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# Eco-driving assistant application

By combining interaction design with cloud computing and machine learning

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**A** new take on an eco-driving assistant that explores how drivers can be encouraged into challenging themselves to drive more eco-friendly. It works by turning the driving experience into a game where the application will get to know a driver and use that knowledge to challenge the driver into an eco-driving competition.

## The application

We've built an application that uses machine learning to compute the expected fuel consumption based on previous driving behaviours. By using interaction design and gamification we're challenging the driver into driving more eco-friendly. Our application doesn't provide a set of instructions to follow but rather it will react instantly using smileys on how the drive is going. This is presented to the driver as real-time feedback so the driver will right away know what action caused the smiley to become happy or sad. Our tests showed that the participants wanted to make the application happy so that is the motivational tool we're using.

During testing we went through a number of different designs for the real-time feedback, five to be precise, and what we noticed was that users wanted something low-key and easy to understand. The challenge was therefore to find something that is both universally understood but at the same time not distracting while driving. A growing flower was too complicated, a warning sign too negative, and so on. An smiley however proved itself to be very effective, it's understood by everyone and it's common enough so as to not be disturbing. It fitted well into our application so that's what we went with in the end.

## Why Eco-driving?

Studies have shown that eco-driving can save up to 10% in fuel, some studies even claim that number to be as high as 20%. So why isn't everyone driving eco-friendly? We believe that most people want to drive eco-friendly but it's easy to forget. We're addressing this issue by making the effect of eco-driving instant and displaying it in an obvious way.

Climate change is today a widely accepted fact and something we need to take seriously. Eco-driving won't solve it all together but it is a step in the right direction and by using our application we can make it a fun experience. We argue that there is no downside to using our app. The wallet and the planet will both be happier for it.

## Application and consequences

In a future where our application is widely adopted by a majority of cars we could, in theory, use the knowledge about other drivers to create a world-wide eco-driving contest. You could see your own ranking against your friends or even on a global scale.

The way it works in its current form is that the competition is against yourself. You could install the app in your car and begin your journey towards a healthier planet and wallet.

## The development

We did it by using a combination of machine learning and interaction design focusing on gamification. The machine learning model was trained using pre-recorded driving data. The gamification and interaction design was iteratively tested to find the best solution for our application.