

## **Lateral Control of Autonomous Electric Cars for Relocation of Public Urban Mobility Fleet**

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**Abstract** - This brief deals with lateral dynamic control of electric vehicles in an urban environment, motivated by individual public transportation issues, aimed to contribute to reduce metropolitan areas pollution. The framework in which the control strategy is developed is the so-called “look-down reference,” in which the lateral displacement is obtained from a onboard sensor, interacting with a road infrastructure. In this framework, the designed control algorithm is made up of a combined feedback-feedforward structure. The feedback action is given by three nested closed loops with cascade compensators, where the outer one is nonlinear. The feedforward action is based on the knowledge of the road curvature, corrected by the measure of the car lateral displacement. Results from experimental tests performed on an actual circuit show the effectiveness of the considered control strategy.