moveID

Charging Point

did:peaq:1ifj1384hpub1394id1ß2kdo3ip34r
hp9q2384hfnpieur

117.0 kWh

22%

9:41

Zento - Japanese Restaurant & Sushi Bar

Amba

eigbügel München

Änderei & Schneiderung

Gedenkstele - Gründungsort

DECENTRALIZED DIGITAL IDENTITY INFRASTRUCTURE
DEMONSTRATOR AT IAA MOBILITY 2023

PARK & CHARGE

gaia-x

Welcome to the moveID Experience

Peter Busch, Product Owner DLT Mobility at Robert Bosch GmbH, moveID Consortial lead

„People told me that electric cars are great for driving, but not for everyday activities. Now, using Park & Charge, it takes me only 15 minutes to find a free charging spot in a city I don't know well. I can easily pay for the electricity using my credit card, no special agreement needed."

The moveID consortium, a pivotal part of the Gaia-X 4 Future Mobility project, takes on the challenges facing electromobility head-on. It develops dynamic solutions that accelerate the shift towards ecologically sound transportation. With the newest European Self-Sovereign Identity (SSI) concept at its core, moveID unites industry giants like Bosch, Continental, and Airbus with the innovation of startups and universities. Together, in the realm of moveID, they're sculpting the very foundation of the electrifying, autonomous mobility that the future holds.

By embedding moveID technology within the framework of European regulations, it establishes robust and sustainable business models for present and future mobility providers. This approach not only upholds individual privacy but also ensures an open playground for innovation. The moveID partners take pride in showcasing the real-world impacts of cutting-edge software solutions. At Europe's largest mobility fair, the IAA Mobility, these groundbreaking solutions with real-world flair are revealed. Join us there to experience the thrill firsthand, and don't miss the chance to book a test drive in one of our e-vehicles! Find out how effortlessly you can locate, secure, and pay for charging stations - no matter their type or provider - all your doubts about electromobility are bound to fade!

About MOBIX Park & Charge

Discover a new era of convenience: Spot, reserve, use, and pay for a charging station with ease at a central parking location. Don't believe it's possible? Think again, because it is: At IAA Mobility 2023, the moveID consortium is showcasing the simple side of e-mobility. During test drives, we'll use MOBIX Park & Charge to show you that hunting for charging spots is history. But the innovation doesn't stop with you; with MOBIX Park & Charge your car also has its own identity. It identifies, registers, reserves, books, and bills parking and charging, creating seamless experiences. Thanks to AI-powered agents, regardless of the provider or technology, these processes run smoothly in the background. Thanks to SSI technology, your privacy is fully preserved. Welcome to a simpler world of e-mobility!

