Report Topic : **Internet Of Things**

Student : **Alaa Ahmed Saad Abd-Elglel**

**Seat Number : 192**  
Group : 2

Section : 9

B.N : 13

# **Internet Of Things**

The **Internet of things** (**IoT**) describes the network of physical objects—a.k.a. "things"—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the [Internet](https://en.wikipedia.org/wiki/Internet).

Things have evolved due to the convergence of multiple [technologies](https://en.wikipedia.org/wiki/Technologies), real-time [analytics](https://en.wikipedia.org/wiki/Analytics), [machine learning](https://en.wikipedia.org/wiki/Machine_learning), [ubiquitous computing](https://en.wikipedia.org/wiki/Ubiquitous_computing), [commodity](https://en.wikipedia.org/wiki/Commodity) [sensors](https://en.wikipedia.org/wiki/Sensors), and [embedded systems](https://en.wikipedia.org/wiki/Embedded_system).[[1]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-Linux_Things-1) Traditional fields of [embedded systems](https://en.wikipedia.org/wiki/Embedded_system), [wireless sensor networks](https://en.wikipedia.org/wiki/Wireless_sensor_network), control systems, [automation](https://en.wikipedia.org/wiki/Automation) (including [home](https://en.wikipedia.org/wiki/Home_automation) and [building automation](https://en.wikipedia.org/wiki/Building_automation)), and others all contribute to enabling the Internet of things. In the consumer market, IoT technology is most synonymous with products pertaining to the concept of the "[smart home](https://en.wikipedia.org/wiki/Smart_home_technology)", including devices and [appliances](https://en.wikipedia.org/wiki/Home_appliance) (such as lighting fixtures, [thermostats](https://en.wikipedia.org/wiki/Thermostats), home [security systems](https://en.wikipedia.org/wiki/Security_systems) and cameras, and other home appliances) that support one or more common ecosystems, and can be controlled via devices associated with that ecosystem, such as [smartphones](https://en.wikipedia.org/wiki/Smartphone) and [smart speakers](https://en.wikipedia.org/wiki/Smart_speaker). The IoT can also be used in [healthcare s ystems](https://en.wikipedia.org/wiki/Health_system).

There are a number of serious concerns about dangers in the growth of the IoT, especially in the areas of [privacy](https://en.wikipedia.org/wiki/Digital_privacy) and [security](https://en.wikipedia.org/wiki/Digital_security), and consequently industry and governmental moves to address these concerns have begun including the development of international standards.

# Applications

The extensive set of applications for IoT devices is often divided into consumer, commercial, industrial, and infrastructure spaces.

### Consumer applications

A growing portion of IoT devices are created for consumer use, including connected vehicles, [home automation](https://en.wikipedia.org/wiki/Home_automation), [wearable technology](https://en.wikipedia.org/wiki/Wearable_technology), connected health, and appliances with remote monitoring capabilities.

#### **Smart home**

IoT devices are a part of the larger concept of [home automation](https://en.wikipedia.org/wiki/Home_automation), which can include lighting, heating and air conditioning, media and security systems and camera systems. Long-term benefits could include energy savings by automatically ensuring lights and electronics are turned off or by making the residents in the home aware of usage.

A smart home or automated home could be based on a platform or hubs that control smart devices and appliances. For instance, using [Apple](https://en.wikipedia.org/wiki/Apple_Inc.)'s [HomeKit](https://en.wikipedia.org/wiki/HomeKit), manufacturers can have their home products and accessories controlled by an application in [iOS](https://en.wikipedia.org/wiki/IOS) devices such as the [iPhone](https://en.wikipedia.org/wiki/IPhone) and the [Apple Watch](https://en.wikipedia.org/wiki/Apple_Watch). This could be a dedicated app or iOS native applications such as [Siri](https://en.wikipedia.org/wiki/Siri).  
This can be demonstrated in the case of Lenovo's Smart Home Essentials, which is a line of smart home devices that are controlled through Apple's Home app or Siri without the need for a Wi-Fi bridge. There are also dedicated smart home hubs that are offered as standalone platforms to connect different smart home products and these include the [Amazon Echo](https://en.wikipedia.org/wiki/Amazon_Echo), [Google Home](https://en.wikipedia.org/wiki/Google_Home), Apple's [HomePod](https://en.wikipedia.org/wiki/HomePod), and Samsung's [SmartThings Hub](https://en.wikipedia.org/wiki/SmartThings).[[32]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-32) In addition to the commercial systems, there are many non-proprietary, open source ecosystems; including Home Assistant, OpenHAB and Domoticz.

#### **Elder care**

One key application of a smart home is to provide [assistance for those with disabilities and elderly individuals](https://en.wikipedia.org/wiki/Home_automation_for_the_elderly_and_disabled). These home systems use assistive technology to accommodate an owner's specific disabilities. [Voice control](https://en.wikipedia.org/wiki/Voice_Control) can assist users with sight and mobility limitations while alert systems can be connected directly to [cochlear implants](https://en.wikipedia.org/wiki/Cochlear_implant) worn by hearing-impaired users.They can also be equipped with additional safety features. These features can include sensors that monitor for medical emergencies such as falls or seizures. Smart home technology applied in this way can provide users with more freedom and a higher quality of life.

