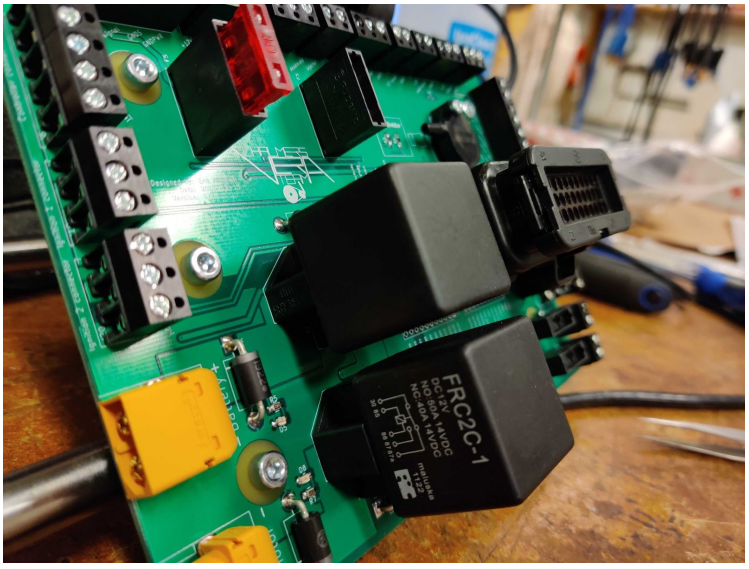
Motherboard in a harsh environment

We are Chalmers Vera Team, competing in Shell Eco Marathons. One of the largest student engineering competition in the world. It is a competition in fuel efficiency and the goal is to consume as little fuel as possible, every small detail matter.

Our vehicle, Vera III, have several integrated system with PCBs and now we wanted to create the mainboard. It is mostly a power distribution board and connects the ECU and all sensors in a clean and simple way. It is also a connector for the engine starter and other subsystems. The board has to be high quality to be able to handle the environment and the high power consumption of the start engine. The ambient temperature is probably over 60 degrees celsius and a constant vibration.



The project can also be found on GitHub.

The PCB manufacturing

Our choice fell to use the world-leading PCB manufacturing company PCBWay. The provide really good quality PCB at good price. The customization is almost endless of option to make sure that the PCB will work for just your application. If you don't need any customization, it only cost 5$ for 10 PCBs!

The ordering is very simple, just go to www.pcbway.com, click on *Quote now*, choose the customization you want for the PCB and click *Calculate*. You will then get the price and build time for the PCB. Then it is just add to cart and upload your Gerberfiles. One of the really good features of PCBWay is that they will review your gerberfiles before production. It is more than one time it have happened that the gerberfiles wasn't correct and they point it out.

PCBWay will then manufacture the PCB very quickly and you'll probably receive it within a week (depending on courier selection). Our PCB was 180x130 mm and 2 oz of copper and from ordering until we received it in our hand in Sweden it took about 72h.

Thank you PCBWAY for your service and quality!