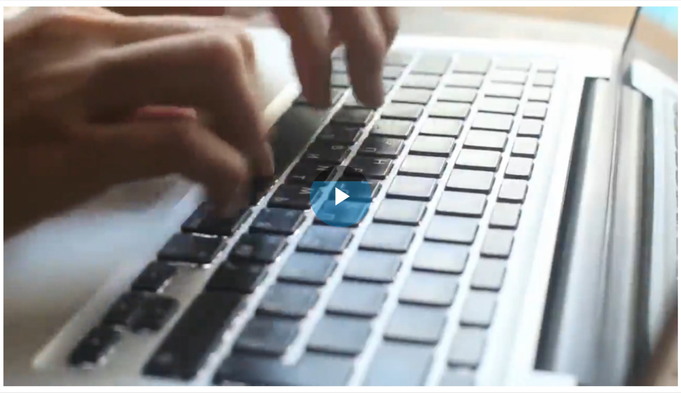
Automation Overview

14.1.1

Video - Automation Everywhere

We now see automation everywhere, from self-serve checkouts at stores and automatic building environmental controls, to autonomous cars and planes. How many automated systems do you encounter in a single day?

Click Play in the video to see examples of automation.



14.1.2

The Increase in Automation

Automation is any process that is self-driven, that reduces and potentially eliminates, the need for human intervention.

Automation was once confined to the manufacturing industry. Highly repetitive tasks, such as automobile assembly, were turned over to machines and the modern assembly line was born. Machines excel at repeating the same task without fatigue and without the errors that humans are prone to make in such jobs.

These are some of the benefits of automation:

- Machines can work 24 hours a day without breaks, which results in greater output.
- Machines provide a more uniform product.
- Automation allows the collection of vast amounts of data that can be quickly analyzed to provide information which can help guide an event or process.
- Robots are used in dangerous conditions such as mining, firefighting, and cleaning up industrial accidents. This reduces the risk to humans.
- Under certain circumstances, smart devices can alter their behavior to reduce energy usage, make a medical diagnosis, and improve automobile driving safety.

14.1.3

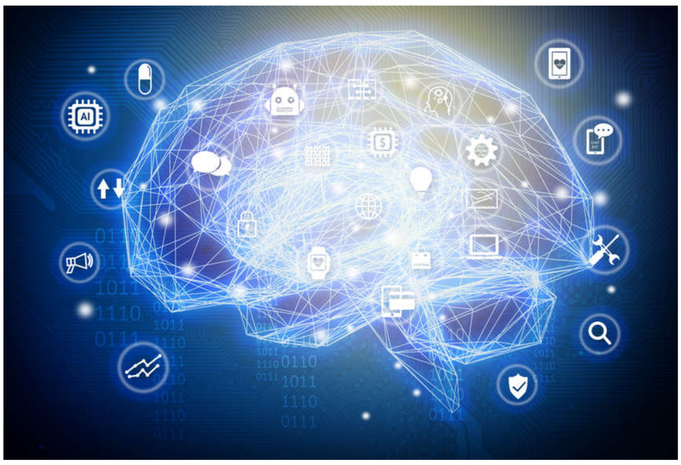
Thinking Devices

Can devices think? Can they learn from their environment? In this context, there are many definitions of the word "think". One possible definition is the ability to connect a series of related pieces of information together, and then use them to alter a course of action.

Many devices now incorporate smart technology to help to govern their behavior. This can be as simple as a smart appliance lowering its power consumption during periods of peak demand or as complex as a self-driving car.

Whenever a device takes a course of action based on an outside piece of information, then that device is referred to as a smart device. Many devices that we interact with now have the word smart in their names. This indicates that the device has the ability to alter its behavior depending on its environment.

In order for devices to "think", they need to be programmed using network automation tools.



14.1.4

Check Your Understanding - Benefits of Automation

Choose whether each of the following scenarios describes automation or not automation.

1. You use online banking to pay a bill.
   - ○ Automation
   - ◉ Not automation
2. Production levels are automatically tied to demand, eliminating unneeded product and reducing the impact on the environment.
   - ◉ Automation
   - ○ Not automation
3. Your GPS recalculates the best route to a destination based on current traffic congestion.
   - ◉ Automation
   - ○ Not automation
4. The temperature and lighting in your home is adjusted based on your daily routine.
   - ◉ Automation
   - ○ Not automation
5. A refrigerator senses that you are out of milk and places an order for more.
   - ◉ Automation
   - ○ Not automation
6. You adjust the volume on the television set with a remote control.
   - ○ Automation
   - ◉ Not automation
7. Robots are used in dangerous conditions to reduce safety risks to humans.
   - ◉ Automation
   - ○ Not automation
8. You open your car door with a remote control.
   - ○ Automation
   - ◉ Not automation

Check

Show Me

Reset