EV In-Motion Wireless Power Transfer

Industry Connections Activity Initiation Document (ICAID)

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1. Contact

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2. Participation and Voting Model

Entity-based

3. Purpose

3.1. Motivation and Goal

This IEEE Standards Association Industry Connection Activity is related to create the fundamental elements for the standardization of EV in-motion wireless power transfer which relates both to the roadside (primary) and the vehicle-side (secondary) such as coil-design, coil-integration, power electronics system architecture, communication system architecture, smart-grid integration and supported power levels.

3.2. Related Work

Existing standardization activities are focused on stationary wireless charging, with the most significant standardization contributions via SAE J2954 and SAE J2931/6. Further relevant EV wireless charging standards developments are ISO 19363/IEC 61980 and ISO/IEC 15118-7. An important aspect for in-motion wireless power transfer is roadway electrification. There is no known standardization activity which addresses roadway electrification in combination with vehicle electrification.

3.3. Previously Published Material

Gil A., Taiber J. (2014) A Literature Review in Dynamic Wireless Power Transfer for Electric Vehicles: Technology and Infrastructure Integration

Challenges. In: Wellnitz J., Subic A., Trufin R. (eds) Sustainable Automotive Technologies 2013. Lecture Notes in Mobility. Springer, Cham

3.4. Potential Markets Served

Considering the development of the transportation sector towards higher automation and electrification levels to support the growing urbanization in the world, urban communities will benefit substantially from in-motion wireless charging. Furthermore also zero-emission long-distance travel can be improved via dedicated segments of electrified roads which eliminate downtime.

4. Estimated Timeframe

This activity will coincide with the creation of the ITIC Mobility Services Testbed Alliance which will allow to support the suggested activity.

Expected Completion Date: 04/2019

5. Proposed Deliverables

The following deliverables are proposed:

> Whitepaper on how in-motion wireless charging could be utilized in a smart city context
> Development of guidelines how an in-motion wireless power transfer testbed is designed and operated
> Development of test use cases to validate road-side and vehicle-side key components as well as vehicle-infrastructure interaction
> Recommendation of which system components require standardization

6. Funding Requirements

The activity will be sponsored by the ITIC Mobility Services Testbed Alliance. Any workshops or testbed/showcase events will be funded through the alliance. It is expected that the entity members will cover their own travel cost and will not require financial support.

7. Management and Procedures

7.1. IEEE Sponsoring Committee

Has an IEEE sponsoring committee agreed to oversee this activity?: No

7.2. Activity Management

This Industry Connections Activity will be self-governed by an Executive Committee and the Activity Members.

7.3. Procedures

A set of policies and procedures, based on the ICCom Industry Connections Entity-Based Policies and Procedures baseline, will be developed.

8. Participants

8.1. Stakeholder Communities

Information and communication companies
Automotive OEM's and suppliers
Electric Utilities
Transportation infrastructure firms
Government agencies involved with transportation infrastructure development
University and educational institutions performing research in in-motion wireless power transfer

8.2. Expected Number of Participants

It is expected that about 10-15 entities are being permanently involved in this activity after a ramp-up period of 3-6 months

8.3. Initial Participants

Entity	Primary Contact	Additional Representatives
ITIC	Dr. Joachim Taiber Joachim.taiber@itic-sc,com	Andrea Gil engineering@itic-sc.com
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