

Re-energising New Electric Car Sales with IoT

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Despite significant inroads expanding electric vehicle (EV) charging infrastructure in the UK, ongoing consumer concerns about the availability and convenience of public chargers are undermining plans for widespread adoption of EVs. Demand for new electric cars is slowing, with the current charging experience impeding potential buyers but also dissatisfying current EV owners. Consumer sentiment needs to change. Gareth Mitchell, UK Partner Manager, [Heliot Europe](#), explains how IoT technology could help lead to a smarter EV charging network that improves the consumer experience and sparks growth in new electric car sales.

Public Perception

How often have you seen a gloomy image in the papers of a long queue of electric vehicles waiting for a charging station? Or read concerning recollections from EV drivers who ran out of range while trying to locate a charging point? At the end of August 2024, there were [68,273 electric vehicle charging points](#) in the UK across 35,230 public charging locations. This represents a big increase of 41 per cent since August 2023. And yet, the same familiar concerns and hesitations around charging still prevent many consumers from transitioning to an electric car.

Despite the fast expansion of EV charging infrastructure, [80 per cent of consumers](#) considering an EV as their next car believe the current availability of public chargers is insufficient. More troubling is that current EV owners—those with experience using the network—share these concerns, with 70 per cent stating they are dissatisfied with the current infrastructure and only 10 per cent agreeing that enough charging points are available. [Regionalised consumer research](#) tells a similar story. A lack of public charging points is a concern for 57 per cent of motorists in the Midlands, a factor that puts them off

switching to an EV. More than half feel anxious about battery range.

Combined with the constraints of a higher cost of living, demand from the consumer market for new electric vehicles is starting to slow. The number of enquiries sent to retailers about new electric cars has [fallen 65 per cent year-on-year](#). Now, EVs only account for nine per cent of all new car enquiries, compared to 27 per cent at the same time last year. This is a problem for automotive OEMs looking to hit their target of EVs contributing 22 per cent of annual sales this year. It's a hurdle for the UK government, which has recently set out its plans to achieve 100 per cent zero-emission new cars by 2035. Improve consumer sentiment around charging, however, and the outlook could vastly improve.

Smarter Network

Rolling out more infrastructure is one way to ensure public charging is more convenient: this year, the government has already pledged [hundreds of millions of pounds in funding](#) for local authorities to boost charge point rollout. Make that infrastructure smarter with IoT and the consumer experience is taken one step further, while also delivering additional advantages to local businesses and governments.

As it stands, [97 per cent of people](#) who do not own an EV would be willing to travel up to five miles to access a charging point, yet just under half are not confident they could find a public EV charging point within a five-mile distance. Apps like ZapMap already exist to locate charging points. Now, what if apps could be used to locate *available* charging points? What if real-time signage was available to help drivers navigate their closest available charge point while on the road? Much like IoT is already being used to support car parking management in smart city projects, this same premise can be extended to EV infrastructure, helping put consumers' minds at ease by removing risks of long queues or running out of range.

At the same time, a smarter network of EV chargers would contribute to better traffic flow management. As of August 2024, there were [1,904,400 plug-in cars registered in the UK](#). Consider how many vehicles driven in major towns and cities are looking for a parking space. Smart charge points can ensure this traffic is reduced, not replaced with electric vehicles looking for a charging points: especially rapid charging points – as of 2024, there were [13,706 rapid or ultra-rapid charging devices](#), which equates to one per 139 electric vehicles.

With a smarter network of EV charge points, consumers can view live availability of rapid chargers, book a charging slot, or receive an alert when a charger becomes available. In the same way, consumers can feel confident partaking in 'destination charging', the concept of charging an electric car while spending time at restaurants, supermarkets, shopping centres or attractions. Giving consumers peace of mind about charger point availability will help them feel more confident about planning and going ahead with their trips, benefitting businesses too.

IoT Sensors and LPWAN Connectivity

Creating a smart network of EV charge points would require each charge point to have an IoT sensor and an appropriate form of connectivity. The best bit is that IoT sensors can be retrofitted onto charge points, meaning they can enhance existing infrastructure and also seamlessly integrate with plans for future expansion. These sensors require a connection and they come readily equipped to connect to various data networks in multiple ways. When it comes to EV chargers, traditional technologies like WiFi or standard

cellular connectivity will struggle to operate in many of the destinations, such as in indoor car parks, underground garages, remote areas or on motorways. In these cases, the most cost-effective and reliable method of data connectivity is through Low-Power Wide-Area Network (LPWAN) technology.

LPWAN networks are designed to connect a massive number of devices over long distances with low data transmission rates. This is key for keeping data transmission costs low while ensuring that sensors operate efficiently with a long battery life. In this way, LPWAN can also facilitate real-time remote monitoring of each charger's operational status, health, and energy usage, which can be used to facilitate predictive maintenance and minimise charger downtime, further improving the consumer experience.

Conclusion

A greater uptake of electric vehicles hinges not only on the availability of charging infrastructure but also on the quality of the consumer experience. While the number of public charging points is steadily increasing, ongoing questions about proximity, availability, and convenience are undermining public perception and threatening the growth of new electric car sales. Integrating IoT technology and LPWAN connectivity into EV charging networks can help overcome stubborn pain points and re-energise growth in the EV market.