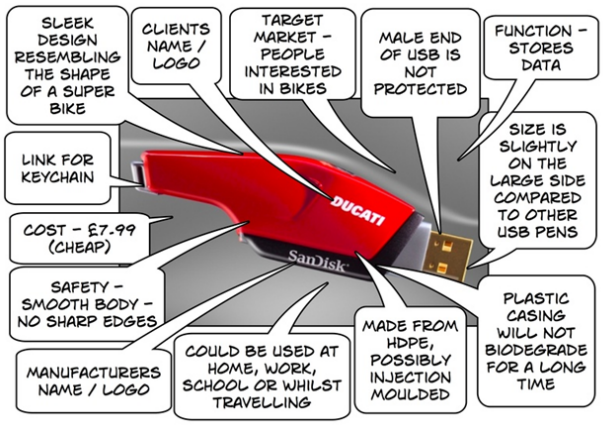
Year 10 – Engineering – Summer Term
Unit R040: Design, evaluation and modelling

Designers need an understanding of how products are manufactured to ensure that their ideas can be produced effectively. Analysing how products are made can help to inform designs, and it can be useful to disassemble existing products to discover how they function and how they were manufactured.
In this unit you will learn how designers can quickly create and test models to develop a prototype of a design.

Task 1:1 Carry out product analysis using ACCESS FM.

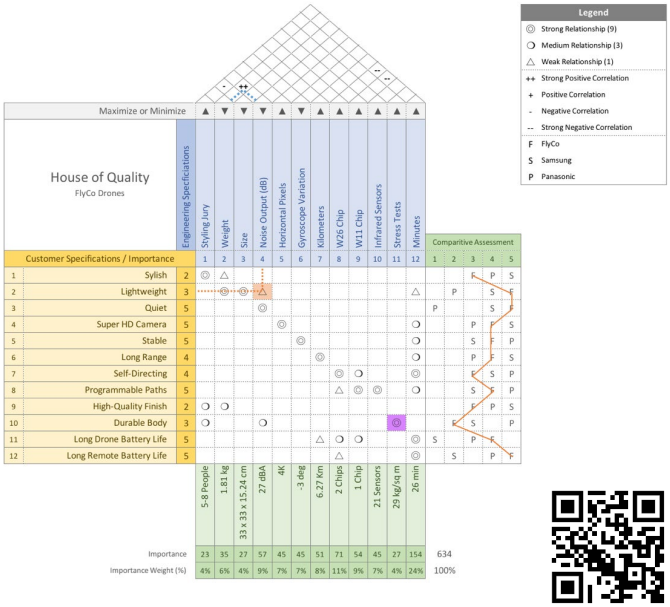


- □ **Aesthetics** = how it looks
- □ **Cost** +how much it costs to make and buy
- □ **Customer** = Who is it for?
- □ **Environment** = How will the product impact on the environment?
- □ **Size** = How big is it?
- □ **Safety** = how is the product made safe?
- □ **Function** = what does it do?
- □ **Materials** and manufacturing = what is it made of and how is it made?

Task 1:2 Compare Products

It is useful to compare products so you can identify the most important features. One way of doing this is using a matrix such as "the house of quality" used as part of the Quality Function Deployment (QFD). Learn more about QFD here: QFD

You also need to compare advantages and disadvantages of a product identified using primary and secondary research.



1.3 Carry out product disassembly

A good way to find out more about a product is to take it apart to see what each part is made of and how it all fits together.

For this task you will:

□ Use manufacturers manuals or other published Sources to disassemble a product
□ Use appropriate tools and instruments
□ Analyse the disassembled product for:

- ⍰ components and their functions
- ⍰ assembly methods
- ⍰ materials
- ⍰ production methods
- ⍰ maintenance considerations