The term "Enterprise IoT" refers to devices used in business and corporate settings. By 2019, it is estimated that the EIoT will account for 9.1 billion devices.[[22]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-Business_Insider-22)

### **Organizational applications**

#### [Medical and healthcare](https://en.wikipedia.org/w/index.php?title=Internet_of_things&action=edit&section=7)

The **Internet of Medical Things** (**IoMT**) is an application of the IoT for medical and health related purposes, data collection and analysis for research, and monitoring.[[38]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-Wards-38)[[39]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-Geron-39)[[40]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-ClinLab-40)[[41]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-41)[[42]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-42) The IoMT has been referenced as "Smart Healthcare",[[43]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-auto2-43) as the technology for creating a digitized healthcare system, connecting available medical resources and healthcare services.[[44]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-44)[[45]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-45)

IoT devices can be used to enable [remote health monitoring](https://en.wikipedia.org/wiki/Remote_patient_monitoring) and [emergency notification systems](https://en.wikipedia.org/wiki/Emergency_notification_system). These health monitoring devices can range from blood pressure and heart rate monitors to advanced devices capable of monitoring specialized implants, such as pacemakers, Fitbit electronic wristbands, or advanced hearing aids. Some hospitals have begun implementing "smart beds" that can detect when they are occupied and when a patient is attempting to get up. It can also adjust itself to ensure appropriate pressure and support is applied to the patient without the manual interaction of nurses. A 2015 Goldman Sachs report indicated that healthcare IoT devices "can save the United States more than $300 billion in annual healthcare expenditures by increasing revenue and decreasing cost."Moreover, the use of mobile devices to support medical follow-up led to the creation of 'm-health', used analyzed health statistics."

Specialized sensors can also be equipped within living spaces to monitor the health and general well-being of senior citizens, while also ensuring that proper treatment is being administered and assisting people regain lost mobility via therapy as well. These sensors create a network of intelligent sensors that are able to collect, process, transfer, and analyze valuable information in different environments, such as connecting in-home monitoring devices to hospital-based systems.[[43]](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-auto2-43) Other consumer devices to encourage healthy living, such as connected scales or [wearable heart monitors](https://en.wikipedia.org/wiki/Wearable_technology), are also a possibility with the IoT. End-to-end health monitoring IoT platforms are also available for antenatal and chronic patients, helping one manage health vitals and recurring medication requirements.

Advances in plastic and fabric electronics fabrication methods have enabled ultra-low cost, use-and-throw IoMT sensors. These sensors, along with the required RFID electronics, can be fabricated on [paper](https://en.wikipedia.org/wiki/Paper) or [e-textiles](https://en.wikipedia.org/wiki/E-textiles) for wireless powered disposable sensing devices. Applications have been established for [point-of-care medical diagnostics](https://en.wikipedia.org/wiki/Point-of-care_testing), where portability and low system-complexity is essential.

As of 2018 IoMT was not only being applied in the [clinical laboratory](https://en.wikipedia.org/wiki/Clinical_laboratory) industry, but also in the healthcare and health insurance industries. IoMT in the healthcare industry is now permitting doctors, patients, and others, such as guardians of patients, nurses, families, and similar, to be part of a system, where patient records are saved in a database, allowing doctors and the rest of the medical staff to have access to patient information. Moreover, IoT-based systems are patient-centered, which involves being flexible to the patient's medical conditions.[[*citation needed*](https://en.wikipedia.org/wiki/Wikipedia:Citation_needed)] IoMT in the insurance industry provides access to better and new types of dynamic information. This includes sensor-based solutions such as biosensors, wearables, connected health devices, and mobile apps to track customer behavior. This can lead to more accurate underwriting and new pricing models.

[The application of the IoT in healthcare plays a fundamental role in managing chronic diseases and in disease prevention and control. Remote monitoring is made possible through the connection of powerful wireless solutions. The connectivity enables health practitioners to capture patient's data and applying complex algorithms in health data analysis.](https://en.wikipedia.org/wiki/Internet_of_things" \l "cite_note-56)

# **Screen Shots**

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# **Code**

<!DOCTYPE html>

<html>

<head>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<link rel="stylesheet" type="text/css" href="task-style.css" />

<title>IOT Report</title>

</head>

<body>

<div id="page">

<div class="topNaviagationLink"><a href="index.html">Home</a></div>

<div class="topNaviagationLink"><a href="apps.html">Application</a></div>

<div class="topNaviagationLink"><a href="samples.html">Samples</a></div>

<div class="topNaviagationLink"><a href="futures.html">Future</a></div>

<div class="topNaviagationLink"><a href="benefits.html">Benefits</a></div>

</div>

<div id="mainPicture">

<div class="picture"></div>

</div>

<div class="contentBox">

<div class="innerBox">

<h1>What is the Internet of Things?</h1>

<div class="contentText">

The Internet of Things, or IoT, refers to the billions of physical

devices around the world that are now connected to the internet, all

collecting and sharing data. Thanks to the arrival of super-cheap

computer chips and the ubiquity of wireless networks, it's possible to

turn anything, from something as small as a pill to something as big

as an aeroplane, into a part of the IoT. Connecting up all these

different objects and adding sensors to them adds a level of digital

intelligence to devices that would be otherwise dumb, enabling them to

communicate real-time data without involving a human being. The

Internet of Things is making the fabric of the world around us more

smarter and more responsive, merging the digital and physical

universes.

</div>

</div>

</div>

</body>

</html>