Autonomous Vehicles in Urban Transportation Systems for Enhanced Efficiency and Safety

Hiyab Yirga Kefela

*aDepartment of Civil Engineering, E-ITD, Debremarkos University, Addis Ababa, Ethiopia, Mobile: +251923466143, E-mail:* [*nahomdanielexpr*](mailto:nahomdanielexpress@gmail.com)[*ess@gmail.com*](mailto:ess@gmail.com)

**Abstract**

The purpose of this study was to explore the integration of autonomous vehicles in urban transportation systems, focusing on potential improvements in efficiency and safety. Transportation engineering plays a crucial role in developing a sustainable and efficient transportation systems to meet the increasing demands of fast growing urban areas. The autonomous vehicle transport system includes potential impacts on traffic flow, energy consumption, and infrastructure utilization. This study has included surveys and interviews with policy makers and transportation experts and users to gather valuable insights and options. The study has focused on analysing the traffic congestion *CO*2 emission and travel times considering the intelligent transportation systems, data management and dedicated lanes for efficient real time communication. It has also developed necessary infrastructure upgrades, policy and regulatory framework required to support the widespread implementation of the autonomous vehicle transport systems in cities.

*Keywords: Urban, Transportation, Autonomous, Efficiency, Infrastructure.*

*Preprint submitted to Teacher 2023-International Teaching Conference, 20-21 November, London, UK. August 19, 2023*