

What's the best electric car for you? Take this app for a test drive

December 14 2016



Credit: iStock

If you're thinking of buying a new car, there's a decent chance you're considering trying something greener. There's also a decent chance that some concern, big or small, has you hitting the brakes when it comes to

buying an electric car.

Maybe you think that you'll be tethered to charging stations and unable to take long trips, or that the battery won't last very long, or that you'll need some special charger installed at home, or that, one way or another, an electric car simply won't work for the way you live your life.

Lawrence Berkeley National Laboratory's Samveg Saxena is betting the phone in your pocket can change your mind.

He and his colleagues have developed a mobile app that monitors exactly how you drive, then crunches the data to show you which of dozens of environmentally-friendly cars will fit your personal driving habits.

"We've designed the app to be as easy and intuitive as FitBit, but for your driving habits," explained Saxena.

The goal is to help consumers eliminate the guesswork about whether an electric vehicle pencils out.

"Compared to conventional vehicles, electric vehicles usually have a higher upfront sticker price – but what is the payback to me?" said Saxena. "The uncertainty in the value of choosing a greener car is a barrier for many car buyers."

The MyGreenCar app, currently in beta release for iPhone and Android phones, puts the answer in consumers' hands, and does it in a personalized way. MyGreenCar compares available car options based on your unique driving habits, something an Environmental Protection Agency fuel efficiency estimate can't do.

Take a virtual test drive

Users simply install the MyGreenCar app on their phone, select the types of cars they have their eyes on, and then drive around in their current car as they normally would.

In the background, the app collects data on how you drive. Are you an aggressive driver? Do you brake quickly? Are you always getting stuck in rush hour traffic? Do you commute long distances at high speed? Or do you have to climb a steep hill to get to work every day?

"Every single person drives differently," said Saxena, "but people are pretty cyclical, so a week is generally a good amount of time for the app to collect enough information."

Your data is then crunched by MyGreenCar's servers, powered by the National Energy Research Scientific Computing Center.

Some serious computing power is needed: MyGreenCar creates personal profiles for each user based on around 5000 physics-based drivetrain models for commercially available cars going back to 2010, and predicts your costs, fuel economy, charging needs and more.

Before you set foot in a single new car, MyGreenCar lets you virtually test drive thousands of options to narrow it down to the options that fit your lifestyle, tastes and values.

The models used in MyGreenCar, validated both in the lab and on the road, can predict true fuel economy for drivers within 10 percent—a significant improvement over the current EPA estimates that can regularly be off by 30 percent or more, according to Saxena.

Smart decisions

Saxena received support for the research and app development from the

Department of Energy and the EPA, both of whom see benefits in the app and the underlying models.

"This is a pathway to getting more green vehicles out on the road by helping people get over range anxiety, and it is a pathway to a new, better [fuel economy](#) rating," said Saxena.

The sales of alternative fuel vehicles have been slower than expected, in part because consumers don't realize just how good these vehicles are: Studies conducted by Saxena and colleagues find that today's crop of EVs would provide adequate driving range and battery life for 85 percent of drivers on the road, just using a standard 120-volt outlet to charge at home.

And it's not just about electrics. There's a dizzying array of environmentally-friendly choices on the market: electric, fast-charging electric, standard hybrid, plug-in hybrid, hydrogen fuel cell, partial zero-emissions, "clean" diesel and more.

MyGreenCar provides a way to put all of these on equal footing and take the uncertainty out of a car purchase decision.

While the effects of individuals using MyGreenCar can add up to real gains, Saxena sees a lot of potential effect in the area of fleet purchasing by large corporations and public agencies. With MyGreenCar, fleet purchase decisions can be made with accurate information on long-term cost savings as well as carbon footprint. Fleet managers can also use the information to decide which routes to deploy greener vehicles on to maximize the fuel savings benefits.

"To reach our current emissions goals and combat climate change, we need lots of people to make small but smart decisions with environmentally-friendly outcomes," said Saxena.

MyGreenCar is simply trying to make the smart decisions a lot easier.

More information: MyGreenCar is currently in beta release, and is planned for full public release in early 2017. Sign up to try the beta version at mygreencar.lbl.gov/greencar_app/.

Provided by University of California - Berkeley

Citation: What's the best electric car for you? Take this app for a test drive (2016, December 14) retrieved 28 May 2023 from <https://techxplore.com/news/2016-12-electric-car-app.html>

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