CONGESTION MINIMIZATION THROUGH SUSTAINABLE TRAFFIC MANAGEMENT—A MICRO-SIMULATION APPROACH

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Abstract
In this work, the management of a high circulation road connecting two mainstream cities in Chile is tackled. The cities are connected through a coastal road and is permanently under congestion effects. This situation leads to much discontent in the users and negatively impacts both economically and environmentally as well. This problem setting arises in many other countries and is subject of a relevant body of research.

To minimize the impact of congestion in this problem setting, a micro-simulation is performed in VISSIM. This model, incorporates the road and its users and represents their driving behavior and its impact on congestion. Throughout the experiments conducted, the emissions of CO2 are calculated; this allowed to define a set of congestion minimization strategies that also reduce emissions. These strategies were validated under a set of real-world scenarios and were able to solve a set of specific road management problems and optimize average travel time for users.

The model, the strategies and a case study are introduced and discussed, also, future research directions are given.