CELTIC-NEXT
Project Proposal Pitch

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Predictive maintenance for reliable EV charging

AMPECO

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Who are we?

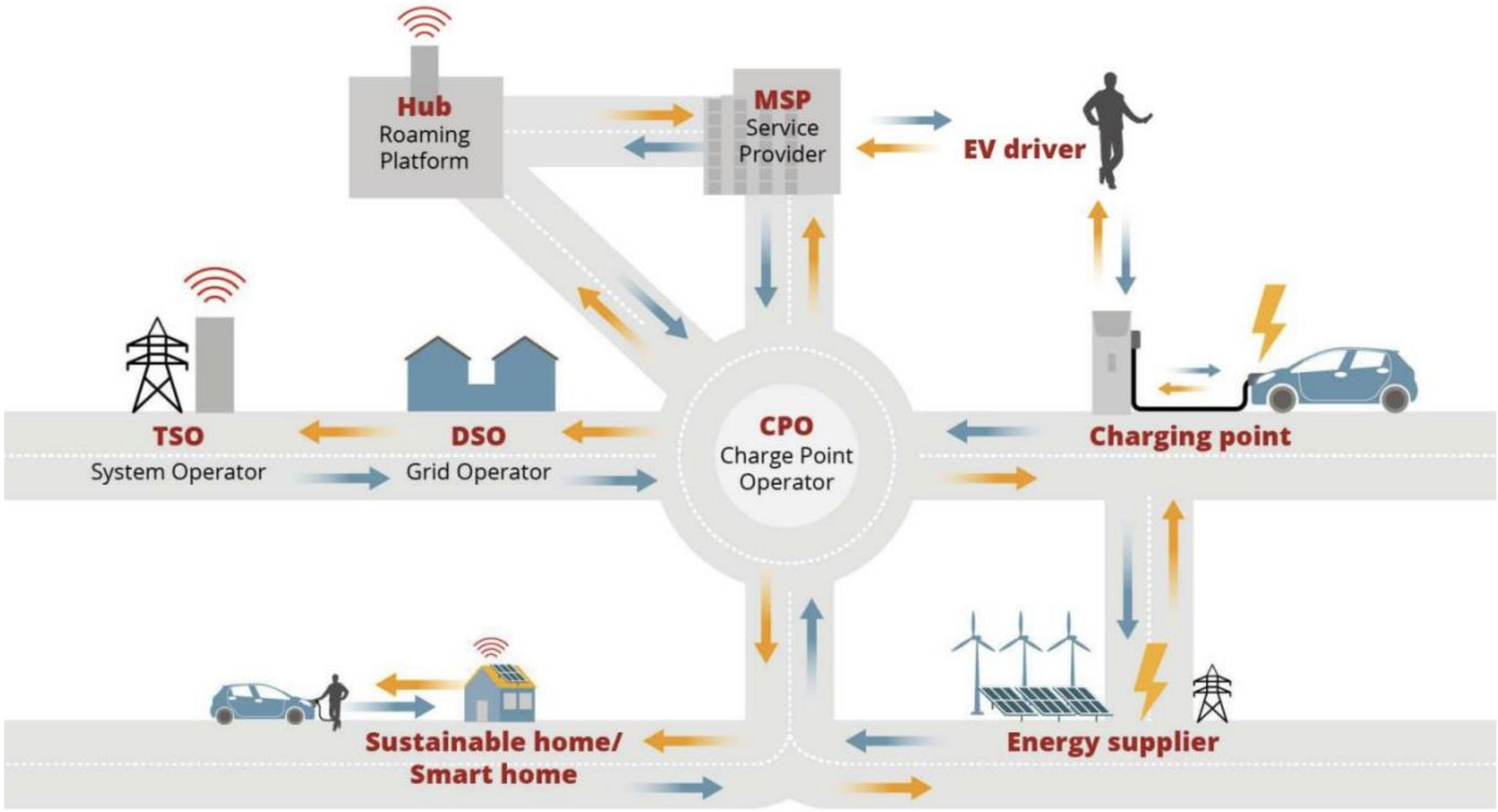
AMPECO is a global EV charging management software provider that offers a comprehensive EV charging management solution - featuring a back-office platform, web portal, mobile apps for EV drivers.

