

*Product / Project design approaches:
Packaging*

When designing a PCB you need to think about the enclosure it will go in.



Plastic and aluminum enclosures are fairly easy to modify with drills or nibbling tools. However be careful with large holes! Step drills can be used to enlarge holes without damaging surface



Step Drills

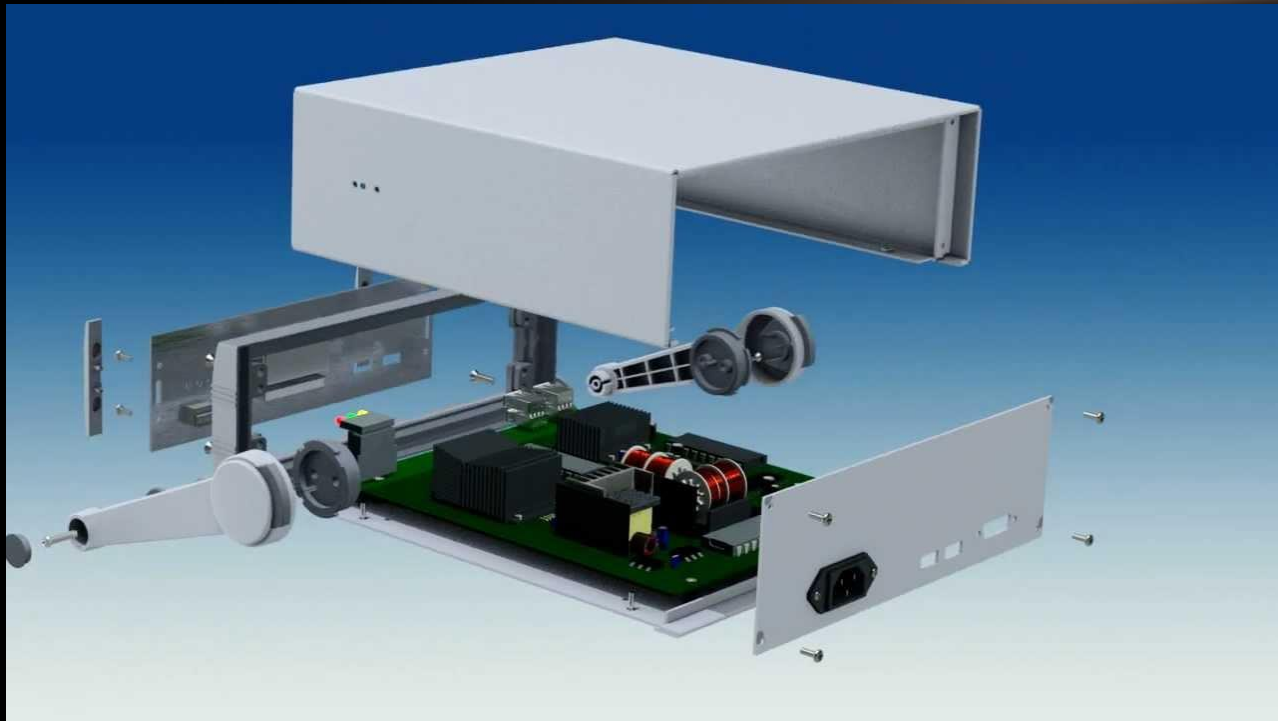


Nibbling tool

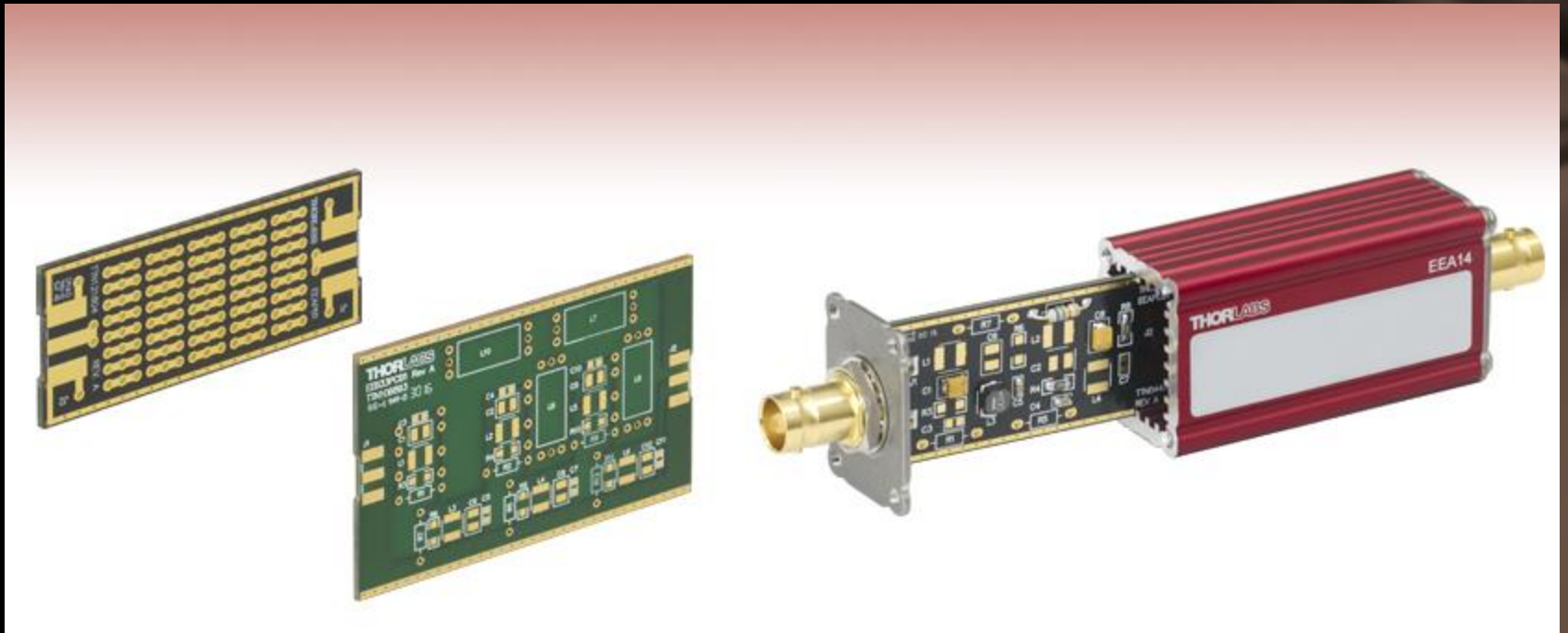
Lots of shapes besides rectangular



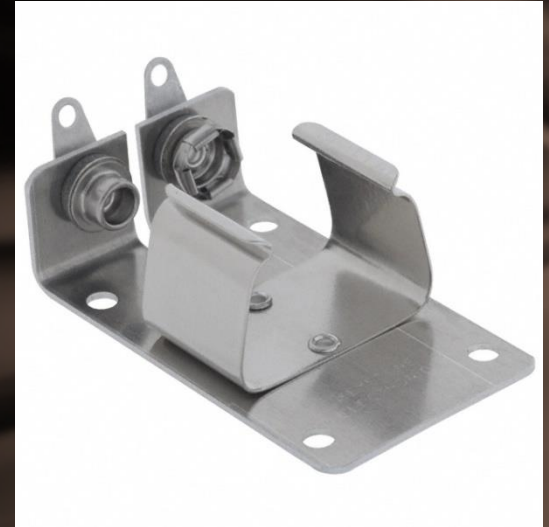
In some cases there are mechanical components that need to be designed in...



Extruded Aluminum boxes allow PCB's to be inserted on the edges...



Power source: Batteries – how mounted?



Not only is battery access critical, the power capacity / consumption is important to calculate. This is based on the maH rating (milliAmps / Hour). For example, a standard alkaline 9V battery has a rating between 400 and 600 mAh. If your load is 100mA, it would run from 4-6 hours.

