



PRACTICAL ELECTRONICS

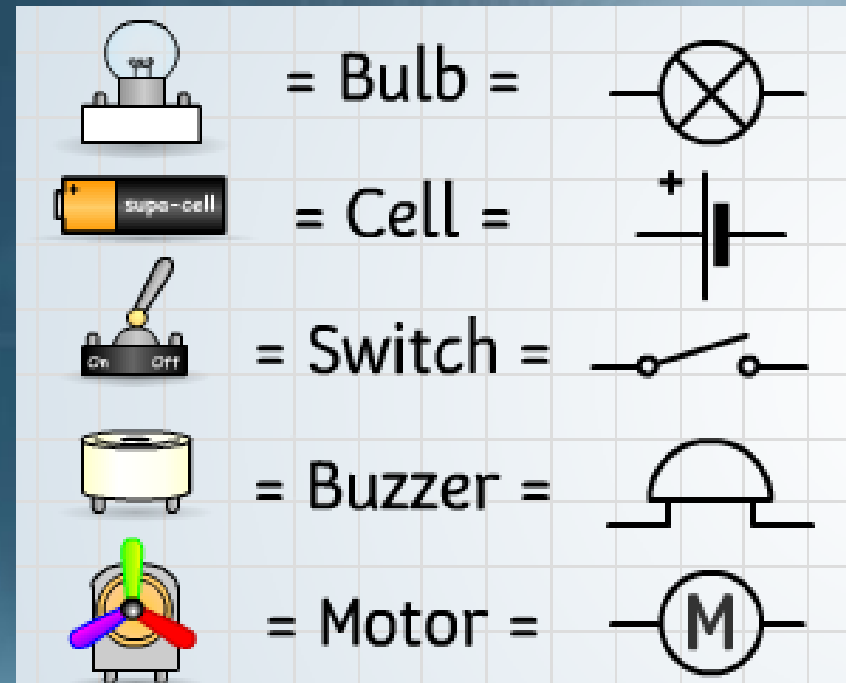
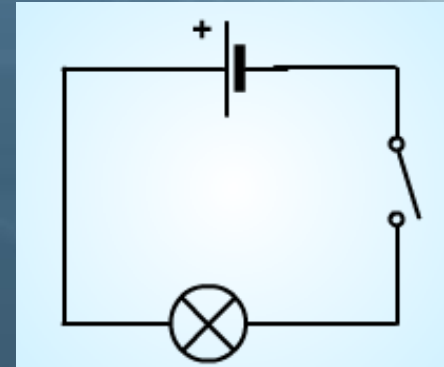
BRAIN POP VIDEO

Electric Circuits

The screenshot shows a video player interface with a green and black color scheme. At the top, there is a navigation bar with 'LOG IN', a search box with 'GO', and the 'Brain POP UK' logo. Below the logo are icons for 'SCIENCE' (an atom) and 'ENERGY' (a glowing orange circle). The main video area features the title 'ELECTRIC CIRCUITS' and a large yellow lightbulb icon. To the left of the video is a sidebar with a '+ ZOOM MOVIE' button, a '? HELP' button, and a 'Brain POP ABOUT US' button. To the right is a 'RELATED MOVIES' section with a downward arrow and a rating of '3.6'. At the bottom, there is a video progress bar and standard playback controls (play, pause, stop, next, previous, full screen).

Circuit Diagrams & Symbols

- When you want to draw a circuit , you can use circuit symbols to represent the different components.
- Each component has its own symbol. The symbols are the same for everyone so that people can read each other's diagram.
- These are the most common symbols, but you will learn more through out the course.



