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Working Group on Sensor Networks

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Liaison Statement from WG 11 to JTC 1/WG 7

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**INTERNATIONAL ORGANISATION FOR STANDARDISATION
ORGANISATION INTERNATIONALE DE NORMALISATION
ISO/IEC JTC 1/SC 29/WG 11
CODING OF MOVING PICTURES AND AUDIO**

**ISO/IEC JTC 1/SC 29/WG 11 N11389
Geneva, Switzerland, July 2010**

Source **Convenor**
Title **Liaison letter to ISO/IEC JTC 1/WG 7 on Sensor Networks**
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Liaison letter to ISO/IEC JTC 1/WG 7 on Sensor Networks

During the 93th MPEG meeting experts from the Systems subgroup have completed the FDIS parts 1 – 6 and the FCD of part 7 of the MPEG-V (Media context and control) standard. Parts 1 – 6 are concerned with Architecture, Control Information, Sensory Information, Virtual World Object Characteristics, Data Formats for Interaction Devices and Common types and Tools), part 7 is related to Conformance and Reference Software. The text of the FDIS parts 1-6 will be forwarded to you after their editing period. In the mean time we would particularly want to point your attention to the definitions and terminology used that might be of interest for the activities in your working group and included at the end of this letter. If you need more information with respect to the definitions and terminology used you can contact the editor of the MPEG-V Part1 Architecture: J.H.A. (Jean) Gelissen via e-mail: jean.gelissen@philips.com .

Next to the above MPEG wants to make you aware that during its 93th meeting the experts from the Systems subgroup have initiated new activities to extend the MPEG-V standard with the first amendment for a number of new application domains and related (sensor & actuator) technologies as well as their relations to virtual worlds. The related (sensor & actuator) technologies are in the area of biosensors, gaze sensors and, (attributed) coordinate sensors. The text of the Working Draft capturing these new application domains and related (sensor & actuator) technologies as well as their relations to virtual worlds is attached to this letter for your information.

Appendices:
11420 Text of ISO/IEC WD 23005-1/Amd.1 Architecture

Appendices to be forwarded separately after the editing period:
11419 Text of ISO/IEC FDIS 23005-1 Architecture
11422 Text of ISO/IEC FDIS 23005-2 Control Information
11425 Text of ISO/IEC FDIS 23005-3 Sensory Information
11427 Text of ISO/IEC FDIS 23005-4 Virtual World Object Characteristics
11429 Text of ISO/IEC FDIS 23005-5 Data Formats for Interaction Device
11432 Text of ISO/IEC FDIS 23005-6 Common types and Tool
Summary of the definitions and terminology used:

The overall system architecture for the MPEG-V framework is depicted in Figure 1 comprising the standardization areas a: control information and b: sensory information. Please note that standardization area b may be composed of multiple parts of the MPEG-V standard.

