



Photos courtesy of Guy Marsden



FLIP THE SWITCH

HOW TO POWER UP ELECTRONIC-PRODUCT DEVELOPMENT

BY GUY MARSDEN

If your invention contains electronics, pay attention to the engineering maxim: KISS (Keep It Simple Stupid). This means avoid loading your device with complicated features. Instead, make the functions simple and easy to understand and use.

The fewer buttons and lights you have, the cheaper your product will be to make and the easier it will be for consumers to use. Consider the digital alarm clock. Most on store shelves today can be set with just a few buttons and an alarm/time set switch. You rarely need to refer to the manual when buying a new alarm clock because the device is so intuitive.

Next consider production volume. Is your gizmo filling a small niche market, perhaps selling a few a week? Or is it a mass-market product with a potential to sell for more than 100,000 units a year? Try and be realistic. Detach yourself from your own excitement. At the low end, for example, I have two products I sell to niche markets from my home. One is for the solar-heating industry. The other is an electronic hobbyist kit. Local teenagers assemble these devices for me in a spare room.

My gross annual sales total around \$20,000 for both products – a nice, consistent income as I ship several orders every week.

For high-volume products, you will need to pay close attention to manufacturing costs. You'll likely have to look offshore.

Prototypes

In the electronics space, going from prototype to production can be tricky. It's almost impossible to build a prototype of a portable, battery-powered electronic device that will be as small as the production model. Modern electronic-production facilities have the ability to manufacture tiny circuit boards and other components far more precisely than you can in your garage.

There are two basic types of prototypes: the "works-like" and the "looks-like" varieties. Ideally your prototype will represent the best of both. However, making a finished working prototype that both works and looks like the final product is pricey. Do this only after you've conducted extensive market research or are presenting the product to interested investors.

For a demonstration prototype, you may want to contract an electrical engineer to design just the works-like model and have it built into a basic housing. This can serve to communicate how it should work to an off-shore manufacturer, who may not speak English well. It also can help you to identify any design options that you may wish to change or incorporate.

Most electronic prototypes these days have small chips in them called micro-controllers, and the functions of the device can be adjusted simply and affordably by rewriting the software code inside this chip.

In the end, it's all about simplicity. A good test is the instruction manual. If it runs more than a page, your potential market may be rather limited. There's a reason, after all, complicated things don't sell well. ■

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