Modern Smart Devices

Smartphone

A **smartphone** is a cell phone that allows you to do more than make phone calls and send text messages. Smartphones can browse the Internet and run software programs like a computer. Smartphones use a touch screen to allow users to interact with them. There are thousands of smartphone apps including games, personal-use, and business-use programs that all run on the phone. The picture is an example of the Apple iPhone, one of the most popular smartphones available today.

What can a smartphone do?

Smartphones are loaded with features and capabilities that make them more than a phone. Below is a listing of the most popular features of a smartphone.

- Make and receive phone calls text messages.
- Take, show, and store pictures and video.
- Browse the Internet, and send and receive e-mail.
- GPS capability for location and navigation.
- Record and play audio and music.
- Display time and date and other functions such as alarm clock, stopwatch, and timer.
- Display weather and temperature information.
- Voice dictation and take notes.
- Virtual assistant using Siri, Google Assistant, or Cortana.
- Access utilities, such as a flashlight, e-book reader, and calculator.

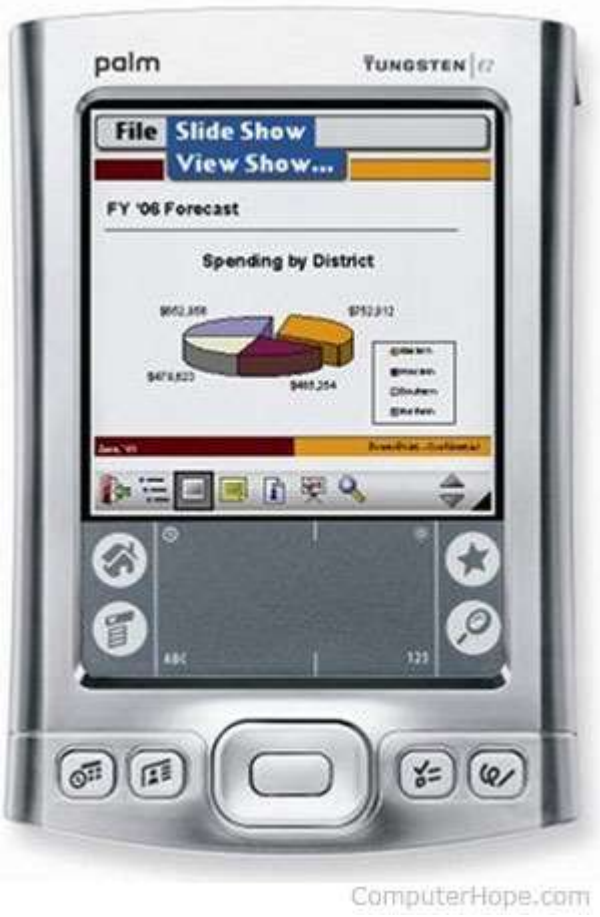
Does a smartphone have an operating system?

Yes. Similar to a desktop or laptop computer, a smartphone has an operating system on it, like Windows or macOS. The four most common are iOS (created by Apple), Android (created by Google), BlackBerry (created by Research In Motion), and Windows Phone (created by Microsoft).

Smartwatch

A **smartwatch**, or **smart watch**, functions not only as a timekeeper, but also allows users to view calendar appointments, make and receive calls; even view e-mail. Similar to a personal digital assistant, some devices having a mobile operating system installed on them and functionality for some mobile apps. A smart watch may also be able to sync with a smartphone or tablet computer, depending on their respective versions of Android or iOS operating system. Some smart watches also include Bluetooth, WiFi, and a GPS. In the picture is an example of a Smartwatch from Samsung.

