

# International Standard

# ISO/IEC 23093-1

# Information technology — Internet of media things —

# Part 1: **Architecture**

Technologies de l'information — Internet des objets media — Partie 1: Architecture

Third edition 2025-11



#### **COPYRIGHT PROTECTED DOCUMENT**

#### © ISO/IEC 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office CP 401 • Ch. de Blandonnet 8 CH-1214 Vernier, Geneva Phone: +41 22 749 01 11 Email: copyright@iso.org Website: www.iso.org

Website: <u>www.iso.or</u> Published in Switzerland

Contents					
Forew	ord			<b>v</b>	
Intro	duction	1		vi	
1					
2	Normative references				
3			efinitions		
3	3.1		Internet of media things terms		
	3.2	Internet of things terms			
4	Archi		<u>,                                      </u>		
5	Use cases				
3	5.1 5.2	Gener:	al	5	
		Smart	spaces: Monitoring and control with network of audio-video cameras	8	
		5.2.1	General	8	
		5.2.2	Human tracking with multiple network cameras		
		5.2.3	Dangerous region surveillance system	8	
		5.2.4 5.2.5	Intelligent firefighting with IP surveillance cameras	9	
		5.2.5	Automatic security alert and title generation system using, time, GPS and visual information	9	
		5.2.6	Pedestrian-car accident detection in video using prediction result description		
		5.2.7	Networked digital signs for customized advertisement	10	
		5.2.8	Digital signage and second screen use	10	
		5.2.9	Self-adaptive quality of experience for multimedia applications	11	
		5.2.10	Ultra-wide viewing video composition	11	
		5.2.11	Face recognition to evoke sensorial actuations	12	
		5.2.12	Automatic video clip generation by detecting event information	12	
		3.2.13	Temporal synchronization of multiple videos for creating 360° or multiple view video	12	
		5.2.14	Intelligent similar content recommendations using information from IoMT devices		
		5.2.15	Understand and explain events in video by instance segmentation		
			Indoor/outdoor acoustic event detection		
		5.2.17	Safety equipment detection on construction sites	13	
	5.3		spaces: Multi-modal guided navigation		
		5.3.1	General		
		5.3.2	Blind person assistant system		
		5.3.3 5.3.4	Elderly people assistance with consecutive vibration haptic devices		
		5.3.5	Personalized tourist navigation with natural language functionalities		
		5.3.6	Smart identifier: Face recognition on smart glasses		
		5.3.7	Smart advertisement: QR code recognition on smart glasses	17	
	5.4	Smart	audio/video environments in smart cities	17	
		5.4.1	General		
		5.4.2	Smart factory: Car maintenance assistance A/V system using smart glasses		
		5.4.3	Smart museum: Augmented visit using smart glasses.		
		5.4.4 5.4.5	Smart house: enhanced perception modes  Smart house: control of home appliance devices		
		5.4.6	Smart car: Head-light adjustment and speed monitoring to provide automatic	20	
		2	volume control	20	
	5.5		audio/video environments in smart rural areas	21	
		5.5.1	General		
		5.5.2	Crop smart farming		
		5.5.3	Smart crop growth monitoring.		
	5.6	5.5.4 Smart	Livestock smart farming multi-modal collaborative health	22	

.6.1	General	23			
		22			
.6.3	Diabetic coma prevention	Z3			
.6.5	Medical assistance with smart glasses	24			
.6.6	Managing healthcare information for smart glasses	25			
.6.7	Emergency health event detection with infrared camera	26			
1	processing	26			
.6.9	Multimodal guestion answer with blood pressure datadata	27			
6.10	Indoor air quality prediction	28			
Blockch	nain usage for IoMT transactions authentication and monetizing	28			
7.2	Reward function in IoMT people counting by using blockchains	28			
.7.3	Content authentication with blockchains	29			
/letave	rse usage of IoMT technologies	29			
.8.3	Facial landmark detection for human avatar animation	30			
ibliography					
	6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10 6lockel 7.1 7.2 7.3 1etave 8.1 8.2 8.3	6.2 Increasing patient autonomy by remote control of left-ventricular assisted devices 6.3 Diabetic coma prevention 6.4 Enhanced physical activity with smart fabrics networks. 6.5 Medical assistance with smart glasses. 6.6 Managing healthcare information for smart glasses. 6.7 Emergency health event detection with infrared camera. 6.8 Personalized detection of health danger by multimodal data sensing and processing. 6.9 Multimodal question answer with blood pressure data. 6.10 Indoor air quality prediction. 6.10 Indoor air quality prediction authentication and monetizing. 6.11 General. 6.12 Reward function in IoMT people counting by using blockchains. 6.13 Content authentication with blockchains. 6.14 General. 6.5 Medical assistance with smart fabrics networks. 6.6 Managing healthcare information and monetizing and processing. 6.7 Emergency health event detection and monetizing and processing. 6.8 Personalized detection in IoMT people counting by using blockchains. 6.9 Multimodal question in IoMT people counting by using blockchains. 6.10 Indoor air quality prediction. 6.11 General. 6.12 Reward function in IoMT people counting by using blockchains. 6.13 Content authentication with blockchains. 6.14 General. 6.5 Medical assistance with smart fabrics networks. 6.6 Managing healthcare information and monetizing. 6.7 Content authentication for avatar animation. 6.8 Personalized detection for human avatar animation.			

#### Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see <a href="www.iso.org/directives">www.iso.org/directives</a> or <a href="www.iso.org/directives">www.iso.org/directives<

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC had received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <a href="www.iso.org/patents">www.iso.org/patents</a> and <a href="https://patents.iec.ch">https://patents.iec.ch</a>. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see <a href="www.iso.org/iso/foreword.html">www.iso.org/iso/foreword.html</a>. In the IEC, see <a href="www.iec.ch/understanding-standards">www.iec.ch/understanding-standards</a>...

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This third edition cancels and replaces the second edition (ISO/IEC 23093-2:2022), which has been technically revised.

The main changes are as follows:

- addition of complementary use cases;
- addition of sequence diagrams and mission state diagrams for the use-case description in order to enhance the readability of the document.

A list of all parts in the ISO/IEC 23093 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at <a href="https://www.iso.org/members.html">www.iso.org/members.html</a> and <a href="https://www.iso.org/members.html">www.iso.org/members.html</a> and <a href="https://www.iso.org/members.html">www.iso.org/members.html</a> and

#### Introduction

The ISO/IEC 23093 series provides an architecture and specifies application programming interfaces (APIs) and compressed representation of data flowing between media things.

The APIs for the media things facilitate discovering other media things in the network, connecting and efficiently exchanging data between media things. The APIs also provide means for supporting transaction tokens in order to access valuable functionalities, resources, and data from media things.

Media things related information consists of characteristics and discovery data, setup information from a system designer, raw and processed sensed data, and actuation information. The ISO/IEC 23093 series specifies data formats of input and output for media sensors, media actuators, media storages, media analysers, etc. Sensed data from media sensors can be processed by media analysers to produce analysed data, and the media analysers can be cascaded in order to extract semantic information.

This document does not specify how the process of sensing and analysing is carried out but specifies the interfaces between the media things. This document describes the architecture of systems for the internet of media things.

## Information technology — Internet of media things —

### Part 1:

## **Architecture**

#### 1 Scope

This document describes the architecture of systems for the internet of media things. It also includes a comprehensive set of use cases that can be deployed on such an architecture.

#### 2 Normative references

There are no normative references in this document.