation models and DAS applications.

To investigate the vehicle dynamic behavior in critical driving situations, an extensive test study is executed. Therefore, different ordinary driving situations in urban traffic are analyzed. Finally, the collected measured data is compared with the simulation results of a multi-body model for a multi-lane cargo vehicle.

### **Keywords:**

Vehicle dynamics – Light electric vehicle – Tricycle – Data logger system – Data collection – Driver assistance systems