

Complex Circuits and Switches

Switches and sensors



Latching switch



Push-to-make switch
When you push, the electricity flows through the circuit, but when you release it the circuit is broken and the switch is off.



Push-to-break switch
The switch is off while the button is pushed, but returns to its 'on' position when button is released.



Micro-switch

- Micro-switch – a switch that can operate as push-to-break switch or a push-to-make switch.
- Push-to-break switch – a switch turned off by pressing it.
- Push-to-make switch – a switch turned on by pressing it.
- Reed switch – a switch operated by a magnet.
- Tilt switch – a switch that works when tilted at an angle.
- Toggle switch – a switch operated when a lever is pressed.
- Light dependent resistor (LDR) – a sensor that operates when light is shined on it.



Light-dependent resistor (LDR)



Reed switch
Activated by a magnet which closes the contacts.



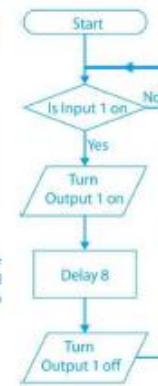
Tilt switch
When tilted a ball bearing bridges the contacts inside, completing the circuit.



Standalone control box



Interface control box



Example control program



Engineer Study

Sir Jony Ive

- ✓ Sir Jonathan Paul Ive, is a British industrial designer and Apple executive who was responsible for making design as integral to the appeal of a personal computer as its power and speed.
- ✓ He is responsible for the design of many Apple products we use today such as the iMac, iPhone, iPad and iWatch.



Vocabulary

Series circuit: all components are connected end-to-end to form a single path for current flow.

Parallel circuit: an electrical path that branches so that the current divides and only part of it flows through any branch.

Open switch: when a switch is positioned such that electricity cannot flow through it.

Closed switch: when a switch is positioned such that electricity can flow through it.

Output devices: components that produce an outcome e.g. bulbs and buzzers.

Input devices: components that are used to control an electrical circuit e.g. switches or sensors.