Adapters – Typically “DC Barrel” connectors – 2.1 / 5.5mm



Chassis mount power jack

PCB mount power jack

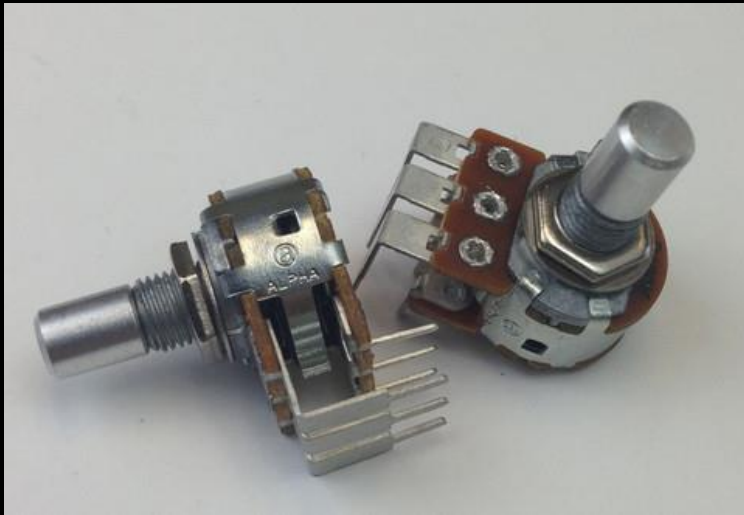


2.1mm x 5.5mm size plug
inner diameter - 2.1mm
outer diameter - 5.5mm

5.5mm

2.1mm

Pots / switches – how to mount?



