# Developing An Electronic Product

When it comes to developing a new electronic product, it isn't an easy feat and there are a number of things you need to know to ensure you don't become overwhelmed with it. Resources for new product development are usually quite slim; especially when it's being developments by a small business or entrepreneur.

We have worked on breaking down the process of electronic product development into five easy steps, to help you successfully develop your prototype.
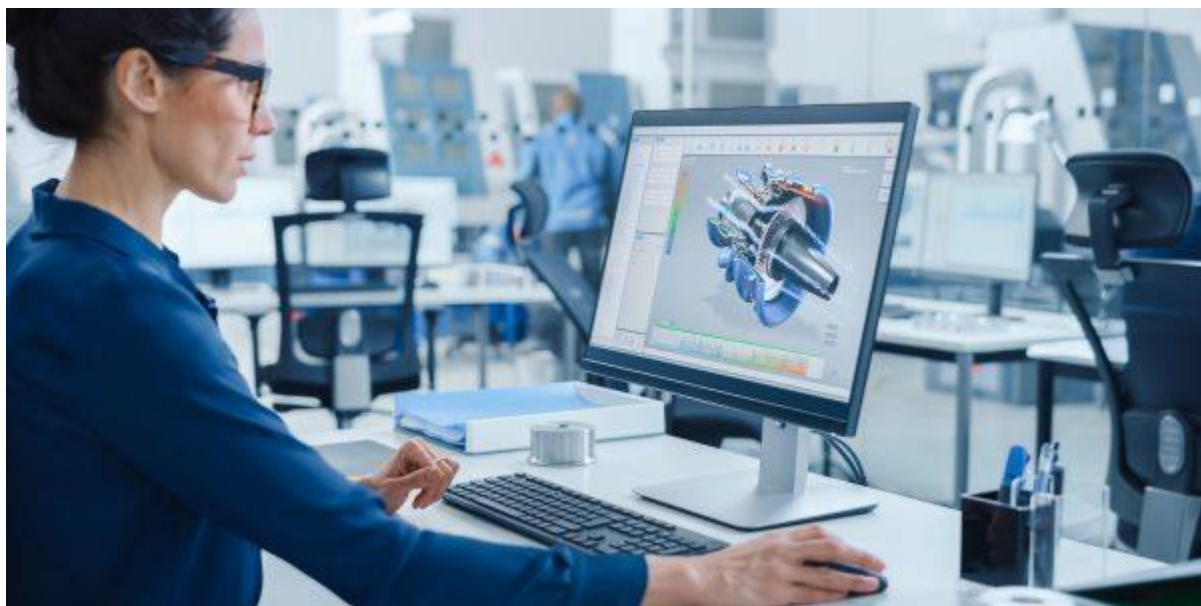
5 Steps For Successful Prototyping

1. Your Circuit Schematic Design

Before creating your PCB, you need to draw up the schematic of your actual circuit design first. This will give you a clear blueprint for the circuit and how the finished product, including the housing will look and work.

The circuit design schematic should be the first thing designed when developing a prototype that requires an electronic circuit board. Even before you work on the design, you need to research and plan the best, most accessible and affordable components. (Remember if this goes beyond prototype, you'll have to use the same materials)

When developing a new prototype, you might want to consider running simulations using the schematic design you have drawn up. This allows you to learn, adapt and improve the design based on any issues that might arise during the testing stage.

2. PCB Design

Once you have created and are happy with the circuit schematic, the next natural step is to create the PCB layout. Some parts of this can be carried out automatically, however, most designs still require manual input to ensure they work correctly and run at optimum efficiency. Many people find the most mistakes made with the PCB layout are when things like Bluetooth, WiFi and GPS are used. This is because the power and RF circuits are very sensitive when used as part of the PCB design.

One you are finished creating the PCB layout you will need to work with either your software or designer to ensure that the PCB layout matches the schematic design. The design software can also check things such as trace spacing and wire widths. All PCB manufacturers work to different specifications, so you'll need to ensure you know the designer's process to match your product to suit it.

Once you have completed the PCB design, you can then start the next step of prototyping and the delivery times will vary depending on who you use and what the product is. We work closely with our clients from start to finish to ensure all of their requirements are met.

3. Check, Asses and Fix Your Prototype

Your initial prototype is usually only the first of many. However, now you have one completed electronic prototype you can check to ensure it works how you want it to, discover any problems with it and then work on debugging or repairing the issues.

Anyone would hope that there are no problems, but that is an extremely rare occasion. Most people will find at least one or more issues but that isn't anything to worry about. It's almost impossible to debug a circuit without it being built into a prototype first.

4. Microcontroller Programming

Nearly all products that are electrically powered will require some type of microcontroller. The microcontroller is basically the brain of the product and tells it what to do and how to do it. The majority of microcontrollers are programmed using a computer language called 'C'.

Depending on the skill level of the person developing a prototype, they might be the person that both designs and programs the circuit. Sometimes though it is much more beneficial to bring in a specialist in software to carry out the programming part for you.

5. Designing The Enclosure

The final enclose is everything as it's how your prototype will look on the outside. If you have worked closely with the development team from the offset then it is usually much easier to achieve the aesthetic you envisioned from the beginning. As with any prototype, it's not just about how it works, it's about how it looks as well.

With the rise of 3D printing technology, more and more people are choosing this option to create their finished model. In addition to this, injection moulding is also regularly used during the production process. Some designs will be more suited towards 3D printing, whereas others will be more focused on injection moulding.

Developing Your Electronic Prototype

We have aimed at providing a simple breakdown of some of the most important steps aligned with prototype development. If you would like to discuss electronic product development prototype with Saturn Solutions then be sure to contact us today. One of our team is always on hand to discuss new projects and answer any questions you may have.