

P2413.1

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Type of Project: New IEEE Standard

PAR Request Date: 26-Apr-2018

PAR Approval Date: 14-Jun-2018

PAR Expiration Date: 31-Dec-2022

Status: PAR for a New IEEE Standard

1.1 Project Number: P2413.1

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for a Reference Architecture for Smart City (RASC)

3.1 Working Group: Internet of Things (IoT) Architecture (BOG/CAG/IoT Architecture)

Contact Information for Working Group Chair

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None

3.2 Sponsoring Society and Committee: IEEE-SA Board of Governors/Corporate Advisory Group (BOG/CAG)

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None

3.3 Joint Sponsor: IEEE Communications Society/Power Line Communications (COM/PLC)

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None

4.1 Type of Ballot: Entity

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 06/2019

4.3 Projected Completion Date for Submittal to RevCom

Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 10/2019

5.1 Approximate number of entities expected to be actively involved in the development of this project: 16

5.2 Scope: This standard provides an architectural blueprint for Smart City implementation leveraging cross-domain interaction and semantic interoperability among various domains and components of a Smart City. This standard also leverages an architectural framework for the IoT defined in the draft of IEEE P2413 standard, which relies on the international standard ISO/IEC/IEEE 42010.

Based on requirements from government bodies, enterprises, and consumers, a variety of applications will be delivered to create social value. The Smart City applications include water management, waste management, smart streetlights, smart parking, environment monitoring, smart community, smart campus, smart buildings, eHealth, eLearning, eGovernment, etc.

This standard defines a Reference Architecture for Smart City that includes Smart City Intelligent Operations Center (IoC), Internet of Things (IoT), including descriptions of various IoT vertical applications in Smart City, and identification of commonalities between different vertical applications in Smart City.

The standard defines the four layers of the Smart City architecture, device layer, communication network layer, IoT platform layer, and application layer. Relationships with and attributes specific to the cloud computing center, the edge computing technologies, and big data analysis related to IoT for Smart City are also defined in the standard.

The standard describes the Intelligent Operations Center (IOC) which aggregates a wide range of data to visualize the city operational status,

enables efficient collaboration across agencies and applications, and facilitates decision-making based on knowledge derived from Big Data. This standard also describes unified security aspects of the Smart City architecture.

5.3 Is the completion of this standard dependent upon the completion of another standard?: No

5.4 Purpose: This Architecture for Smart City is intended to be used by Smart City architects, designers, operators, and users.

To support rich and diverse applications that can leverage the cross domain interaction and knowledge is one of the most important enablers of a Smart City. Based on requirements of governments, enterprises and consumers, a variety of Smart City applications will be derived to create great social value.

The Smart City Internet of Things (IoT) is predicted to become one of the most significant drivers of growth in various Smart City technology markets. Most current standardization activities are confined to very specific verticals and represent islands of disjointed and often redundant development. The architecture defined in this standard will promote cross-domain interaction, aid system interoperability and functional compatibility, and further fuel the growth of the Smart City IoT market. The adoption of a unified approach to the development of Smart City IoC and IoT systems will reduce vertical fragmentation and create a critical mass of multi-stakeholder activities around the world.

5.5 Need for the Project: This standard will help to reduce current fragmentation in various verticals in Smart Cities. By addressing the need for a Smart City architecture, IEEE will fulfill its mission to benefit humanity by increasing the interoperability and portability of Smart City solutions.

5.6 Stakeholders for the Standard: * Planners/Architects/Designers/Developers/Testers/Integrators

* Vendors/Suppliers/Installers

* Operators/Maintainers /Users

* Standardization and Industrial Organizations.

Intellectual Property

6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No

6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

7.1 Are there other standards or projects with a similar scope?: No

7.2 Joint Development

Is it the intent to develop this document jointly with another organization?: No

8.1 Additional Explanatory Notes: This project is conformant with P2413 the architecture framework of internet of things. It focused on the smart city related IoT vertical applications, such as water management, waste management, smart lights, environment monitoring, etc.

It is proposed to use P2413 WG for the development of the standard so we can leverage existing liaison relationships.

We can create new vertical-specific sub-projects based on current horizontal, abstract, common IoT architecture framework, Smart City is the first PAR. The proposed code number will be P2413.1. We can create other verticals sub-projects such as Smart Manufacturing, Smart Energy, Smart Transportation, etc. with code numbers P2413.2, P2413.3, P2413.4..., in the future.

There is an active project P2784 that will produce a Guide for the Technology and Process Framework for Planning a Smart City.