PCB Mount



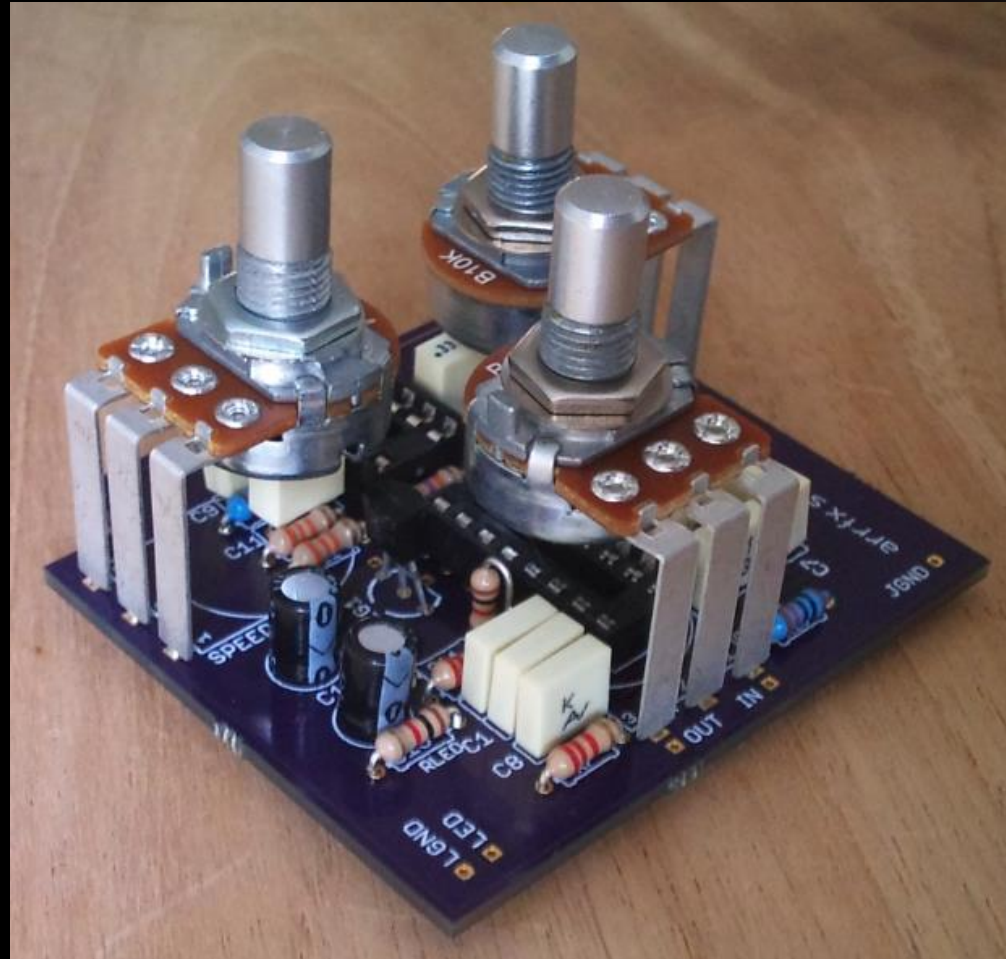
Chassis Mount

Example

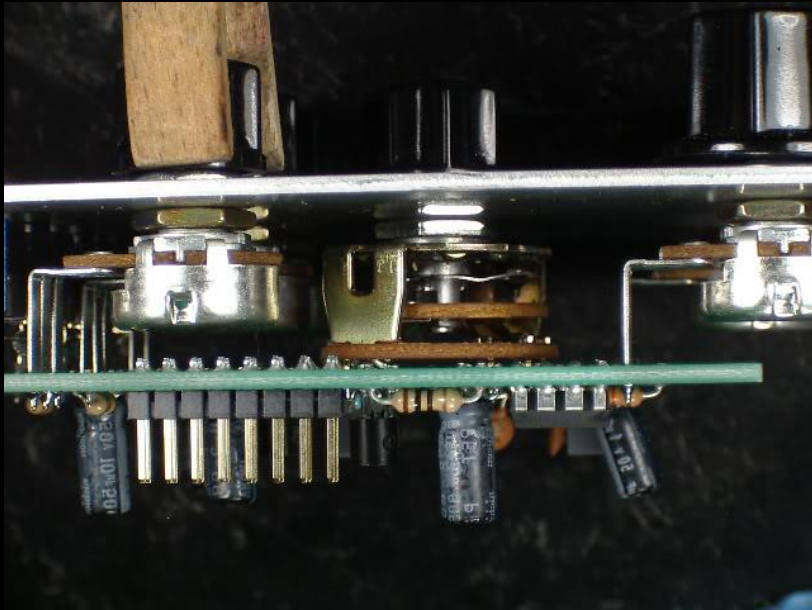


Looking at this design, what did the designer have to consider when laying out the PCB?

