Classification of Driving Styles in the Metropolitan Area of Bucaramanga with On-board Monitoring (OBD-II) in Real Road Conditions.

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Abstract

Intelligent Transportation Systems (ITS) are key enablers to achieve the objectives of public transportation and transit policies. These systems make it possible to optimize the use of the existing tools and resources by increasing the control, effectiveness, efficiency and safety of transport systems and infrastructure, to better accommodate and manage the growing demand for mobility. This is achieved with the implementation of low-cost technologies that allow the monitoring and acquisition of data to consecutively create enough databases that are used by public and / or private entities for decision-making based on, management and future planning of the infrastructure.

Driving style refers to the way the driver operates the vehicle's controls in the context of the driving scene and external conditions such as, day of the week, time of day, weather, weather conditions, road type and the emotional state of people, among others. Commonly, previous studies can be classified into two groups: survey or questionnaire studies and studies based on the variables (i.e Characteristics Parameters- CP's) that describe the behavior when while the vehicle is running. Some advantages to driving styles recognition and classifying task are: to save more than 25% of fuel consumption when good driving styles, improve the utilities of ADAS Systems in automated vehicles and energy management system.

In addition, driving cycles are developed as a tool to describe driving patterns through CP's, in some cases, including fuel consumption. Also, they seek to reproduce real driving conditions with good precision and therefore, through them it is possible to classify driving styles based on statistical measures (i.g standard deviation, mean square error - MSE).

The project aims to address mobility problems in the Metropolitan Area of Bucaramanga by answering the question of what are the habits or driving styles of people in the region? From the implementation of an On-board monitoring system (OBD- II) for a sample of light vehicles greater than 15, recording data second by second for 4 months, which will allow, to develop a local driving cycle more representative and at the same time, classify the driving styles that help to adequately describe the driving pattern in the city from statistical methods. Finally, by identifying driving styles, it is possible to know what the driver's habits are when facing the different driving conditions, and thus establish the future work to solve mobility needs existing in the city.

Keywords
Driving styles, driving cycles, intelligent transportation systems.

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Biographies

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