Identifying and Visualizing Congestion Bottlenecks with Automated Vehicle Location Systems: Application in Transantiago, Chile

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Abstract

Monitoring speeds and identifying problem areas are essential for any public transport system because of the direct impact on its operating costs and on users' travel time. This study generated a tool that identified, quantified, and displayed operational bottlenecks of bus operation in a city. The model was applied to the public transport system in Santiago, Chile, which faced a steady decline in operating speed. It was possible to identify locations with the most serious problems; this factor allowed transit authorities to focus their efforts on the areas that needed it the most. In addition, it was found that problems were concentrated in certain sectors of the city, including the central business district and intersections where the radial axis roads encountered the city's central ring road. Once a problem is identified, it is essential to conduct site visits and combine the findings of this research with other sources of information to find the cause of the problem and propose solutions..