Symbols and conventions used

Resistors
colour code
system

Tilt Switch

Wires

Push
Switch

Resistors network

Notes:-

R1-7, 9 = Yellow, Purple, Brown

R8 = Brown, Black, Orange

RN = Resistor Network

18 Pin Socket

T1 = Tilt Switch

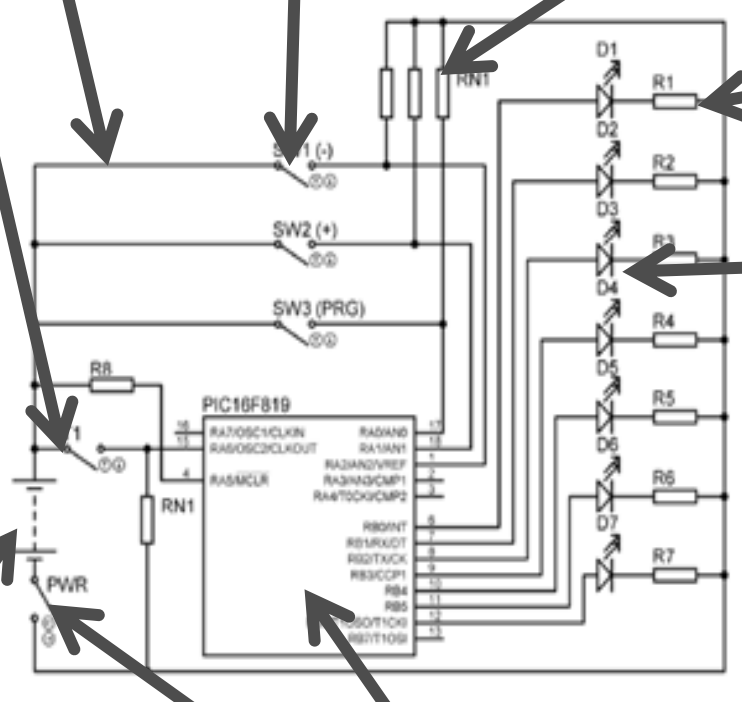
SW1-3 = Push Switch

Slide Switch needed

5mm Red LED

3mm Green LED

Requires 2x AAA batteries



Resistors

LEDS

Standard battery
size 50.5mm x
14.5mm

Power supply

Slide Switch

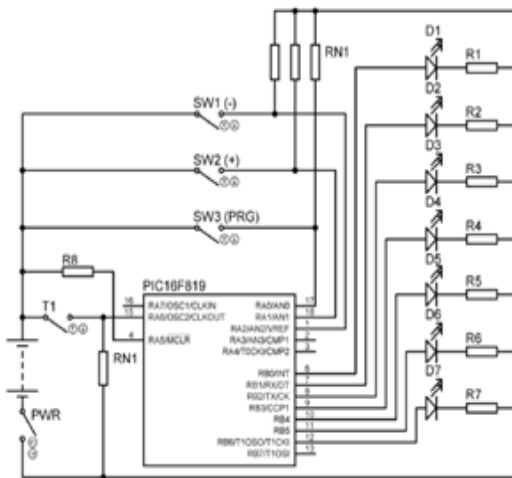
Microcontroller
18 Pin = Maximum number
of connections available

Source & complete a component list

Name: _____ Date: 26/08/13

Study the circuit diagram and notes for a POV wand circuit shown below:

- Notes:-
 R1-7, 9 = Yellow, Purple, Brown
 R8 = Brown, Black, Orange
 RN = Resistor Network
 18 Pin Socket
 T1 = Tilt Switch
 SW1-3 = Push Switch
 Slide Switch needed
 5mm Red LED
 3mm Green LED
 Requires 2x AAA batteries



Component	Value	Number (Qty)	Product code	Supplier
	Not Applicable		70-2556	Rapid
(R1-7, 9)			62-0338	Rapid
(R8)			62-0394	Rapid
(RN)			63-0265	Rapid
			22-0110	Rapid
			73-3384	Rapid
(T1)			78-0752	Rapid
			76-0303	Rapid
(D1-7)			55-1790	Rapid
			55-1772	Rapid
(SW1-3)			78-0625	Rapid
			18-2925	Rapid
(PWR)			18-1450	Rapid

Task:- Search the product codes on the [Rapid Electronics website \(www.rapidonline.com\)](http://www.rapidonline.com) and identify the components name and value. Then work out the quantity you need from the given code letters.

For example:-

Go to Rapid
Electronics website
 and search for
 62-0338

Component	Value	Number (Qty)	Product code	Supplier
	Not Applicable		70-2556	Rapid
			62-0338	Rapid
			62-0394	Rapid

You are in: Home > Electronic Components > Resistors > Carbon Film > CR25 0.25W Carbon film resistors > 47r Cr25 0.25w Cf Resistor



47r Cr25 0.25w Cf Resistor - Pack of 100

Order Code: **62-0338**
 ★★★★★ review this product

Qty ex VAT inc VAT

1+	£0.594	£0.7128
10+	£0.424	£0.5088
50+	£0.339	£0.4068

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62-0338 Search

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You are in: Home



MagmaBond is a new, high performance range of adhesive products for all kinds of materials and surfaces >>>

