E-BIKE INSIGHTS

Srinivasan Keshav

Today, hundreds of millions of riders are hopping on electric bicycles, making this the fastest growing mode of low-carbon urban transport worldwide. And with good reason. E-bikes are environmentally friendly, they're easy to use and maintain, yet they cost much less than electric cars.

As alternative vehicles such as e-bikes grow in popularity, what impact will they have on Canada's roads and cities? To find out, WISE's Dr. Srinivasan Keshav and Dr. Lukasz Golab launched WeBike: a three-year study that probes what Canadians think about electric bicycles and how we use them, in 2014.

To start, the team distributed a survey to University of Waterloo faculty, staff and students to gauge their attitudes toward electric bicycles. Now, in phase two, they have deployed 31 e-bikes equipped with sensors and a smartphone to study riders' behaviours.

Voltage and current sensors on the bikes gather data about the electric charge. Meanwhile, the smartphone uses GPS and accelerometers to track distances, terrain, speed, the number of trips each day and other pertinent details. Since the project launched in the summer of 2014, those sensors have collected more than 100 GB of data.

Analyzing that information offers insights on how electric bicycle use will affect Canada's transportation infrastructure and how electric vehicles more broadly may impact the grid. Whether it's determining where to install charging stations or how temperatures affect battery life, the WeBike team are helping electrify transportation in Canada.

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