Development of a CANBus-based Ecodriving System for Public Transport Bus Services

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Abstract

Driving vehicles according to eco-driving principles and techniques have an important impact on decreasing both fuel consumption and carbon dioxide emissions. In addition to some kind of technical and/or mechanical features brought by today's new generation vehicles, driver behavior is also one of the greatest factors affecting the fuel consumption. Many studies show that the effect of eco-driving education on the drivers loses its impact in long term and there needs some sort of continuous monitoring and/or feedback mechanisms. This kind of driver monitoring becomes very critical especially in fleets composed of heavy-duty vehicles, such as municipality buses, truck fleets etc. Moreover, in order to adapt behavior to drive more economically, information about instant fuel and carbon dioxide waste has to be provided to the driver. Hence, in this project, an eco-driving system was developed in which data gathered from the controller area network (CANBus) of public transport vehicles are processed for both comparative and fair evaluation of bus drivers' eco-driving performance. Moreover, in-vehicle components of the system guide the drivers during their trips and provide feedbacks and real-time warnings considering their current eco-driving performance. Developed system was successfully deployed and assessed in the public metrobus system of Lahore, Punjab, Pakistan for 15 months.

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Project Team:

Mehmet Burak AYDIN (Project Coordinator)

Asst. Prof. Dr. Geylani KARDAS (Consultant)

Egemen EVIN (Software Developer)

Caner ALTUNTAS (Software Developer)

Hidayet Burak SARITAS (Software Developer)

Can OZ (Software Engineer)

Gokhan SORUCU (Hardware Designer)

Related Publications:

1. Evin, E., Aydin, M. B. and Kardas, G. (2020) "*Design and implementation of a CANBus-based eco-driving system for public transport bus services*", IEEE Access, vol. 8, no. 1, pp. 8114-8128, DOI: 10.1109/ACCESS.2020.2964119.