Charging Point

did:peaq:1ifj1384hpub1394id1ß2kdo3ip34r
hp9q2384hfnpieur

117.0 kWh

22%

Charging for 9m 04s

(EUR 0,13) **0,26 PEAQ**

✓ Finish charging

MOBIX

Experience effortless charging with MOBIX Park & Charge. Find, reserve, pay – all in one seamless journey.
For more info, visit www.mobix.ai
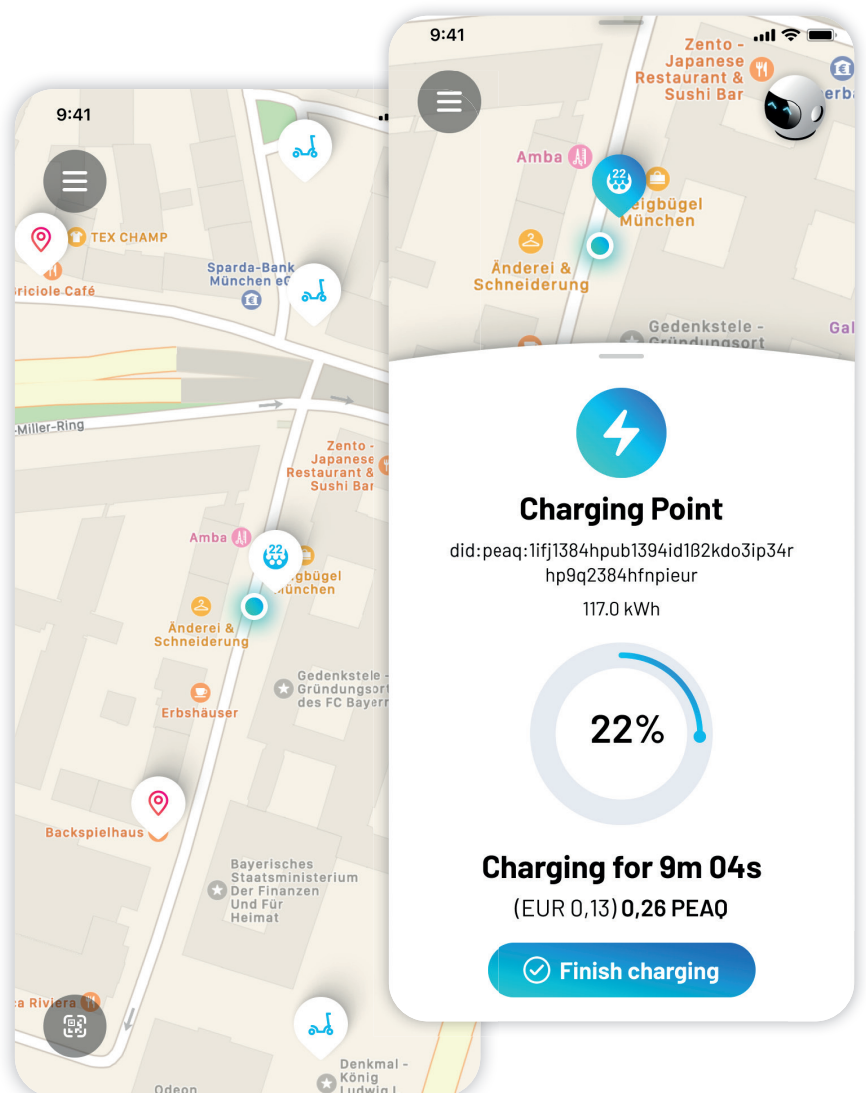
Park & Charge Actions

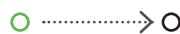|	MOBIX APP USER	VEHICLE	PARKING HUB	GATE CONTROL	PEAQ NETWORK	WALT ID SSI INFRA
ONBOARD TO ECOSYSTEM						
Register identities, create DIDs, store related data on *Verifiable Data Registry*		○	○	○	○	○
START						
Establish connection	○ ·····>	○				
SEARCH & RESERVE						
Find parking & charging points, select & get pricing proposal	○					
Accept & pay	○					
MOBIX backend converts EUR to MOBX tokens	○					
Transfer MOBX tokens for parking reservation	○ ·····>	○ 🛰️ ···> 🛰️	○			
Verify payment and transfer peaq tokens for charging settlement		○ 🛰️ <··· 🛰️	○			
CREDENTIAL ISSUANCE						
Trigger credential request, choose credential type	○ ·····>	○ <·····	···········>			○
Make credential request		○ ·····>	○ ·········>			○
Return & store credential		○ <·····	··············			○
Forward credential & show	○ <·····	○				
PARKING ENTRY						
Trigger entry process	○ ·····>	○ ·········>		○		
Generate request for entrance				○ <············	···········>	○
Forward request, select credential & create verifiable presentation		○ <············	○			
Present credential for validation		○ <············>	○ <······	···········>		○
Open gate				🛰️ ○		
CHARGING POINT CHECK-IN						
Trigger authorization process, initiate access	○ ·····>	○		·········> ○		
Request authorization, present credential for access		○ <············	·········>	○ <······	···> ○	
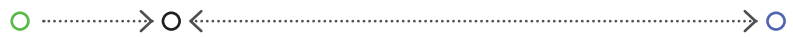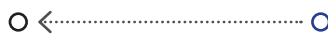
🛰️ Microagent on Fetch Network