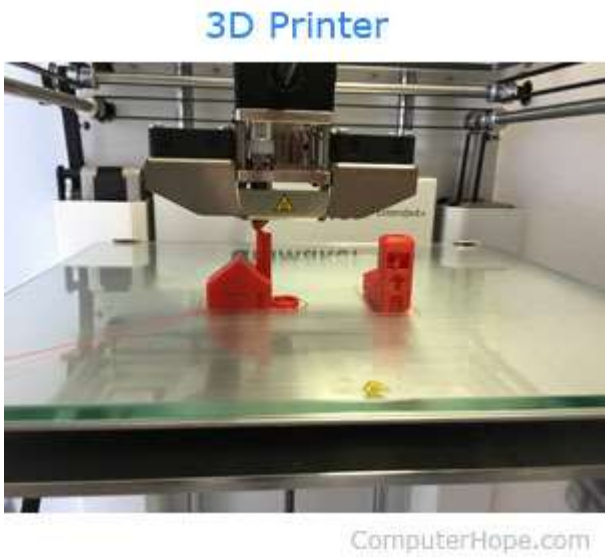
PDA



Short for **Personal Digital Assistant**, **PDA** is a computer that fits in the palm of your hand to help collect such information as contacts, appointments, files, and programs. The picture is the Palm Tungsten | E2 and an example of a PDA. Because touch screens were not available at the time to use a PDA a stylus was used to input data into the device. As the PDA couldn't connect to the Internet, to backup or transfer data, it had to connect to a computer by a serial port.

The term PDA was first used by John Scully at CES on January 7, 1992, while describing the Apple Newton. Today, with the popularity and advances in smartphones, PDA's are rarely found and used as users migrate to smartphones like the iPhone.

3D printer



Created by Chuck Hull in 1984, the **3D printer** is a device that creates a physical object from a digital model by layering materials. 3D printers use materials, such as metal alloys, polymers, plastics, or even food ingredients.

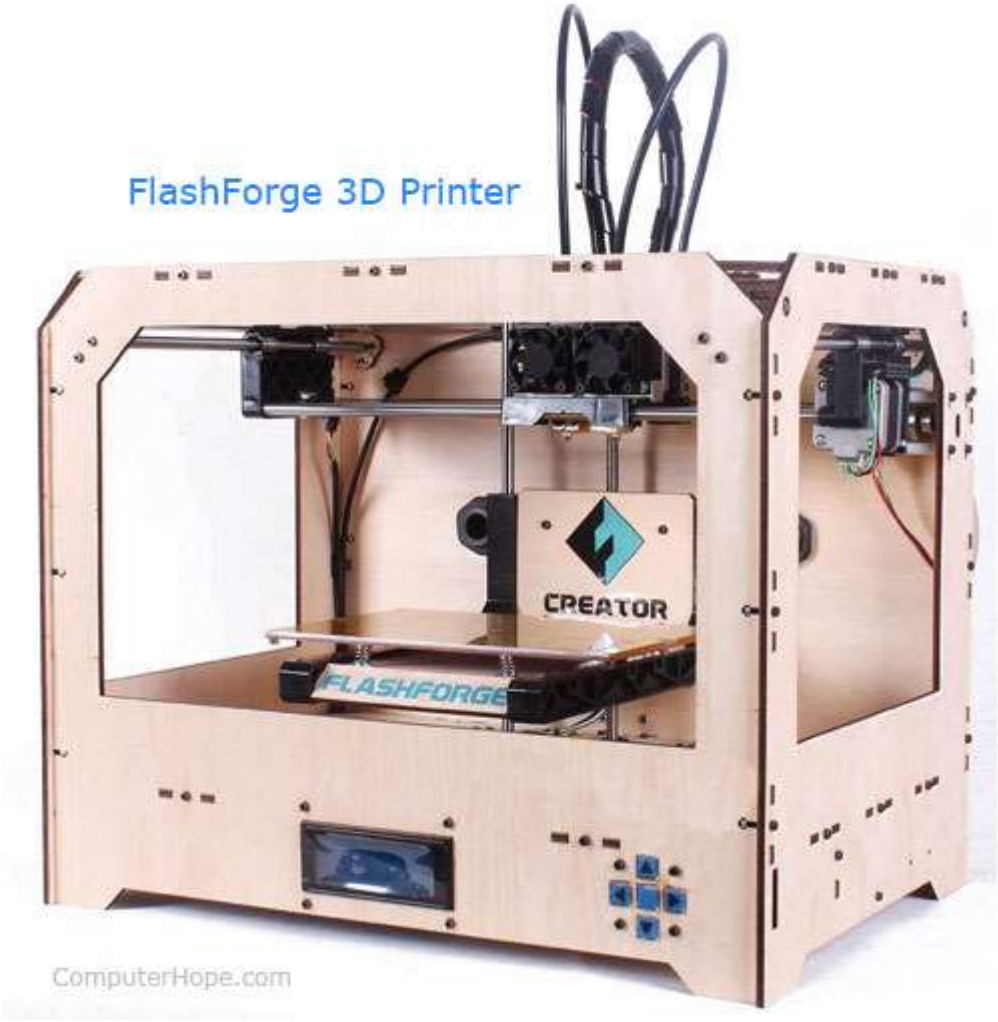
Application of 3D printers

3D printers are used in many industries, like aerospace engineering, dentistry, archaeology, biotechnology, and information systems. As an example, a 3D printer might be used in the field of archaeology to physically reconstruct ancient artifacts that were damaged over time.

