

# Carbon Driver App

**ecosystem that incentivizes eco-friendly delivery**

# Product overview

---

*These studies associated aggressiveness with higher levels of acceleration and braking, and most included higher speeds as well*

*Aggressive driving was found to have a large effect on FC for urban low speed driving cycles. The bulk of the results showed FC increases of 25% to 68% for aggressive driving versus mild to normal driving.*

Downloaded from SAE International by John Thomas, Friday, August 11, 2017



Published 08/11/2017  
Copyright © 2017 SAE International  
doi:10.4271/2017-01-9379

## **Fuel Consumption Sensitivity of Conventional and Hybrid Electric Light-Duty Gasoline Vehicles to Driving Style**

John Thomas, Shean Huff, Brian West, and Paul Chambon  
Oak Ridge National Laboratory

### **ABSTRACT**

Aggressive driving is an important topic for many reasons, one of which is higher energy used per unit distance traveled, potentially accompanied by an elevated production of greenhouse gases and other pollutants. Examining a large data set of self-reported fuel economy (FE) values revealed that the dispersion of FE values is quite large and is larger for hybrid electric vehicles (HEVs) than for conventional gasoline vehicles. This occurred despite the fact that the city and highway FE ratings for HEVs are generally much closer in value than for conventional gasoline vehicles. A study was undertaken to better understand this and better quantify the effects of aggressive driving, including reviewing past aggressive driving studies, developing and exercising a new vehicle energy model, and conducting a related experimental investigation. The vehicle energy model focused on the limitations of regenerative braking in combination with varying levels of driving-style aggressiveness to show that this could account for greater FE variation in an HEV compared to a similar conventional vehicle. A closely matched pair of gasoline-fueled sedans, one an HEV and the other having a conventional powertrain, was chosen for both modeling and chassis dynamometer experimental comparisons. Results indicate that the regenerative braking limitations could be a main contributor to the greater HEV FE variation under the range of drive cycles considered. The complete body of results gives insight into the range of fuel use penalties that results from aggressive driving and why the variation can be larger on a percent basis for an HEV compared to a similar conventional vehicle, while the absolute fuel use penalty for aggressive driving is generally larger for conventional vehicles than HEVs.

**CITATION:** Thomas, J., Huff, S., West, B., and Chambon, P., "Fuel Consumption Sensitivity of Conventional and Hybrid Electric Light-Duty Gasoline Vehicles to Driving Style," *SAE Int. J. Fuels Lubr.* 10(3):2017, doi:10.4271/2017-01-9379.

[https://afdc.energy.gov/files/u/publication/fuel\\_consumption\\_sensitivity\\_style.pdf](https://afdc.energy.gov/files/u/publication/fuel_consumption_sensitivity_style.pdf)

