Research Paper on Autonomous Vehicles

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Abstract*: The article discusses the short, medium, and long-term effects of Autonomous Vehicles (AVs) on the urban transportation and environment by means of a systematic review of the extant literature on the subject matter. A corpus of 130 articles was collected from multiple sources using selected keywords. The review critically analyzes key findings of these papers in the light of a SWOT (Strength, Weakness, Opportunity, and Threat) analysis. Although the technology remains to be commercially deployed, broad consensus is found in the literature. First, AV would influence urban transportation and human mobility by reducing vehicle ownership, public and active travel, Vehicle Miles Traveled, traffic delay and congestion, travel costs, and by increasing accessibility, mobility, and revenue generation for commercial operators. Second, AVs would have long-term effects by encouraging dispersed urban development, reducing parking demand, and enhancing network capacity. Third, AVs would reduce energy consumption and protect the environment by reducing Greenhouse Gas emissions. Fourth, AVs would reduce traffic crashes involving human errors and increase the convenience and productivity of passengers by facilitating for multitasking. However, most people are very concerned about personal safety, security, and privacy. Finally, the study identifies critical research gaps and advances priority directions for further research.*

Keywords: Autonomous vehicles, Cooperative driving, LiDAR Security, Ultrasonic sensors