YTU Racing PCB Design with JLCPCB

1. Formula Student

Formula Student is the world's largest engineeering organization among universities. It was founded in 1981 by the Society of Automotive Engineers (SAE) under the name Formula SAE.The competition is organized by the Institution of Mechanical Engineers (IMechE). Since its establishment, it has spread rapidly to different countries. Today it continues with the participation of more than 600 countries and more than 30 countries.

2. YTU Racing

YTU Racing was established in 2011 at Yıldız Technical University. YTU Racing is a student project that produces, develops and tests electric, autonomous and internal combustion engine race cars. It participates in Formula Student races in European countries such as Italy, Czech Republic, Germany and Hungary every year.The team that produces 6 vehicles will produce its 7th, 8th and 9th vehicles in the 2020-2021 season.The purpose of the our team is to carry out the design, analysis and production of an open-wheeled, open-cockpit race car, and creating a detailed cost table of the car.

3. PCB Design Procedure in YTU Racing

We design 9 different cards in our vehicle. These designs contain their own different circuit topologies. For example, we have HV cards, analog cards and cards that perform digital transactions. If we talk about our HV card, we can explain our BMS card. We use the BQ76PL455 integration in our vehicle after various modifications. The BQ76PL455 is an IC that allows us to keep our battery test level and measure current and temperature through passive balancing.

The card design schematic in our vehicle is below.

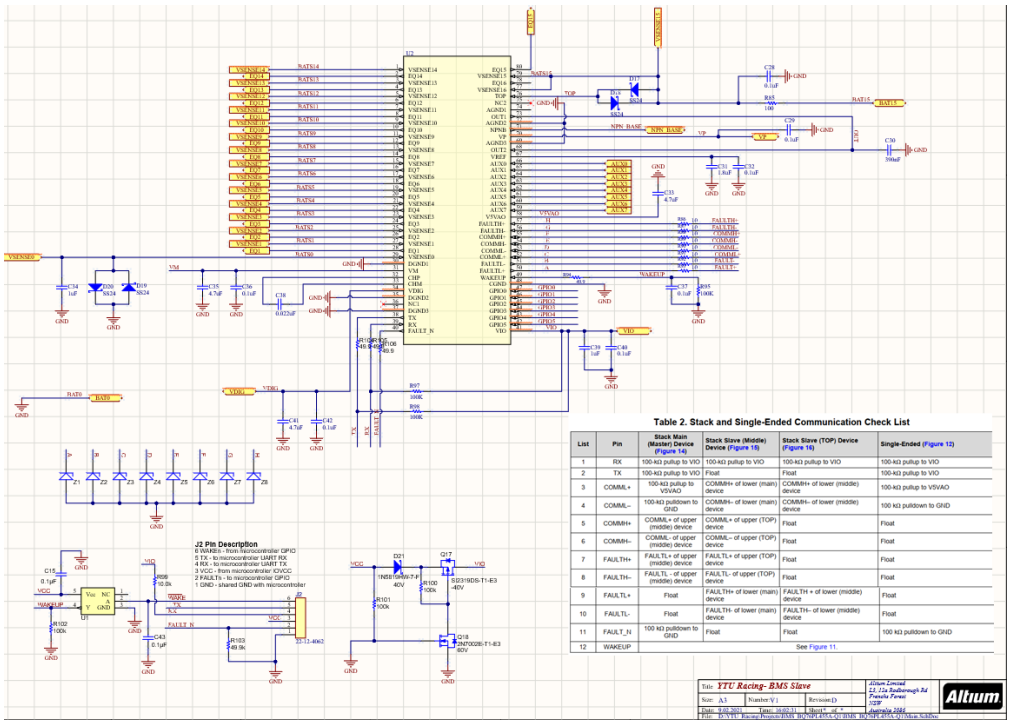

Figure 1.1

The card design image we created based on this schematic:

