Optimization of Electric Vehicle autonomy - OPEVA

The main objective of the **OPEVA** project is to explore the benefits that can be obtained from the interaction between the multiple actors involved in the modern "mobility experience" in order to optimize the autonomy of electric vehicles in a modern world that also requires sustainability and resource optimization. This translates into developing an energy-efficient power train and dynamic routing, improving accurate range prediction techniques, improving EV grid integration, developing efficient charging technologies, and guaranteeing a wider EV adoption.

To accelerate the deployment of sustainable electric vehicles (EV) and improve EV market penetration, the project aims to develop technological solutions involving the overall ecosystem, thereby addressing limiting psychological factors such as range anxiety, high price, limited charging facilities, and duration of charging. The OPEVA will contribute to the key application area on Mobility and a number of major long-term challenges including embedded software, edge computing, and embedded artificial intelligence.

OPEVA project involves 37 partners from 11 European Countries for a total budget of 25.5M €, and it will leverage the expertise of a strong consortium covering the whole value chain of electric mobility (Tier-1, Tier-2, OEMs and technology providers). The project is co-sponsored by Key Digital Technology Joint Undertaking, the program Horizon Europe and the National authorities of the participating countries, and has received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI) and the Innosuisse - Swiss Innovation Agency.

The project identifies six technology domains (i.e., In-vehicle data driven methods, out-vehicle data driven methods, communication with infrastructure, charging infrastructures, smart BMS, driver-oriented human factors monitoring analysis), involving 23 key technologies, and four non-technical domains (i.e., economic factors, legal and ethical aspects, human factors, societal and environmental factors), which must be developed to move from conventional EVs to sustainable EVs. The project achievements will be tested in 9 collaborative

demonstrators, which include: HiL testing for integrated battery balancing and power electronics, development of Battery Packs with Smart BMS, simulation on HiL system Test and Perform Physical Test with Battery Pack Test Machine, improved sensors for accurate battery monitoring, energy Efficient Route Planning, in-vehicle integration of inductive charging with BMS and power electronics, modular batteries storage based second life EV module variants, GaN-based IoT-enabled surface inductive charging system, and Flexible Charging schedulers.

The project will be coordinated by **Pertimm Developpement**, a French company specialized for 24 years in semantic search engines, artificial intelligence, and e-commerce solutions (marketplaces, websites, mobile applications, etc).

Key Information:

Coordinator: Patrick Constant, Pertimm Developpement.

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Start date: 01/01/2023.

Duration: 36 months.

Partner list:

N°	Role	Legal Name	Short name	Country
1	**COO**	**Pertimm Developpement**	**PERTIMM**	**France**
2	BEN	NXP Semiconductors France	NXP-FR	France
3	BEN	Université de Bourgogne	UB	France
4	BEN	Université de La Rochelle	ULR	France
5	BEN	Serma Energy	SERMA	France
6	BEN	Powerdale	POWERDALE	Belgium
7	BEN	Vrije Universiteit Brussel	VUB	Belgium
8	BEN	AIS SPOL S R O	AIS	Czechia
9	BEN	University of West Bohemia	UWB	Czechia
10	BEN	Flash Battery srl	FLBT	Italy
11	BEN	Luna Geber Engineering S.r.L	LGE	Italy
12	BEN	Sensichips	SENSICHIPS	Italy
13	BEN	University of Perugia	UNIPG	Italy
14	BEN	University of Parma	UNIPR	Italy

15	BEN	ALKE' Electric Vehicles	ALKE	Italy
16	BEN (IO)	INL (Iberian Nanotechnology Laboratory)	INL	Portugal
17	BEN	ISEP (Instituto Superior de Engenharia do Porto)	ISEP	Portugal
18	BEN	I-CHARGING MOBILIDADE ELECTRICA SA	ICHARGING	Portugal
19	BEN	Cleanwatts	CWD	Portugal
20	BEN	ACD Bilgi islem	ACD	Turkey
21	BEN	BitNet	BITNET	Turkey
22	BEN	ERARGE	ERARGE	Turkey
23	BEN	Eskisehir Osmangazi University	ESOGU	Turkey
24	BEN	Inovasyon Muhendislik	IM	Turkey
25	BEN	BATILI OTOMOTIV SANAYI VE TICARET	MUSOSHI	Turkey
26	BEN	CISC Semiconductors	CISC	Austria
27	BEN	NXP Semiconductors Austria	NXP-AT	Austria
28	BEN	Graz University of Technology	TUG	Austria
29	BEN	Virtual Vehicle Research GmbH	VIF	Austria
30	BEN	ORTEM Elektronik AS	ORTEM	Turkey
31	BEN	AI4SEC	AI4SEC	Estonia
32	BEN	ERGTECH Spolka Z Ograniczona Odpowiedzialnoscia	ERGTECH	Poland
33	BEN	Togi Teknoloji San. ve Tic. Ltd. Sti.	TOGI	Turkey
34	AP	University of Geneva	UNIGE	Switzerland
35	AP	Institut für Automation und Kommunikation	IFAK	Germany
36	AP	LOXO AG	LOXO	Switzerland
37	AP	CERTX AG	CERTX	Switzerland