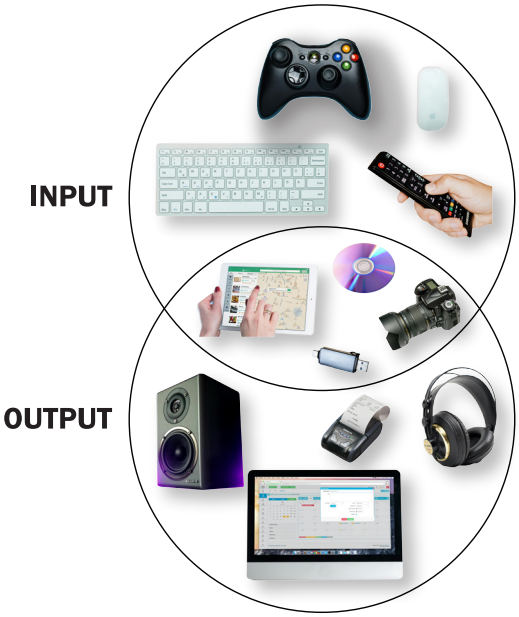
DIGITAL I/O

CONTROLLING LOGIC STATES



CONCEPT Digital I/O stands for Digital Input and Output. Digital Inputs allow a microcontroller to detect logic states, and Digital Outputs allow a microcontroller to output logic states. Simply put, data input values trigger some type of output response usually in the form of an action or procedure. The ability to control how that action/process is switched on and off is the key to most manufacturing processes worldwide.

APPLICATION

An example of controlling logic states in a relevant application is in the design and implementation of a smart home automation system. In this system, controlling logic states is essential for automating and integrating various devices and appliances, such as lights, thermostats and security systems.

The smart home automation system consists of a central control unit, which is typically a microcontroller or a smart hub, and multiple devices and appliances that are connected to it. The central control unit sends signals to these devices and appliances to control their logic states and automate their functions.

For example, if a homeowner wants to turn on the lights in a room, they can use a smart switch or a smartphone app to send a signal to the central control unit. The control unit then sends a signal to the light fixture, switching its logic state from off to on.

Similarly, if a homeowner wants to adjust the temperature in their home, they can use a smart thermostat or a smartphone app to send a signal to the central control unit. The control unit then sends a signal to the HVAC system, adjusting its logic state to turn on or off, or changing the desired temperature set point.