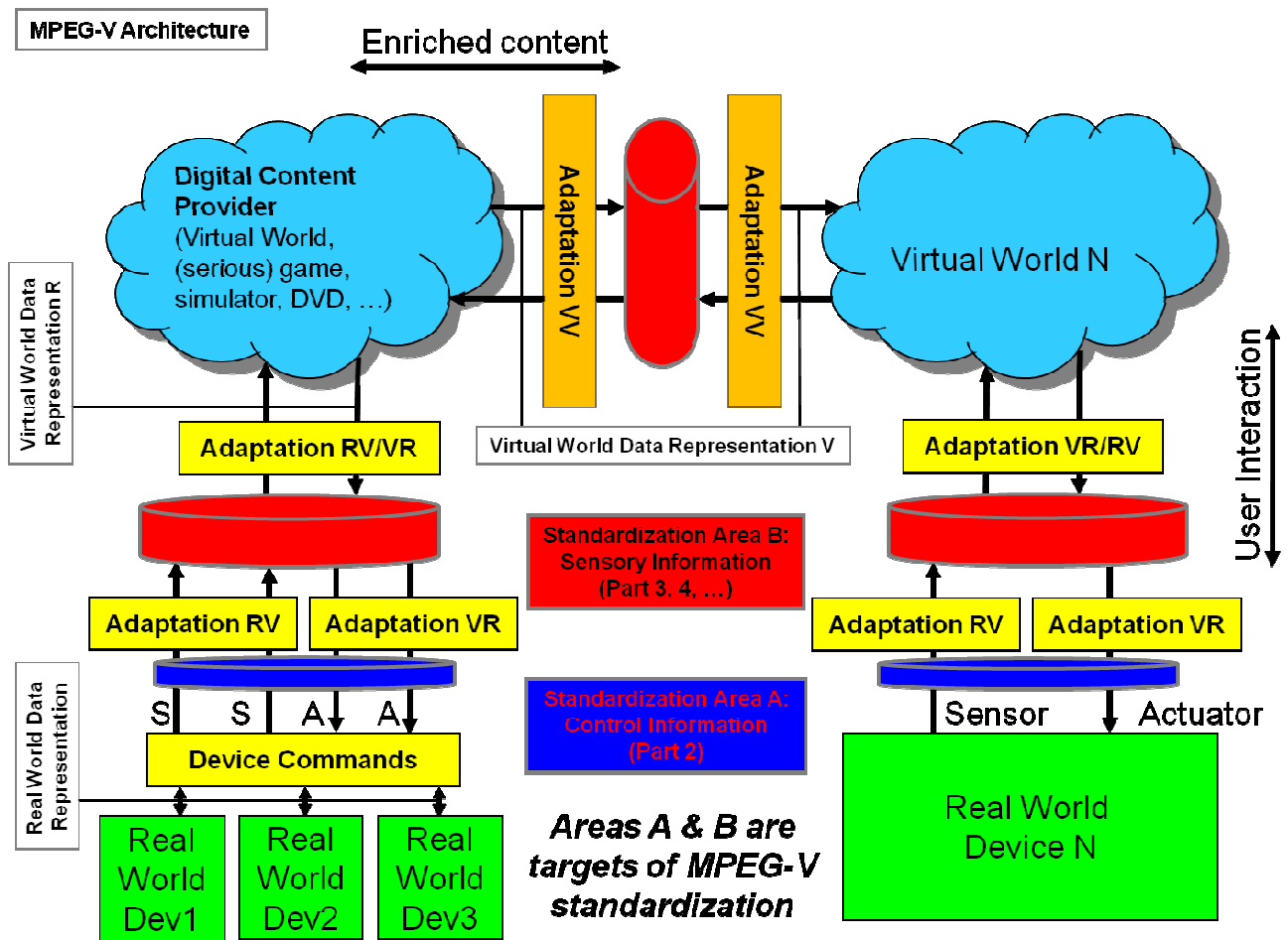


Figure 1 — System Architecture of the MPEG-V Framework

The individual elements of the architecture have the following function:

Digital Content Provider

A provider of digital content, real time or non real time, of various nature ranging from an on-line virtual world, simulation environment, multi user game, a broadcasted multimedia production, a peer-to-peer multimedia production or 'packaged content like a DVD or game.

Provider

An entity that acts as the source of the Sensory Effect Metadata (for instance a broadcaster).

Virtual World Data Representation R

The native representation of virtual world related information that is intended to be exchanged with the real world (either exported or imported).

Virtual World Data Representation V

The native representation of virtual world related information that is intended to be exchanged with another virtual world (either exported or imported).

Adaptation RV/VR

The adaptation of the native representation of virtual world related information (that is intended to be exchanged with the real world) to the standardized representation format of MPEG-V in the standardization area B (e.g. sensory information, haptic information, emotion information ...) in both directions: that is from the standardized representation into the native representation and vice versa.

Adaptation VV

The adaptation of the native representation of virtual world related information (that is intended to be exchanged with another virtual world) to the standardized representation format of MPEG-V in the standardization area B (e.g. avatar information ...) in both directions: that is from the standardized representation into the native representation and vice versa.

Adaptation engine

Entity that takes the Sensory Effect Metadata, the Sensory Device Capabilities the Sensor Capabilities, and/or the User Sensory Preferences as inputs and generates Sensory Device Commands and/or Sensed Information based on those inputs.

Sensory Information

The standardized representation format of MPEG-V in the standardization area B (Sensory Information) (e.g. sensory information, haptic / tactile information, emotion information, avatar information ...).

Adaptation RV

The adaptation of the standardized representation of real world related information in the standardized representation format of MPEG-V in the standardization area A to the standardized representation of virtual world related information in the standardized representation format of MPEG-V in the standardization area B.

Adaptation VR

The adaptation of the standardized representation of virtual world related information in the standardized representation format of MPEG-V in the standardization area B to the standardized representation of real world related information in the standardized representation format of MPEG-V in the standardization area A.

Control Information ¹

The standardized representation format of MPEG-V in the standardization area A (Control Information) (e.g. bi-directional control information, preference information, capability information ...) related to the following elements of the architecture:

- Virtual World Data Representation R
- Virtual World Data Representation V
- Real World Data Representation

Real World Data Representation

The native representation of real world related information that is intended to be exchanged with the virtual world (either exported or imported).

Device Commands

¹ In general, control information is strongly related to de-facto industry solutions for e.g. sensors, actuators and virtual worlds.

Device commands is responsible for the adaptation of the native representation of real world related information (that is intended to be exchanged with the virtual world) to the standardized representation format of MPEG-V in the standardization area A (control information) (e.g. bi-directional control information, preference information, capability information ...) in both directions: that is from the native representation into the standardized representation and vice versa.

Real World Device S

A real world device containing a sensor (e.g. a temperature, light intensity, blood pressure, heartbeat ...)

Sensor

A consumer device by which user input or environmental information can be gathered (for instance a temperature sensor, a distance sensor, a motion sensor).

Sensed information

Information acquired by a sensor.

Real World Device A

A real world device containing an actuator (e.g. a display, speaker, light speaker, fan, robot, implant ...). NOTE: Real world devices can contain any combination of sensors and actuators in one device.

Sensory Device

A consumer Device capable of creating a Sensory Effect (for instance a light, fan, heater or fan).

Sensor Device Capability

The description schemes and descriptors to represent the characteristics of sensors in terms of the capability of the given sensor such as accuracy, or sensing range (for instance the characteristics of lights, fans, heater, fan).

Sensory Device Command

The description schemes and descriptors to control Sensory Devices.

Sensory Effect

The effect to augment perception by stimulating human senses (for instance in a particular scene of a multimedia application by wind, scent and lights effects).

Sensory effect metadata

The description schemes and descriptors to represent sensory effects.

User Sensory Effect Preferences

The description schemes and descriptors to represent user preferences (limitations) with respect to rendering of Sensory Effects.

In the MPEG-V standard the following areas are addressed:

Standardization Area A: Control Information

This area covers the information representation of the control information to and from devices in the physical world and into and from the virtual world. Examples of these representations are the

representation of sensory input devices like smart vision systems, environmental and body sensors and the like and sensory output rendering devices like lights, heaters, fans, displays, speakers and the like.

Standardization Area B: Sensory Information

This area covers the (bidirectional) information representation of information exchanged between the physical world and the virtual world as well as the information exchange between virtual worlds. Examples of these representations are the representation of haptic, emotion and avatar information.