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ИНТЕРНЕТ ВЕЩЕЙ

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IoT is getting ready for mass application

Резюме – Концепция интернета вещей имеет повсеместное применение и является неотъемлемой частью современного мира. В данной статье рассматриваются тенденции развития в разных сферах и направлениях.

Summary – The concept of the Internet of things has widespread application and is an important part of the modern world. This article discusses development trends in various fields and directions.

Starting in 2019, the Internet of Things (IoT) represents a new technological trend and has attracted increasing attention from the general public. A new direction is developing widely - the Internet of things for all. Understanding its importance, industry experts highlight the most promising areas, such as 5G networks, smart cities, cybersecurity, border and cloud computing, the deployment of hybrid computing networks, Augmented Reality (AR), democratization in management and much more [1].

IoT development trends for the next perspective

The Internet of things is the technology on which companies build their future. The Industrial Internet of Things (IIoT) has already changed our way of life. On the horizon there are a lot of promising technologies that are able in a few years to have a profound impact on everyday life. The long-awaited introduction of 5G networks promises to radically change the IIoT space in the near future, from changing the form of operating of our cities to the digital transformation of industries. The Internet of things is fundamentally changing the way people interact with high-tech enterprises.

Big data and artificial intelligence

AI and Data Science occupy leading positions in all areas of technology, as they have proven their place as symbols of a new digital era. It is predicted that in 2019 there will be 14.2 billion "related things" that can lead to huge amounts of data. Data is IoT fuel and the key to making companies make the right decisions about products, services, staffing, strategies, etc. At the same time, not the data themselves guarantee success, but the ability to interpret them using a wide range of analytics tools. Due to the huge amount of data generated by smart devices, companies are keen to introduce technologies that can help them understand this data. Digital leaders will use Machine Learning (ML) and Artificial Intelligence (AI) on platforms with improved computing power, which will improve the quality of machine learning based on "improved" big data.

Digital twin

Digital twin technology, also known as hybrid twin, or virtual prototyping, refers to a virtual copy of a real product, asset, process or system that can be used for various tasks. It is a modeling tool that works with artificial intelligence, machine learning, and IoT to improve companies experience by optimizing digital data operations.

5G as a new wireless network

The upcoming 5G technologies, based on the use of next-generation low-Earth orbit satellites and backscatter networks, deserve attention in the IoT market with the goal of optimizing power consumption, bandwidth, minimizing delays, connection density, operating costs and quality of service.

Social IoT

The Internet of things is a very broad technology that covers all areas, from consumer devices to large-scale production. However, it is not clear whether the public is ready for the widespread use of IoT technologies. As IoT develops, a wide range of social, legal, and ethical issues will become increasingly important. For IoT solutions to be successful, they need to be not only technically effective, but also socially acceptable. This range of issues includes ownership of the data and calculations performed on its basis, algorithmic bias, confidentiality, and compliance with all the rules of the General Data Protection Regulation (GDRP).

Internet management

As IoT expands, the need to develop a management structure that ensures proper behavior when creating, storing, using and deleting data becomes more important. Managing IoT-related projects will range from simple device checks and firmware updates to complex issues such as device management and the strategic use of the data they generate.

Infonomics

The idea of selling data collected on the basis of the company's intellectual platforms and services is not new, but the theory and philosophy of infonomics take monetization of data to new heights. The data will be considered as a strategic business asset that must be accumulated in the company's accounts, which will entail the corresponding risks and opportunities associated with brokerage.

User experience

The Internet of things is changing the way people interact with devices that are not equipped with screens and input devices. In the future, IoT User eXperience (UX) will be determined by four factors: new sensors, new algorithms, new architectures and accumulated expertise, as well as socially-oriented experience. In addition, UX developers will have to realize new perspectives without using screens and keyboards, as well as without using digital assistants with voice control.

What is the Industrial Internet of Things (IIoT)?

The Industrial Internet of Things (IIoT) refers to the expansion of the Internet of Things (IoT) and its use in industries and specialized applications. IIoT focuses on machine-to-machine exchange (M2M) technologies, big data, machine learning, which allow companies to increase the efficiency and reliability of their

operations. IIoT covers industrial applications: robotics, medical devices and manufacturing processes with specialized software. IIoT goes beyond conventional consumer devices and the interworking of physical devices typically associated with IoT. It is distinguished by the intersection of information and Operational Technologies. OT refers to the networking of operational processes and Industrial Control Systems (ICS), including Human-Machine Interfaces (HMI), Supervisory Control And Data Acquisition systems (SCADA), Distributed Control Systems (DCS) and Programmable Logic Controllers (PLC). The convergence of IT and OT provides the industry with greater integration of systems, in terms of automation and optimization, as well as better manageability of supply chains and logistics. Monitoring and management of physical infrastructure in such areas Agriculture, healthcare, manufacturing, transportation and utilities are simplified by the use of IIoT technology, smart sensors and actuators, as well as remote access and control. Real-time data received from sensors and other sources of information helps industrial devices and infrastructures in "decision making", in the development of "ideas" and concrete actions. In addition, machines can automate tasks that previous industrial revolutions could not solve. In a broader context, IIoT is critical in combining individual ecosystems or in managing smart cities and smart enterprises. Sequentially collecting and transferring data between smart devices and machines provides enterprises with additional growth opportunities. Big data allows enterprises to identify errors or inefficient sections of the supply chain and immediately eliminate them, thereby pushing for everyday improvement in efficient operations and the use of finance. Proper IIoT integration can also optimize asset utilization, predict failure points, and even run individual maintenance processes autonomously [2].

Литература

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