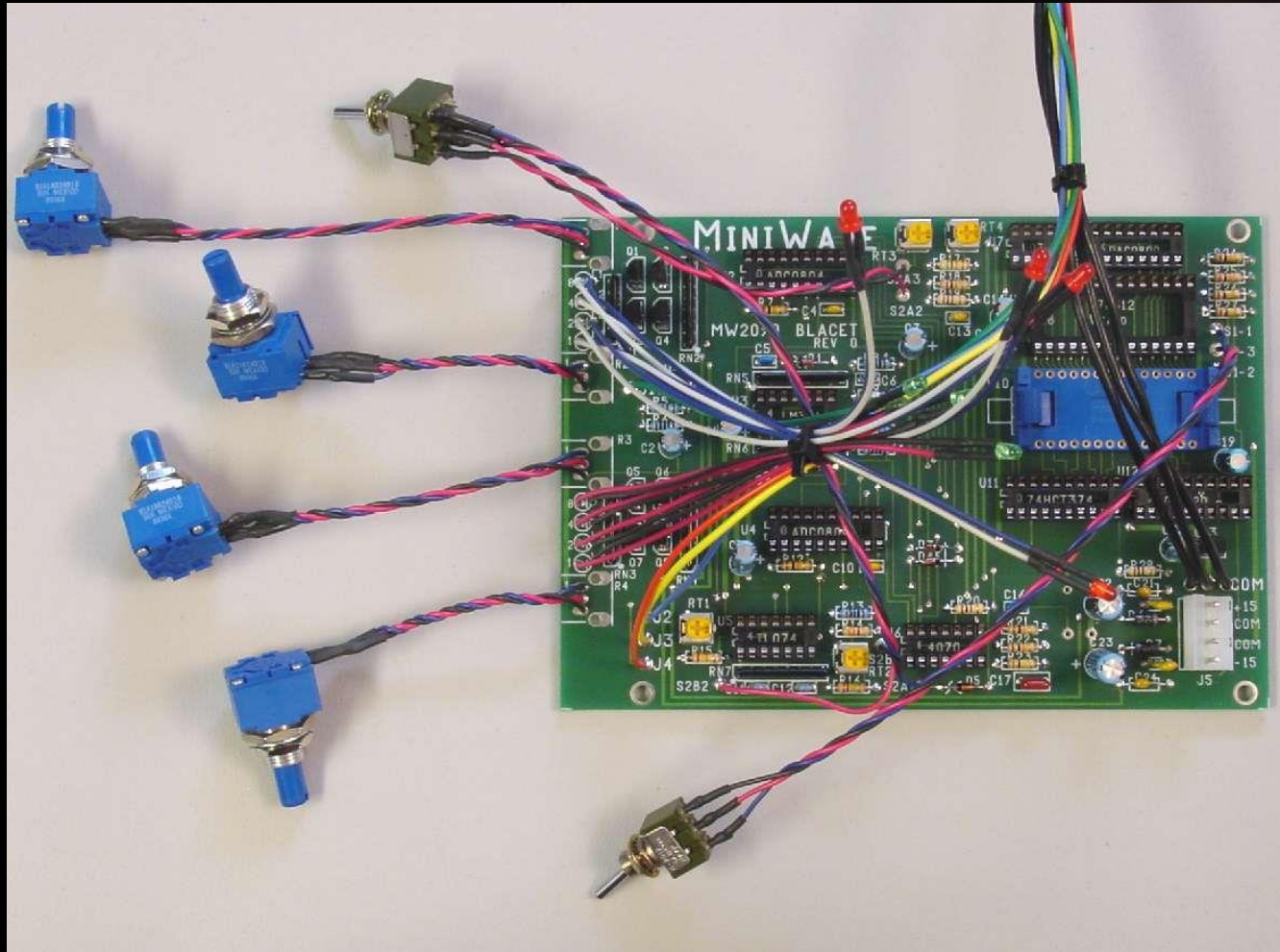
Wiring issues can be resolved by mounting pots and switches to PCB



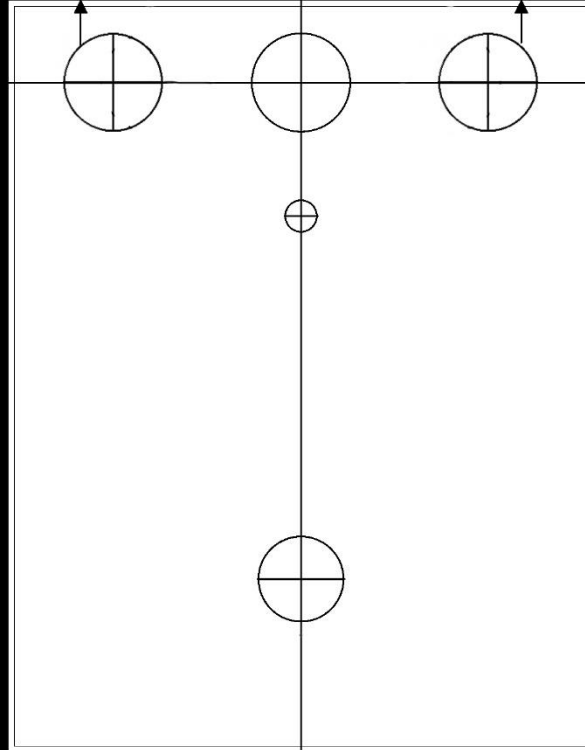
However height of switches and other components becomes critical



Alternatively, external parts can be hardwired to the board...



You can use Eagle to create a template for drilling...



By using a centerpunch, drilling a pilot hole and using a step drill, you can locate holes very accurately!