



IT Fundamentals

Unit - Hardware

Lesson 2.6.2 - IoT Devices

IT Fundamentals Objectives (FC0-U61)

Objective 2.6 Compare and contrast common computing devices and their purposes

- IoT
 - Home appliances
 - Home automation devices
 - Thermostats
 - Security systems
 - Modern cars
 - IP cameras
 - Streaming media devices
 - Medical devices

Grade Level(s)

8, 9

Cyber Connections

- Hardware & Software

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IoT Devices

The Internet of Things

We are surrounded by computers taking many different shapes and sizes. The network of physical objects that are embedded with software, sensors, etc. for the purpose of connecting and exchanging data over the Internet is referred to as the *internet of things (IoT)*. Mobile phones made the transition to “smartphones” once they were able to connect to the Internet and the same can be true within devices within a house to make a “smart home”. Many *home appliances* can be configured to work with/run through the Internet. Blenders, microwaves, scales, refrigerators, and many more devices now have the ability to interact with the Internet and thus fall into the category of IoT.

Along with home appliances, *home automation devices*, such as thermostats, security systems, light switches, and *IP cameras*, can be connected to the Internet making them IoT devices. With this improvement in technology, there have been pros and cons. One major benefit of a smart device is ease of use, allowing users to interact with a device from their phone or computer from a remote area. Unfortunately, since these devices are connected to the Internet, any loss of Internet connection can cease functionality and hackers can access them for fun or malicious purposes.

Cars have had integrated computers for a while now serving many purposes, but as with the other items mentioned so far, some now have the ability to connect to the Internet. There is a brand of car called a Smart car, so instead we refer to these vehicles as *intelligent cars*. Intelligent cars are capable of self-driving (still a work in progress), adaptive cruise control, adaptive headlamps, pre-crash systems, along with many more features.

Amazon, Roku, Google, and Apple, just to name a few, have created IoT *streaming media devices*. Some, like the Amazon Fire Stick or Roku Streaming Stick are connected to a television and used to stream movies or television shows, depending on what services you subscribe to. Other devices like Amazon Echo or Google Nest are great devices for streaming music or asking simple questions like “What time is it?” or “What is the weather like today?”

Teacher Notes:

Finally, some *medical devices* have smart features. People with asthma are able to wear an asthma monitoring system. Diabetes patients can use an AI-powered insulin pump to better monitor their insulin levels. There are even “smart drills” which benefit surgeons by performing numerous calculations like resistance and bone density to determine the best area to drill.