Quick Order Form

Part Number	Qty

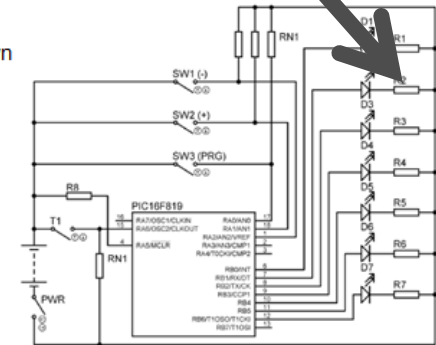
Cut & Paste Form More Lines

Rapid is one of the UK's leading distributors of Electronic Components, Cables &

Resistor (R1-7,9)	47 Ohms	8	62-0338	Rapid
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Notes:-

- R1-7, 9 = Yellow, Purple, Brown
- R8 = Brown, Black, Orange
- RN = Resistor Network
- 18 Pin Socket
- T1 = Tilt Switch
- SW1-3 = Push Switch
- Slide Switch needed
- 5mm Red LED
- 3mm Green LED
- Requires 2x AAA batteries



Completed list

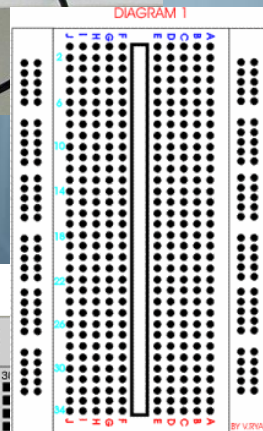
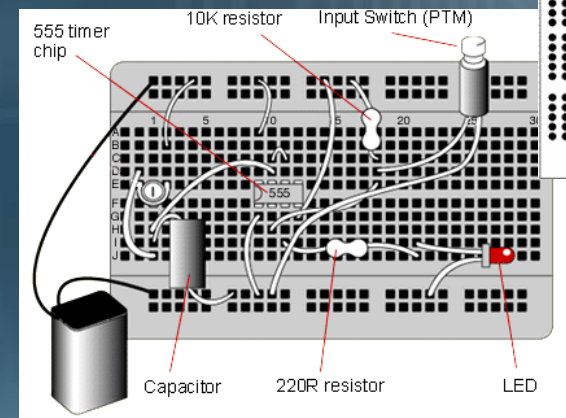
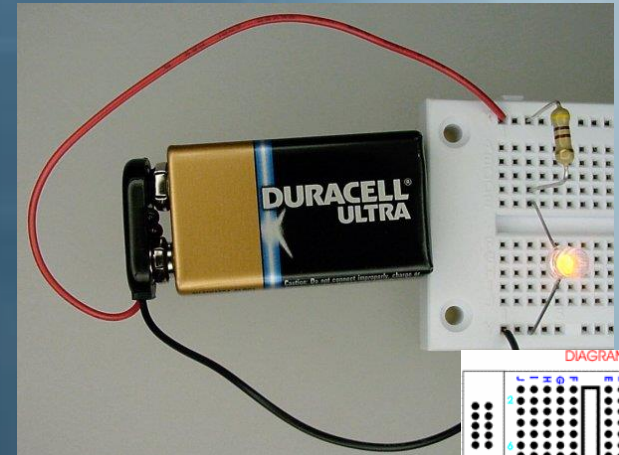
- Discuss list with pupils and check for mistakes.

Component	Value	Number (Qty)	Product code	Supplier
PCB for POV Wand project kit	n/a	1	70-2556	Rapid
Resistor (R1-7,9)	47 Ohms	8	62-0338	Rapid
Resistor (R8)	10k Ohms	1	62-0394	Rapid
4-command Resistor Network (RN)	10k Ohms	1	63-0265	Rapid
DIL socket holder	18 pin	1	22-0110	Rapid
Pic 16f627a-i/p Microcontroller	8 bit	1	73-3384	Rapid
Tilt switch non-mercury 2 leads (T1)	24V & 1mA	1	78-0752	Rapid
Spdt Ultra miniature Slide Switch	0.3A at 6V	1	76-0303	Rapid
Red LED (D1-7)	5mm & 2.2V	7	55-1790	Rapid
Green LED	3mm & 2.2V	1	55-1772	Rapid
Tactile (Push) switch (SW1-3)	6x6x9.5mm	3	78-0625	Rapid
2x AAA PCB Battery holder	53x25x13mm	1	18-2925	Rapid
Alkaline AAA battery (PWR)	1.5V	2	18-1450	Rapid

