ISO/IEC JTC 1/WG 7
Working Group on Sensor Networks

Document Number:	N126
Date:	2010-12-09
Replace:	
Document Type:	Other document (Defined)
Document Title:	PE's contribution on base document of 1st WD for ISO/IEC 29182-3, Information technology — Sensor Networks: Sensor Network Reference Architecture (SNRA) — Part 3: Reference Architecture Views
Document Source:	Project Editor
Document Status:	This is a PE's contribution on base document of 1st WD for ISO/IEC 29182-3.
Action ID:	FYI
Due Date:	
No. of Pages:	12

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ISO/IEC JTC 1/WG 7 N 000

Date: 2010-10-31

ISO/IEC WD 29182-3

ISO/IEC JTC 1/WG 7

Secretariat: KSA

Information technology — Sensor Networks: Sensor Network Reference Architecture (SNRA) — Part 3: Reference Architecture Views

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Document type: International standard
Document subtype: if applicable
Document stage: (20) Preparation
Document language: E

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 29182-3 was prepared by Working Group ISO/IEC JTC 1/WG 7.

ISO/IEC 29182 consists of the following parts, under the general title *Information technology — Sensor networks: Sensor Network Reference Architecture (SNRA)*:

Part 1: General overview and requirements

Part 2: Vocabulary/Terminology

Part 3: Reference architecture views

Part 4: Entity models

Part 5: Interface definitions

Part 6: Application profiles

Part 7: Interoperability guidelines

Introduction

The Sensor Network Reference Architecture (SNRA) outlines “what” the overall structured approach is for assisting interoperability and, through the details of this structure, indicates “how” the architecture and its components will operate through the development of interface standards. In short, the SNRA provides rules and guidance for developing and presenting architecture descriptions.

The SNRA provides the following three perspectives (or views) of the Reference Architecture for Sensor Networks. The combination of these three views forms a comprehensive architectural description. The three views are:

- The Operational View (OV) — Shows how Sensor Networks operate in a homogeneous system,
- The Systems View (SV) — Shows the systems of equipment and the flows of information that support the sensor networks, and
- The Technical Standards View (TV) — Show the technical rules and guidelines that allow these systems to interoperate.

The SNRA supports the development of interoperating and interacting architectures. It defines the preceding three related views of architecture: OV, SV, and TV. Each view is composed of sets of architecture data elements that are depicted via graphic, tabular, or textual products. The SNRA also clearly defines the relationships between these architectural views and the data elements they contain.

Information technology — Sensor Networks: Sensor Network Reference Architecture – Part 3: Reference Architecture Views

1 Scope

This International Standard (IS) provides Sensor Network Reference Architecture (SNRA) views. The architecture views include business, operational, systems, and technical views, and these views are presented in functional, logical, and/or physical where applicable. As for reference architecture, this IS focuses on high-level architecture views which can be further developed by system developers and implementers for specific applications and services.

This Part 3 IS can be utilized more effectively with other Parts, especially with Part 4 (Entity Models) and Par 5 (Interface Definitions).

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 29182-1 *Information technology – Sensor Network: Sensor Network Reference Architecture (SNRA) – Part 1: General overview and requirements*

ISO/IEC 29182-2 *Information technology – Sensor Network: Sensor Network Reference Architecture (SNRA) – Part 2: Vocabulary/Terminology*

ISO/IEC 29182-3 *Information technology – Sensor Network: Sensor Network Reference Architecture (SNRA) – Part 3: Reference architecture views*

ISO/IEC 29182-4 *Information technology – Sensor Network: Sensor Network Reference Architecture (SNRA) – Part 4: Entity models*

ISO/IEC 29182-5 *Information technology – Sensor Network: Sensor Network Reference Architecture (SNRA) – Part 5: Interface definitions*

ISO/IEC 29182-6 *Information technology – Sensor Network: Sensor Network Reference Architecture (SNRA) – Part 6: Application profiles*

ISO/IEC 29182-7 *Information technology – Sensor Network: Sensor Network Reference Architecture (SNRA) – Part 7: Interoperability Guidelines*

3 Terms and Definitions

The terms and definitions used in this document are provided in ISO/IEC 29182-2 – Vocabulary/Terminology.

4 Symbols (and abbreviated terms)

Editor's Note: Symbols and Abbreviated Terms will be listed in this section.

5 Overview of Sensor Network Reference Architecture

Editor's Note: The content of this section in current form including Figure 1 is a place holder. This section will be updated with the contributions received.

Sensor network is a networking system of distributed sensor nodes communicating with each other and also interacting with other environments in order to acquire, process, transfer, and provide information extracted from a physical world.

A set of components be involved to realize various sensor network services as shown in Figure 1 which depicts the overall architecture for sensor network. For example, sensor networks have to be established by wireless or wired networking technologies; a sensor network has to be connected via various access networks to a backbone network like NGN, Internet, and mobile communication network; middleware systems may be incorporated to perform intelligent and context awareness processing. And finally various sensor network applications require application-layer technologies such as integrated service, sensory information description and presentation, etc. From the data point of view, data is captured by sensor nodes and transferred to application through access network and backbone. Service network is laid on the route of data.

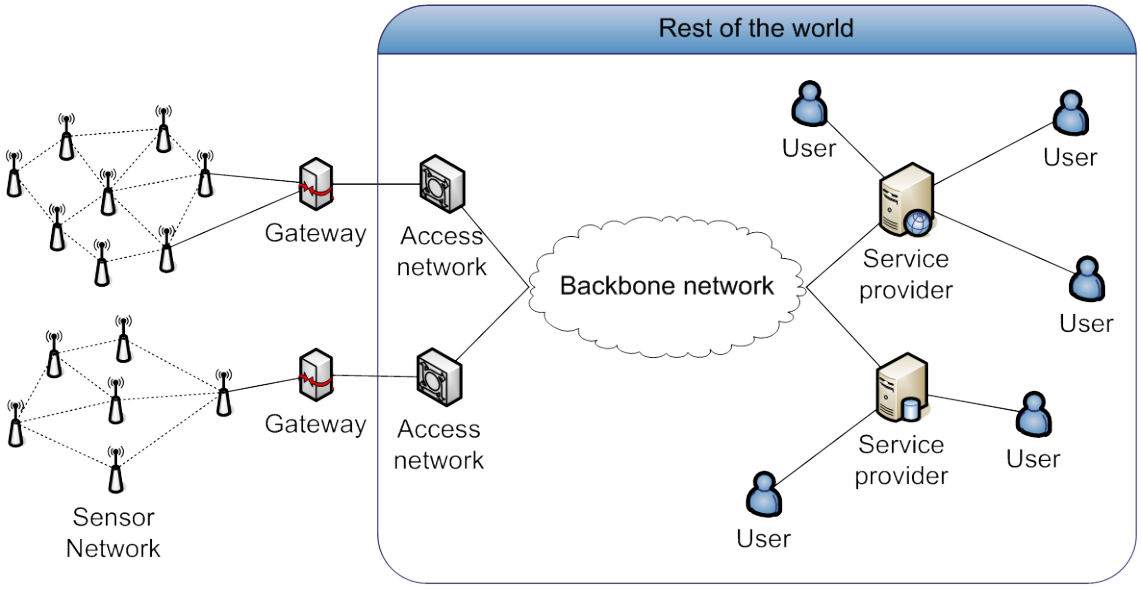

Figure 1 – Overall architecture for sensor network

Bibliography

ISO/IEC JTC1 SGSN N149, *SGSN Technical Document Version 3*