

Design and make a burglar alarm for a room

Being Safe

Crime and Punishment

Remove any jewellery and tie back long hair.	Never use electrical components near water.	Keep metal objects away from electrical heat sources-eg, knife away from toaster.	Never pull out a plug by its cord.	Do not put objects in electrical plug sockets.	Never put fingers or objects in plug sockets.	Safety at all times. Electricity can be dangerous and can cause burns, shocks and serious injury .
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Famous Inventor: Augustus Russel Pope



The first electronic burglar alarm was invented in 1850 in Boston USA. Magnets, electricity and a bell were used to create a warning system which was quite basic and simple but very effective.



1819-1958

Key Learning: Electrical Systems- More Complex Switches

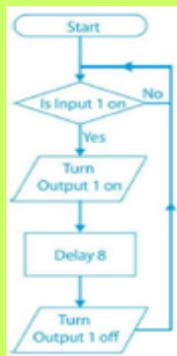
What are Electrical systems?

All **electrical systems** need a source of electricity. Electricity is a type of energy used to power lots of things. The electricity flowing through a circuit is called a **current**. If there is a break in the circuit, then the current will not flow and the **output device** will not work.

Control language (instructions) or a **flowchart** can be used to **program** and **control** the circuit, such as when a switch is pressed a buzzer is activated. **Input** (switches and batteries) and **output devices** (bulbs, buzzers and motors) can be connected to either a **control box** or **interface box** to control the electrical system.

Switches can be used alongside **control boxes** to set up timed systems such as traffic lights and monitoring systems such as alarms.

Flowchart



Control box

Interface Control box



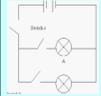
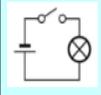
Technical Knowledge and Understanding:

Different types of Switches and Sensors

Switches are **input devices** and have an important job in either allowing the current to flow through a circuit (**closed switch**) or stopping the current (**open switch**).

- Micro switch**  This switch can be a push-to-break switch or push-to-make switch.
- Push-to-break switch**  The switch is turned off by pressing it.
- Push-to-make switch**  This switch is turned on by pressing it.
- Reed switch**  This switch is operated by a magnet.
- Tilt switch**  This switch works when it is tilted at an angle.
- Toggle switch**  This switch is operated when the lever is moved from side-to-side.
- Light-dependent resistor (LDR)**  A sensor which operates when a light is shined on it.

Key Vocabulary:

- control** To manage or command something.
- flowchart** Control language used to give a set of instructions.
- input** Components that are used to control an electrical circuit eg. switches, batteries .
- output device** Components that produce an outcome e.g. bulbs, buzzers , motors and LEDs.
- parallel circuit**  The components are positioned on different branches of the wire so if one component breaks the other components will still work.
- program** To give something a command or instruction.
- series circuit**  The electricity flows around one path from the input source and back again.
- system** A set of components which work together to make something work.