Discuss different types of construction:-

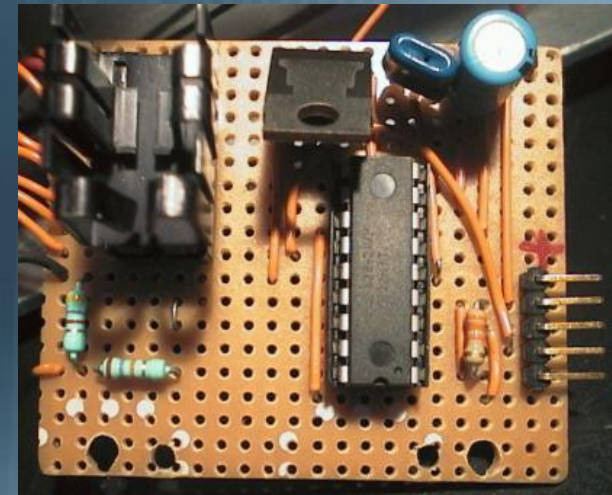
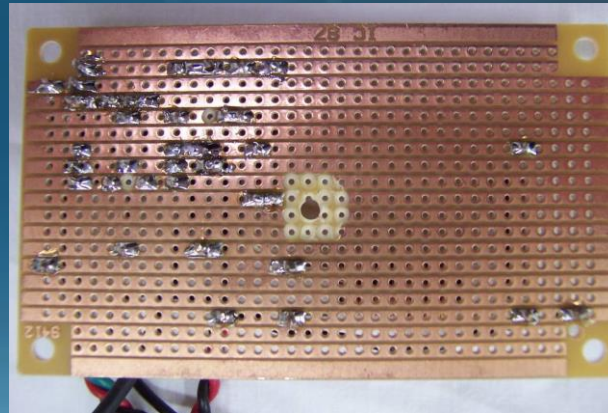
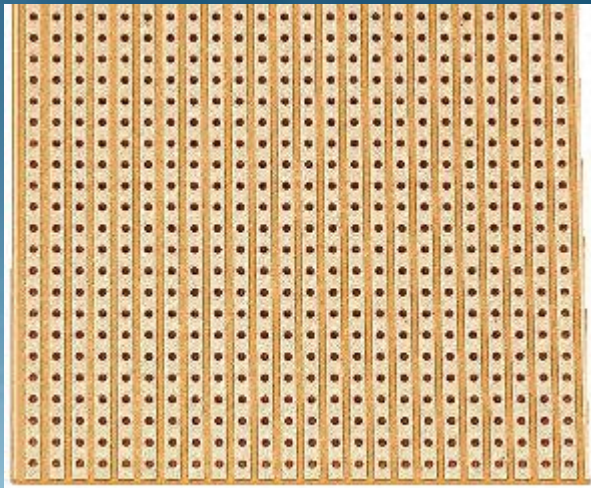
- Prototype breadboards

Breadboards are used to test circuits. Wires and components are simply pushed into the holes to form a completed circuit and power can be applied. One of the main advantages of using a breadboard is that the components are not soldered and if they are positioned incorrectly they can be moved easily to a new position on the board.



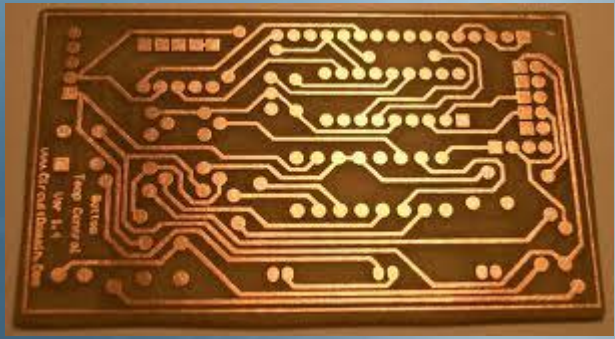
- Strip boards (often called Veroboard)

Strip board is a widely used type of electronics prototyping board characterized by a 2.5mm regular grid of holes, with wide parallel strips of copper cladding running in one direction all the way across one side of the board. Electricity passes through the copper strips and components and wires are used to cross over and create circuits.



- Printed Circuit Boards (PCB)

A printed circuit board, or PCB, is used to mechanically support and electrically connect electronic components using conductive pathways, tracks or signal traces etched from copper sheets laminated onto a non - conductive substrate.



THIS IS THE METHOD WE WILL USE BECAUSE:-

The POV wand is a more complex circuit & it suits the design, i.e. smaller in size.