## **Gentle acceleration:**

**Gradual acceleration at the start**

## **Maintaining a steady speed:**

**Minimizing speed fluctuations during driving**

## **Releasing the accelerator early:**

**Releasing the accelerator early when decelerating**

**Gentle acceleration**

**Maintaining a steady speed**

**Releasing the accelerator early**



**Acceleration sensor**

**GPS**



## ECO Delivery Score



## Carbon Token



### Gathering Big Data:

- driver attributes
- driving routes
- time of day
- Weather

→ Auto Mobility Market, ECO Drive Training data

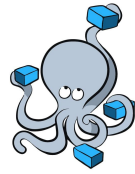


# Demo

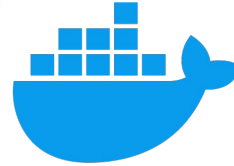


# Technologistics

---



docker  
Compose



Infrastructure



Proxy



Blockchain



Web Frontend



Rest Api

Business logic calculations



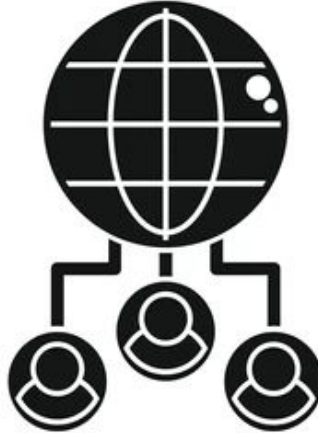
PostgreSQL

Database



# Why we use blockchain technology

---



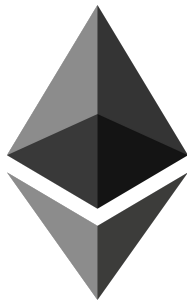
shutterstock.com · 2183290255

## Technical Challenge

---

**Simple login to web3**

- no private key
- no gas fee



**W** web3auth



**Biconomy**

## Technical Challenge

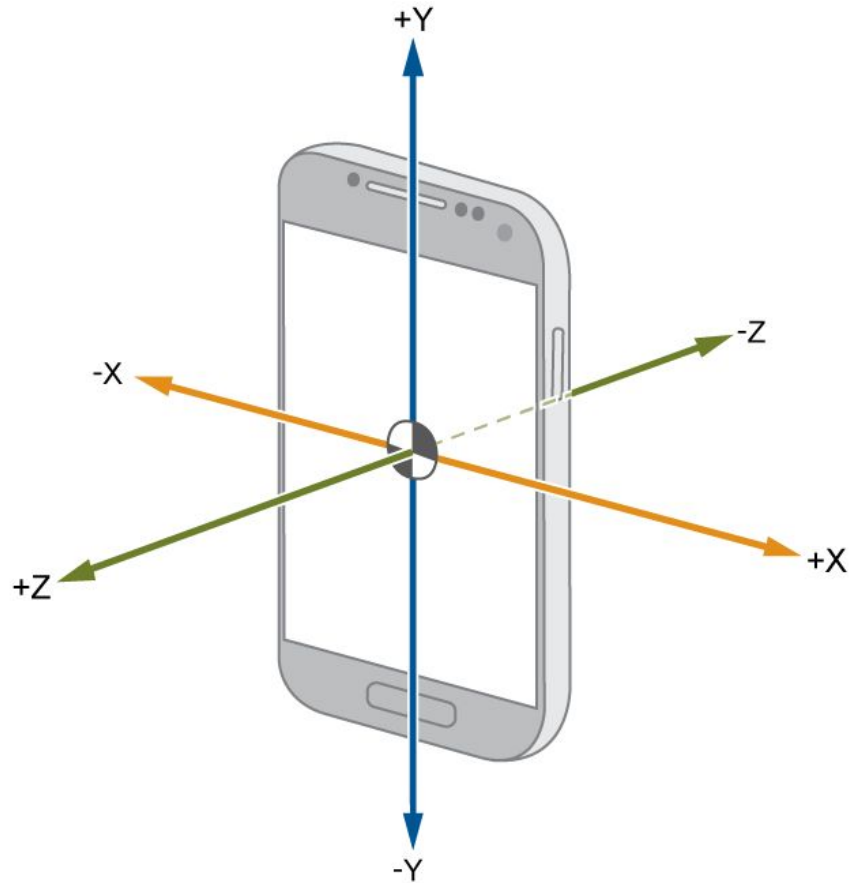
---



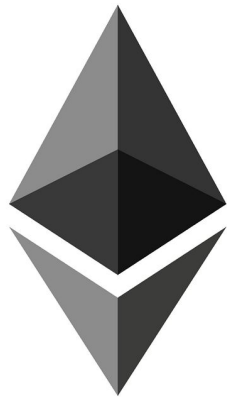
PostgreSQL

## Technical Challenge

---



ERC20



ERC721



### Gathering Big Data:

- driver attributes
- driving routes
- time of day
- Weather

→ Auto Mobility Market, ECO Drive Training data



# Roadmap

---



**Real-Time Data Analysis**



**AI-Powered Predictive Models**



**Integrate complex reward systems and collaborate**



**Partnerships with international environmental initiatives**



**Improve UI/UX based on user feedback**



**Establish a standard in the food delivery industry**