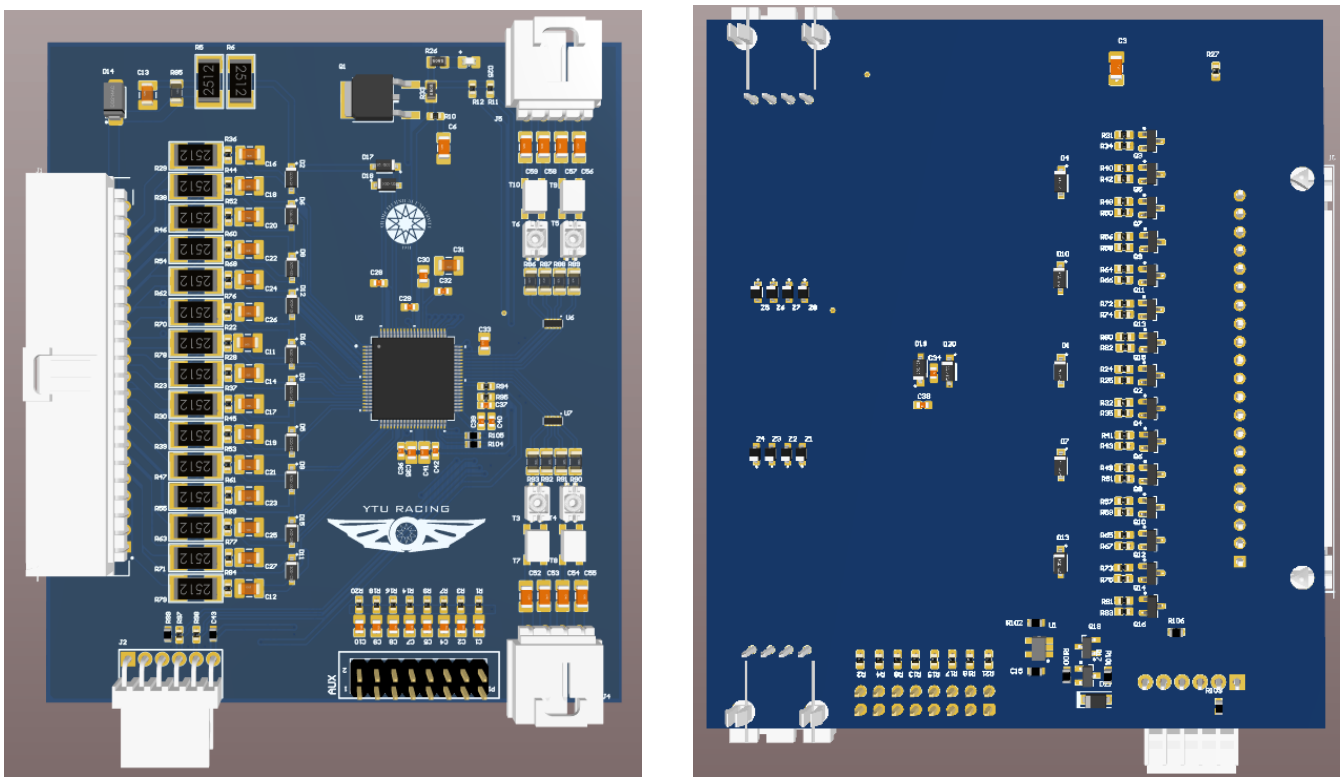

Figure 1.2

4. Collaboration with JLCPCB

We did not feel the need to limit our designs because JLCPCB provided us with extensive opportunities in this regard. In addition, we made improvements on our card with the feedback sent before production, and this contributed to our work. We are grateful to JLCPCB for their support.

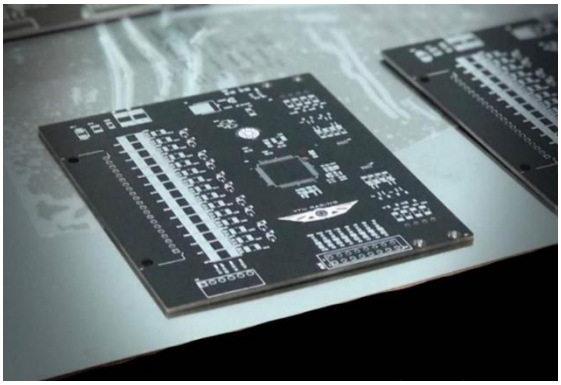

Figure 1.3

No Limits in YTU Racing

No Limits in Design with JLCPCB