

Siemens Mobility's pilot project shows how to reduce air pollution hotspots in Munich

- **Siemens Mobility, ryd and Hawa Dawa use environmental and vehicle data to optimize traffic**
- **Pilot proves managing traffic at an individual level can reduce air pollution hotspots**
- **35 to 40 percent of drivers took more eco-friendly alternative routes**

Siemens Mobility, ryd (a platform by ThinxNet), and Hawa Dawa completed a real-world pilot project showcasing that individual vehicle drivers can be influenced to take an alternative route and air pollution hotspots can subsequently be reduced. The pilot shows an alternative approach to general city tolling, which could also be combined with public transit to enhance intermodal mobility.

The pilot utilizes real-time sensors to measure air pollution and analyzes the data to reroute traffic in an optimal manner throughout the city. The four-week pilot was launched in November 2018 and has promising results. It shows that 35 to 40 percent of drivers are willing to contribute to reducing air pollution by rerouting, when they are provided alternative routes on their ryd platform. In addition, optimizing traffic at an individual level can help to reduce overall air pollution within a city. Initial results for more than 1,600 drivers show savings of 83 kg of CO₂ and 114 g of NO_x as well as a reduction in kilometers driven by 633 km in addition to the major goal of reducing pollution at hotspots. If the program were to be scaled to 20,000 drivers within a city, the savings would be equivalent to planting more than one acre of forested land.

The clean air project's objective was to prove that intelligent traffic control could help Munich – and other cities – to better achieve their sustainability goals. According to

Germany's Federal Environment Ministry, Munich has the second highest NO₂

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levels in Germany. Inrix's Traffic Scorecard consistently finds Munich's traffic one of the most congested in the country with the average driver spending 51 hours a year sitting in traffic jams. Throughout the European Union, the European Commission estimates health care costs due to air pollution to be between €330 to €940 billion per year, with traffic as the largest contributor.

Siemens Mobility, Hawa Dawa and ryd came together with the mission to prove that technology and data can be used to alleviate both traffic and the resulting air pollution.

"By shaping connected mobility, we can not only improve the efficiency of transportation, but also its impact on the environment. Our Intelligent Traffic Systems digital labs are at the forefront of data analytics and artificial intelligence in road transportation. We're proud that we have proven these capabilities can be used to improve Munich's air quality," stated Michael Peter, CEO of Siemens Mobility.

The partners worked together to prove the concept. Hawa Dawa provided pollution forecasts to Siemens Mobility's ITS Digital Lab in Munich, where data scientists and traffic management experts analyzed the data together with anonymized trip data from the smart car platform ryd to predict individual routes and suggest eco-friendly alternatives. The suggested 'green' routes were then provided to ryd users via an app before they started their journey. The users were incentivized to use the alternate routes by participating in a competition that ran throughout the pilot. During the competition, the most eco-friendly drivers received ryd points which can later be transferred into items such as Amazon vouchers.

"We are extremely happy about the results of this pilot. They prove that the ryd community can make a difference and that our data can support Smart City use cases. As an open platform, we are looking forward to building this into a joint product with Siemens Mobility and Hawa Dawa, partnering with cities across Europe and extending the movement towards clean air in our cities," says Johannes Martens, CEO of ThinxNet GmbH, the IoT company building the ryd platform.

"We believe eco-routing at the individual vehicle level has extremely high potential as a policy option in tackling unacceptable levels of traffic-related air pollution in cities. This pilot was able to demonstrate the impact on individual behaviors of such

a measure, in a short period of time. This hints at the huge untapped potential in trialing and adapting eco-sensitive routing alongside other smart mobility options within other large conurbations. Hawa Dawa's contribution to air quality monitoring, forecasting and modelling provides a critical first step in designing measures to tackle air pollution," Hawa Dawa CEO Karim Tarraf stated.

Longer term, the partners plan to pursue opportunities with other cities throughout Europe to help them achieve their sustainability goals and advance the intermodal mobility approaches.

This press release and a press picture are available at

www.siemens.com/press/PR2019020170MOEN

For further information about the ITS Digital Lab, please see

<https://new.siemens.com/global/en/products/mobility/road-solutions/digital-lab.html>

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