How does it work?

An object's design usually begins in a CAD (computer aided design) software system, where its blueprint is created. The blueprint is then sent from the CAD system to the printer in a file format known as STL

(short for "stereolithography"). The printer then reads the blueprint in cross sections and begins recreating the object layer-by-layer, as it appears in the computer aided design. Pictured below is a model of 3D printer called the FlashForge.



eBook

Updated: 03/06/2020 by Computer Hope

Short for **electronic book**, an **eBook** or **e-book** is a book published in an electronic format. It allows for instant access to a book by downloading it over the Internet. The book can be read on the computer, **e-reader** (e.g., the Amazon Kindle), smartphone, or tablet. An eBook can be published in different file formats, for example, plain text, PDF, Rich Text Format, as image files, and others.

On July 19, 2010, Amazon announced that it was selling more e-books than hardcover books. Below is a short listing of the many different places to find legal and free e-books.

A **self-driving car**, also known as an **autonomous vehicle** (**AV** or **auto**), **driverless car**, or **robo-car**,[1][2][3] is a vehicle that is capable of sensing its environment and moving safely with little or no human input.[4][5]

Self-driving cars combine a variety of sensors to perceive their surroundings, such as radar, lidar, sonar, GPS, odometry and inertial measurement units.[1][4] Advanced control systems interpret sensory

information to identify appropriate navigation paths, as well as obstacles and relevant signage.[4][6][7][8]

Possible implementations of the technology include personal self-driving vehicles, shared robotaxis, connected vehicle platoons and long-distance trucking.[4] Several projects to develop a fully self-driving commercial car are in various stages of development. Waymo became the first service provider to offer robotaxi rides to the general public in a part of Phoenix, Arizona in 2020, while Tesla has said it will offer subscription-based "full self-driving" to private vehicle owners in 2021,[9][10] and Nuro has been allowed to start autonomous commercial delivery operations in California in 2021.[11] In China two publicly accessible trials of robo-taxis have been launched, in 2020 in Shenzhen's Pingshan District by Chinese firm AutoX [12] and in 2021 at Shougang Park in Beijing by Baidu, a venue for the 2022 Winter Olympics.[13]

Smart glasses

Smart glasses are a type of wearable device that utilizes AR (augmented reality) to add digital displays to glasses. Most smart glasses are meant to be an extension of your smartphone, displaying notifications and allowing you to perform quick actions similar to a smartwatch. Cameras can make features like first-person video possible, adding eye tracking to add more elements of control. Additional actions may be performed using voice commands through a connected virtual assistant like Google Assistant or Amazon's Alexa.

Depending on the smart glasses, displays can project onto the lens using a small projector or tiny screen is visible out of the corner of the user's eye.

Smart camera

From Wikipedia, the free encyclopedia
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Not to be confused with Smart digital camera, Dynamic vision sensor, or Traffic enforcement camera.

Early smart camera (ca. 1985, in red) with an 8MHz Z80 compared to a modern device featuring Texas Instruments' C64 @1GHz

A **smart camera (sensor)** or **intelligent camera (sensor)** or **(smart) vision sensor** or **intelligent vision sensor** or **smart optical sensor** or **intelligent optical sensor** or **smart visual sensor** or **intelligent visual sensor** is a machine vision system which, in addition to image capture circuitry, is capable of extracting application-specific information from the captured images, along with generating event descriptions or making decisions that are used in an intelligent and automated system.[1][2][3][4][5][6][7][8][9][10] A smart camera is a self-contained, standalone vision system with built-in image sensor in the housing of an industrial video camera. The vision system and the image sensor can be integrated into one single piece of hardware known as **intelligent image sensor** or **smart image sensor**.[11][12] It contains all necessary communication interfaces, *e.g.* Ethernet, as well as industry-proof 24V I/O lines for connection to a PLC, actuators, relays or pneumatic valves. It is not necessarily larger than an industrial or surveillance camera. A capability in machine vision generally means a degree of development such that these capabilities are ready for use on individual applications. This architecture has the advantage of a more compact volume compared

to PC-based vision systems and often achieves lower cost, at the expense of a somewhat simpler (or omitted) user interface. Smart cameras are also referred to by the more general term **smart sensors**.[13]