TECHNISCHE HOCHSCHULE DEGGENDORF
Technologie Campus Vilshofen

elisa

SECURE E-VEHICLE PLUG-AND-CHARGE ECOSYSTEM AND CUTTING-EDGE KEYLESS CAR ACCESS FEATURING INNOVATIVE SECURITY ADVANCEMENTS.

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Weitere Infos

Bild wurde mit KI (Firefly) generiert.

Abstract

Projekttitel/ Project title:

Elektromobilität durch Interoperable und Sichere Architekturen

Kurztitel/ Short title:

ELISA

Einleitung/ Introduction:

Traditional trust approaches are no longer up to date with the advancement of digital networking and the Internet of Things. The Car Connectivity Consortium Digital Key, the standardized technology, offers a universal and secure solution for storing and sharing digital keys and ensures access to electric vehicles in a secure way despite low smartphone battery. In terms of data security, providing a Public Key Infrastructure (PKI) is crucial to ensure secure communication between vehicles and charging infrastructures, adhering to the ISO 15 118 standards. To maintain equal participation in the market roles, organizations offering PKI must function as trusted centers in the market.
The collaborative project ELISA is one of the 4 projects from the higher-level project family NovoMotive that is development of a secure functional architecture based on a trusted vehicle network that is integrated into various IT backends for the secure use of backend services.

Ziel/ Aim:

Overall goal for the project ELISA is to meet the increased requirements for cybersecurity and develop a security approach for the vehicle network in accordance with a Zero Trust Architecture. The digital key material required for this is managed by a key management system integrated in the vehicle based on a Trusted Platform Module 2.0 (TPM) according to the standard (ISO/IEC11889) as a starting point for trustworthy applications in the areas of charging e-vehicles in accordance with IEC/ISO15118-20, car sharing and car access. The applications mentioned will be considered in detail within the framework of ELISA and implemented in the form of concrete solutions. To protect such an application, a secure boot process of the hardware components involved is required, which guarantees their authenticity and integrity.

Methode/ Method:

- Implementation of distributive access and calculations within a TPM
- Realization of the technical implementation of a PQC-algorithm (Post-Quantum Cryptography algorithm)
- Building an automotive-compatible runtime environment
- Programming the software modules for car access services and Plug and Charge ecosystems (ISO 15118-20)
- Technical implementation of the evaluation as well as the individual and overall tests on the test vehicle

Ergebnis/ Result:

The ELISA project is currently in its initial phase, therefore no scientific results are available at this stage.

Projektbeteiligte/ Project participants:

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Projektpartner/ Project partners:

- Cariad SE (CAR)
- CarTelSol GmbH (CTS)
- Hubject GmbH (HUB)
- Infineon Technologies AG (IFAG)
- Fraunhofer-Institut für Sichere Informationstechnologie (SIT)
- Technische Hochschule Deggendorf (THD)
- Digital Business University of Applied Sciences (DBU)

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Logos/ Logos: