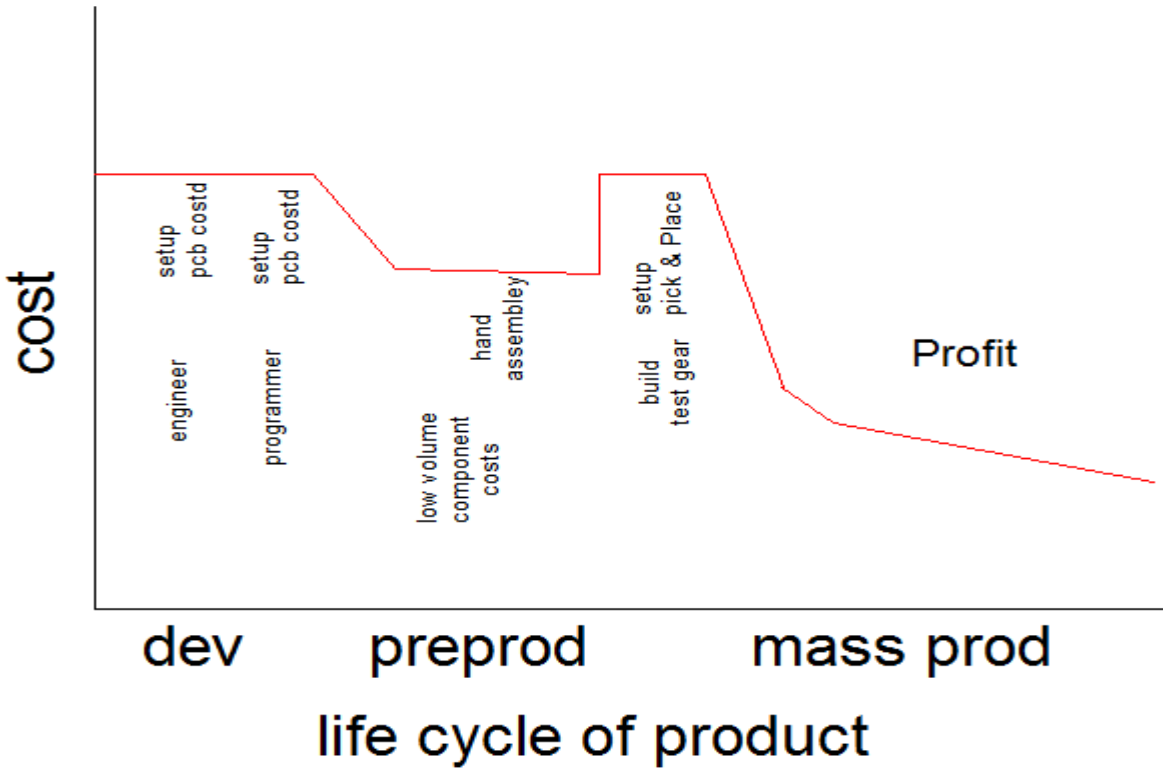
DEVELOPING A PRODUCT AND BRINGING IT INTO PRODUCTION

MAKING A PROFIT :

OVERVIEW :-

You need to have a 3 year plan for your product so that the initial costs of development and manufacturing become factored in.

Some of the advantages of having your own product are that you will able to sell it for many years to come and the initial costs will within 6 months or so will be paid for and your profit will then grow as the only costs will be components , pcb , enclosure and manufacturing costs.



Development :

This requires Engineering skills to develop a working circuit that can perform the functions that you require .

This also requires costing to be applied so the components cost will meet your end objective with regards to what price you want to sell your product for (ie your market needs to be identified).

A pcb needs to designed that will allow you to manufacture the product.

This needs to be proven and a working pcb that can used for manufacturing and is part of the development.

You will also need an enclosure. This can be expensive but enclosures can be bought off the shelf.

Firmware : If you have a microprocessor then you will need firmware . This can be the longest part of the development and

requires a programmer to develop the required program.

Pre Manufacturing :-

This is low volume production and is necessary to prove your product before you start mass production.

PCB:

First priority is a proven pcb . This requires setup costs .(These costs are for the art work – each layer of the board has a separate photographic film this can be 6 layers or more.

Once the pcb is proven then this setup cost will fall away.

The pcb manufacturer also charges on a quantity basis so that if you manufacture 10 boards the cost per board is much higher than if you manufacture 100 boards.

Components:

The components are also a vital part of the manufacturing process. The components need to be sourced and ordered.

A bill of materials is essential .

What has to be realized that like pcbs components cost will vary greatly on the quantity ordered . The bigger the quantity the cheaper the component cost. There is also Minimum order quantity for some components which can drive up your costs.

Assembly:

The assembly for low volume production is done normally by hand. This is also done for the surface mount components.

The cost of hand assembly is quite a bit higher than mass production where a pick and place machine is used.

TESTING

This needs to be done to verify the finished product . This can be done at various levels – it is difficult to fix a fault once the product is packed and delivered .

Mass Production

This done using a pick and place machine in a controlled dust free and antistatic enviroment .

There are setup costs for using the pick and place . Firstly you need

to have stensil made . The pick and place machine needs to be programmed so that all the components are put in the right place.

Each component has a reel . This means that the components have to be purchased in large quantities.

A through hole placement machine is then used to place the through hole components.

Once the components have been placed on the solder paste the board is placed in an oven. The paste melts and the components are soldered.

Each production run has setup costs so it is economical to do larger production runs of 100 or more.

Testing :

Here a test jig is used. They are normally a “bed of nails” jig and can test

all the functions of the board.