* Battery pack
  + Cell modules
    - Cells
    - Cell holders
    - Fused tap lines
  + Pack mounting to enclosure
* Battery Management System
  + Cell voltage monitoring
  + Pack current monitoring
  + Temperature monitoring
  + Active balancing
  + Data logging
  + SoC, SoH estimation
* Charger
  + AC rectifier
  + DC-DC converter / voltage regulator
  + CC/CV charger monitoring
* Low-Voltage DC supplies
  + 5V DC-DC converter
  + 12V DC-DC converter
* Power Inverter
  + VSI H-Bridge IGBT inverter
  + Output filtering
  + Output fuses
* Power input/output, user interface
  + 5VDC output(s)
    - Banana plugs
    - USB ports
  + 12VDC output(s)
    - Banana plugs
  + 120VAC output(s)
  + 220VAC output(s)
  + Charging input(s)
    - 12VDC
    - 120VAC
  + User interface
    - Power LEDs
    - State of charge indicator
    - LCD screen with buttons
    - Buzzer alarm
    - Fuses
* Enclosure
  + Handles
  + Shock absorbing
  + Battery mounting
  + PCB mounting

PCB 1: BMS, Charging

PCB 2: High Voltage power (AC rectifier, AC inverter)

PCB 3: Low Voltage power (DC-DC converters)

PCB 4: Logic master board and UI panel

USB, AC power outlets – panel mount

PCB 1 Microcontroller:

* 8 analog voltages – cell module voltages
* 1 analog voltage – pack current
* 8 analog voltages – cell module temperatures
* 8 PWM or digital outputs – cell balancers
* 1 PWM output – battery charger FET controller
* 1 digital output – master output FET controller
* 1 digital input – emergency stop (or directly connect this to the master FET driver)
* Programming header
* Data logger interface
* 1 serial communication line – communication to master controller

PCB 2 Microcontroller:

* 1 analog – AC input line voltage measurement
* 1 analog – AC input current measurement
* 4 PWM – inverter IGBT drivers
* 1 analog – AC line output current measurement (after filter stage)
* 1 analog – AC neutral output current measurement (after filter stage)
* 1 analog – AC line-to-neutral output voltage measurement (after filter stage)
* 1 analog – DC voltage input monitoring
* Programming header
* Data logger interface
* 1 serial communication line – communication to master controller

PCB 3 Microcontroller:

PCB 4 Microcontroller:

* 3 slave serial communication lines
* 3 digital output – 5VDC,12VDC, 120VAC output LEDs
* 11 digital output – LCD screen I/O
* 5 digital input – LCD screen buttons
* 5 to 10 digital outputs – LED SoC indicator
* Programming header
* 1 USB data output