

**Links to follow if you are interested in making your own gadgets.**

**The links in this document are inspired by the thought processes and skills / knowledge I learned when designing and building my homemade laser drum kit. The latest videos of my laser drum project can be found at:**

[www.shirtymusic.com](http://www.shirtymusic.com)

**How I made my laser drum kit**

**Making ideas reality**

To be a good inventor, you need to start looking at the world in terms of structures.  
Ask 'what is it made of?'

Things that seem very complicated become easier to understand when you know where they started from. What the idea was behind them.

Projects grow and evolve over time as a result of solving problems and/or improving the system that you are building.

Eventually you will end up with something inconceivable to most people at a glance – something 'magic'.

The Weaver bird does exactly this. When it builds a nest it starts with just a blade of grass which it ties around a tree branch. Over time it adds more grass to the loop to construct an intricate and practical nest.

Search 'Weaver Bird Nest' on Google Image Search to see these impressive structures.

**Ready made interfaces** – These small computers have large communities associated with them who are also interested in making homemade gadgets.

Arduino - <https://www.arduino.cc/>

Raspberry Pi - <https://www.raspberrypi.org/>

BBC micro:bit

<http://www.bbc.co.uk/programmes/articles/4hVG2Br1W1LKCmw8nSm9WnQ/introducing-the-bbc-micro-bit>

Makey makey

<http://makeymakey.com/>

**A knowledge of hardware is important.** Hardware is a term for physical things that we can interact with. Some hardware generates an input / signal that a computer can read and then manipulate.

This book gives a good overview of some different types of hardware available to a hobbyist maker: "Make a Raspberry Pi-Controlled robot", ISBN 9781457186035

*Ohm's Law Pyramid* explains relationships in simple electrical circuits. Essential when

building your own hardware.

[http://www.bbc.co.uk/schools/gcsebitesize/science/edexcel\\_pre\\_2011/electricityintheory/voltagecurrentresistancerev3.shtml](http://www.bbc.co.uk/schools/gcsebitesize/science/edexcel_pre_2011/electricityintheory/voltagecurrentresistancerev3.shtml)

<http://makezine.com/> is a resource with loads of cool homemade projects.

Try looking up 'makerspace' or 'hackspace' on Google where you live. These are communities of makers who can often offer help and guidance with your project.

**Next, learn how to program a computer.** Once you have your hardware or interface you can tell the computer how to interpret inputs / signals from the hardware, and then what to do next by writing programming code.

This simple tutorial gives a fun introduction to programming a computer that you can complete in your browser:

<http://www.codecademy.com/tracks/python>

Have fun!