Our versatile software solution supports all EV charging use cases, including public, private, fleet, and residential charging.

AMPECO's market-proven and award-winning software solution offers unlimited flexibility to integrate with existing systems and build custom EV charging solutions.

AMPECO works with 130+ clients in 45 countries and has offices in Bulgaria (HQ), France and the US (and in Q4 - UK and DE), with a global team size of 100 employees.

The EV charging ecosystem



Project proposal:
predictive maintenance for electric vehicle charging

What is the main benefit of the proposal?

Implementing **advanced predictive maintenance for EV charging stations** through AI and machine learning can greatly enhance competitiveness in the industry by improving reliability, reducing costs, optimizing operations, and delivering a superior user experience.

What makes the added value?

This next-level management addresses the future needs of end users by ensuring the **availability of reliable charging services**, minimizing inconvenience, and contributing to cost-effective pricing for electric vehicle owners.

What are the main project drivers?

Regulatory requirements for improved uptime coupled with consumer demand for reliable infrastructure

Why should I participate in the project?

We are interested to collaborate with companies from the following industry sectors: **Charging Infrastructure Manufacturers, Telecommunications, Automotive Industry, Cybersecurity Firms, Data Analytics and Consulting**. This will result in a diverse range of expertise that can collectively contribute to the success of an advanced predictive maintenance project for EV charging infrastructure, covering technology, data, energy, sustainability, and user experience aspects.

Proposal highlights

Goal: Leverage AI/ML to enhance the connectivity, predictive maintenance, and anomaly detection capabilities of charging points for electric vehicles (EVs). The project will lead to a more efficient EV charging infrastructure with improved reliability, reduced operational costs, and a seamless user experience.

Expected impacts: the outcome of this project revolves around the development and implementation of advanced AI and ML algorithms and systems. By training models and utilizing real-time monitoring, maintenance of infrastructure can be optimized through data driven insights and end user feedback.

Examples include: **predictive maintenance** using AI to identify potential issues with EV chargers before they occur, allowing for timely repairs and minimizing downtime; **anomaly detection** using AI to identify unusual behaviour in EV charging stations, indicating problems that need to be addressed; **demand prediction** using AI to forecast future charging demand, enabling EV charging operators to optimize resources and meet needs of customers; **auto-fault recovery algorithms** through utilization of error codes;

The schedule of this project will include development, testing, deployment and continuous improvement through end user feedback.

Project deliverables

Anomaly detection

The aim is to flag a potential slow utilization or non-reported charging fault, so it can be further investigated by the operator. Initial results confirmed the viability and usefulness of the model but further work can be done to train the selected ML model with additional data.

Demand prediction

The aim is to predict occupancy of a charging station and the energy output. Initial results showed 93% accuracy of predicting occupancy day-ahead. Next steps: adding more data input (weather, events), expanding with energy output prediction; productivising the occupancy prediction.

Fault prediction

The aim is to predict failure of a charging station in advance and eventually to predict the reason too. Initial results suggest prediction failure within next 10 sessions with 72% precision; within next 30 session with 79%.

Partners

AMPECO works with EV charging point operators in almost all European countries, so the project can be geographically implemented on a wide scale together with other partners (interest in UK, FR, DE, AT, SE, PT, ES, FI)

Partner expertise and profile: project managers, data scientists, data analysts, QA testers, connectivity experts, UX specialists, technical writers, communication specialists

Industries contacted: charging station hardware manufacturers, charging point operators, e-mobility service providers, automotive industry, telecoms, development agencies, consulting firms, universities, NGOs

Expressed interest:

Conclusion

What do we bring?

- Years of global expertise in EV charging management

What are we searching for?

- Ecosystem partners to improve charging reliability and performance for end users

Contact info

For more information and for interest to participate please contact:

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Presentation available via: