SonicRoutes: an application to find the quietest routes

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ABSTRACT

The issue that many cyclists and pedestrians face every day is the danger posed by road traffic. Even in urban areas, speed limits are often high and frequently ignored by road users, which discourages the use of non-motorized means of transportation. Finding the quietest route, which is likely to be less trafficked, can provide cyclists and pedestrians with a tool to ensure their safety. Traditional routing applications are based on the fastest path between two points, whereas in this case, the focus is on the cumulative noise along the road segments connecting the start and end points.

This document presents a brief introduction to the problem to demonstrate the utility of an application like this, an analysis of the client-server architecture used to collect data and manage the functionalities provided to the user, the presentation of the experimental data collected, an analysis of battery consumption during use, and a concluding section to summarize the findings and propose potential future improvements.

1 Introduction

In recent years, several local administrations have started to introduce speed limits of 30 km/h in city centers. It has been demonstrated that this measure benefits both vulnerable road users and motorists. The percentage of fatalities in the former category has significantly decreased, while travel times in these areas have also reduced in parallel with the decrease in road congestion. Slow zones also serve as a tool to boost the economy in the affected areas and encourage social mixing, acting as meeting points for people from otherwise poorly connected areas.

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