PROJECT TWOPAGER | EUROTEQATHON III

PROJECT DETAILS

Challenge Collaborator: Citya

Team name: NoiseWise

Team slogan: REAL TIME MOBILITY DATA BASED ON TRAFFIC
NOISE ANALYSIS

Team members (full name | study program | university)

Šimon Kuchánek	Faculty of Biomedical Engineering	ČVUT
bc. Pavel Svoboda	Faculty of Architecture	ČVUT
Richard Šedivý	Faculty of Information Technology	ČVUT

Target problem

The target problem was to find a solution that can help determine the needs of residents in regards to sustainable alternatives to mobility.

Solution:

We decided to look for a simple and cheap solution that can be used to measure traffic flow between rural municipalities. Our solution consists of a smart sensor that utilizes microphones to classify the direction and type of vehicle on the road via machine learning. This data can then be collected and integrated into a model that can be used to analyze the real-time demand for mobility in these municipalities, which is useful for developing sustainable alternative modes of transport.

Potential for impact

Our solution presents a new, cheap, and easily scalable system of smart sensors catered to areas where existing solutions are inadequate – namely, rural towns and municipalities. Our sensors can provide insights about smart mobility for local government and the private sector. The data can, for example, be used to optimise sustainable mobility options, or predict demand for future innovative solutions. The real time nature of the data can even be used to train predictive models of demand for applications such as prepositioning of rideshare options.

Innovation

Existing solutions are focused on use in urban areas, which imposes certain limits on their design. Our solution is unique because it doesn't require any external infrastructure, intrusive roadwork or other modifications to function. Furthermore, it is much cheaper since it uses simpler sensors - the lower traffic volume allows for the use of cheap microphones instead of cameras or inductive sensors. The data output is also different. Since congestion is usually not an issue between rural towns, our sensor instead focuses on the inflow and outflow of passenger traffic between municipalities which can be used to generate unique insights.

Feasibility

We have a working prototype which we have already successfully deployed in a case study. We think that it is very feasible to manufacture a production version which could cost as little as 60€ per device. The device is low maintenance and long-lasting, and can be made locally in a sustainable manner. There also are existing subsidies and other incentives in the area of smart mobility on both on the national and european-wide level, which we believe could further assist in bringing this idea to reality.

Inclusivity

We have developed our solution in collaboration with Citya, which is a startup that specialises in providing sustainable rideshare alternatives to personal vehicles in rural areas. Their feedback was instrumental in allowing us to understand the nuances of obtaining data on mobility outside of cities.