	MOBIX APP USER	VEHICLE	PARKING HUB	GATE CONTROL	PEAQ NETWORK	WALT ID SSI INFRA
CHARGING POINT CHECK-IN *(continued)*						
Unlock charging point upon successful credential validation					○	
CHARGING SESSION						
Connect, initiate charging session & send peaq tokens	○ ·····>	○ ·····>			○	
Upon success, trigger charging session start		○ ·····>			○	
Show charging progress	○ <~~~~				○	
Finish charging	○ ·····>				○	
Return remaining peaq tokens, show charging summary	○ <·····	○ <·····			○	
PARKING EXIT						
Trigger checkout process	○ ·····>	○ ·····>	○			
Generate request for exit			○ <·····>			○
Forward request, select credential & create verifiable presentation		○ <·····	○			
Present verifiable credential for validation		○ <·····>	○ <·····>			○
Open gate				○		
REFUND						
Request of unused peaq tokens		○ <·····	○			
Return peaq tokens for MOBX conversion		○ ·····>	○			
Send MOBX tokens & deposit for EUR conversion	○ <·····	○ <·····	○			
Refund in EUR	○					
DATA MARKET						
Optional: Send select data to Ocean/Pontus-X	●	●		●	●	
END RIDE						
Initiate GDPR compliant „Forget Me" request, perform data wipe	●					
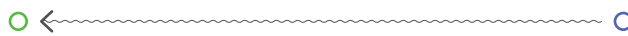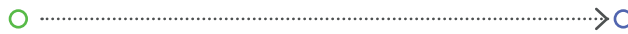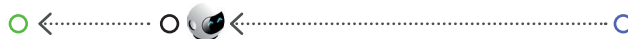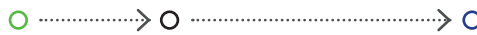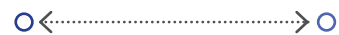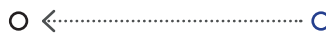
~~~~ Via Lib P2P   ● Work in progress

Contributing Companies

As the project lead, Bosch will be providing general organizational and coordination support for the initiative and evaluate its potential for industry adoption based on the model's performance in the live demo. On top of that, Bosch will provide an electric Jaguar powered by a full suite of specialized hardware enabling V2X communications and providing the foundation for automotive grade self-sovereign identity.

Datarella, a web3 company builder, will provide its publicly available MOBIX app as the joint user interface and 'remote control' for all moveID privacy-preserving functionality. It leverages Fetch.ai's AI agents to enable smart interoperability of all underlying technologies.

DENSO, a global mobility supplier that develops advanced automotive technologies, systems and products, is providing organizational and technical support to the initiative. It is also sponsoring the Alfen Eve Double Pro-line charging station, which will be used in the live demonstration.

deltaDAO AG, a Web3 software development, integration and consulting company, will implement the ability to securely share usage and analytics data and make it visible and accessible in the Gaia-X 4 Future Mobility moveID public decentralized data marketplace powered by Ocean Protocol. Selling anonymized locally-stored data on the Ocean marketplace enables businesses to do away with data silos and unlock an additional GDPR-compliant revenue stream.

fetch.ai

Fetch.ai, an open platform that powers peer-to-peer applications with automation and AI capabilities, is providing its autonomous AI agent framework for the live demo. Communicating between AI agents on the peaq network within the Polkadot ecosystem and Fetch's Cosmos-based ecosystem via multi-chain IDs, the agents will power the interactions between the connected devices, including the vehicles, the charging stations, and the infrastructure to grant the user the optimal SSI-based charging and parking experience.

The Saarland University of Applied Sciences (Hochschule für Technik und Wirtschaft des Saarlandes, htw saar), a leading German university and research center for applied sciences, is deeply involved in the moveID R&D efforts. It sponsors the hardware for the live demo, including first and foremost, one of the two electric vehicles, a Tesla Model X, that the visitors will be able to take for a test drive as part of the display, as well as a special hardware set which enables V2X communication and SSI.

htw saar
Forschungsgruppe
Verkehrstelematik

peaq

peaq, the Web3 network powering the Economy of Things, will provide self-sovereign peaq IDs for the connected devices in the demonstration, as well as a decentralized application for peer-to-peer vehicle charging. This dApp will be integrated with the MOBIX app by Datarella. peaq will also provide connectivity with Fetch.ai's AI agents via its integration.

51nodes, a Web3 software integration company, is implementing the full workflows involving Self-Sovereign Identities and verifiable credentials and their exchange among vehicles and service providers. On the backend side, the walt.id SSI framework is used for realizing decentralized identities and wallets. The SSI workflows will enable the use of verifiable driver credentials for booking parking slots during the live demo.

51NODES

moveID

Consortial Partners

Airbus Defence and Space GmbH

Atos Information Technology GmbH

Bigchain DB GmbH

Chainstep GmbH

Continental Automotive Technlogies GmbH

Datarella GmbH

Deutsches Zentrum für Luft- und Raumfahrt e.V.

Denso Automotive Deutschland GmbH

deltaDAO AG

ecsec GmbH

Fetch.ai Research & Development GmbH

HTW Saar (University of Applied Sciences)

ITK Engineering GmbH

Materna Information & Communications SE

Peaq Technology GmbH

Robert Bosch GmbH

WOBCOM GmbH

Zeppelin Universität gGmbH

51nodes

gaia-x future mobility
Gaia-X Lighthouse Project

www.moveID.org