



CASE STUDY:

Driving Toward Greener, Safer Transportation Systems

People's steadfast love of cars and driving has not wavered since the first motorized vehicles were introduced in the late 1880s. We take to the open road for adventure and freedom, as well as to buy a liter of milk or to get to work on time. But this convenience comes with a price.

Unfortunately, transportation is the world's leading cause of air pollution, with vehicles emitting millions of pounds of hazardous pollutants into the air each year¹. In addition, driving is risky business! Every year, between 20 and 50 million people suffer road traffic injuries globally, costing nations an estimated three to five percent of their gross national product annually².

As fuel prices and air pollution increase, drivers and municipalities are seeking energy-efficient and eco-friendly methods of transportation that make our roads safer and cleaner. One forward-thinking city in the United Kingdom is leveraging the Internet of Things, connected car telematics, and fun gamification incentives to tackle these challenges head on.

Exeter City Teams Up with Lightfoot to Green Up and Improve Road Safety



Exeter City Futures, an initiative involving the city council aimed at using technology to improve

sustainability, teamed up with Ashwoods Lightfoot, a leading engine technology and telematics provider, for a pilot program to curb vehicle emissions, optimize engine efficiency, and improve driver safety. They selected Lightfoot based on the company's success in the fleet telematics market where it has already helped customers reduce fuel consumption by 15-20% and at-fault accident rates by as much as 60%.

Auto Racing Technology Prompts Better Driving

The city recruited 100 citizens to use the innovative Lightfoot device in their cars for eight weeks. Based on technology originally developed to optimize race cars, the small telematics device is easily deployed under the dashboard and plugs into the Engine Control Unit (ECU) – the nerve center of the car. It is compatible with an overwhelming majority of vehicle models up to 7.5 tons that have been on the road since 2006. It continuously monitors engine performance to identify the "sweet spot" where power and efficiency are optimized. The device provides real time feedback via an intuitive, easy to read dashboard display plus audio alerts that prompt drivers to take action to ensure peak performance, efficiency, and driver safety.

1. <http://www.ehhi.org/reports/exhaust/summary.shtml>
2. <http://www.who.int/mediacentre/factsheets/fs358/en/>

Behind the Wheel of the Driving Experience

This combination of visual and vocal guidance was developed in association with driver psychology specialists at Bath University and the system also gives drivers three chances to react and change behavior before a report is sent to the Lightfoot backend server. The whole approach is focused on changing driver behavior in a rapid and sustainable way rather than just delivering data for retrospective analysis.

The device uses a Gemalto's Cinterion® M2M wireless module to securely send engine data from the unit to the Lightfoot central server where it is stored for historical analysis, as well as analyzed and sent back to the vehicle to improve driving behavior. Ideally suited to harsh environments, the ruggedized Cinterion Module deliver reliable wireless connectivity even in extreme conditions of heat, humidity and vibration that are common to vehicles. The Lightfoot solution ensures reliable roaming on mobile data networks worldwide.

In addition to offering real-time guidance on achieving the most efficient, greenest, and safest driving techniques, the system analyzes data and motivates improved performance via fun gamification incentives. Drivers can compete in leagues against each other as well as earn points for good driving behavior, eventually earning "Elite Driver" status. Once individuals or leagues reach the Elite category, they are eligible to win a host of cool prizes including the keys to an all-electric Nissan Leaf for seven days or free driving experiences at karting and supercar race tracks.

Lightfoot Improves Efficiency, Emissions, Driver Safety

After a two-month trial, the Exeter pilot delivered dramatic results. Every single driver has driven better nearly every single week since their Lightfoot units went live and, on average, they have reduced the time they spend in the dangerous red zone – where harsh acceleration and risk are at their highest – by over three quarters. Overall efficiency has risen by around 16% overall, meaning equivalent average savings in fuel consumption and reductions in harmful CO2 emissions. Before Lightfoot, just 3% were achieving a driving score that gave them 'Elite Driver' status but with Lightfoot as many as 60% have been reaching this level every week. But perhaps even more compelling, drivers reported that they felt safer, more confident, and had more fun on the road. The city and Lightfoot were impressed by the results and quick improvement to driving skills. Moving forward, the pilot program will be extended to everyday motorists in the U.K.

Drive Safe. Save Big.

In the fleet sector, Lightfoot is being used by auto insurers including Allianz Insurance plc, one of the largest general insurers in the UK and part of the Allianz Group, to



enhance business models and customer service by offering flexible pricing and the opportunity to improve driving behavior. Lightfoot gives insurance companies a market-proven solution to differentiate their offerings, provide better rates and fun incentives to improve driver safety and minimize accidents on the road. Within the personal sector real time insight allows pay-per-mile policies and better rates for drivers who demonstrate safe road habits.

The Gemalto-enabled Lightfoot system represents a striking example of how the IoT and connected car revolution is helping reduce costs, accident rates, and environmental impact while improving driver enjoyment with simple, intuitive technology. Improved fuel efficiency, lower emissions, significantly reduced air pollution, and greater road safety are driving us to a future of greener, safer transportation.

To learn more about how Lightfoot is improving transportation, watch the video case study at: www.gemalto.com/m2m and www.lightfoot.co.uk

Insurance Telematics: What are we talking about?

Also known as Usage-Based Insurance (UBI), this expanding technology leverages a connected "black box" device such as Lightfoot to monitor driving behaviors including speed, distance traveled, braking and cornering habits, type of roads traveled, time spent in rush hour traffic and other factors. It allows insurance companies to align rates with actual driving patterns while helping consumers control costs by adopting safer driving habits, which ultimately improves road safety.

Consumer's enthusiasm for in-car connectivity, growth of smartphone penetration and an increase in regulatory compliance are driving growth in the insurance telematics market, which is expected to grow at a Compound Annual Growth Rate (CAGR) of 20.9% reaching 2.21 Billion USD by 2020, up from 857.2 Million USD in 2015 according to Markets and Markets.