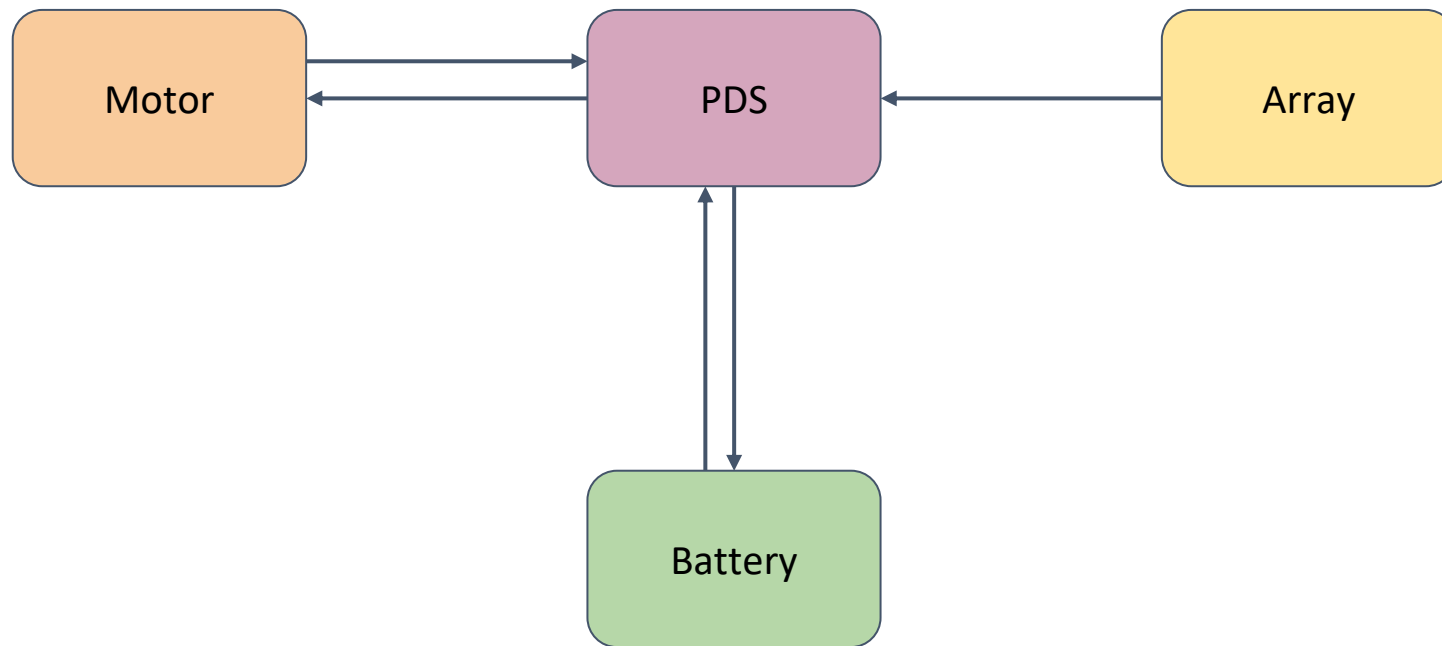


Solar Car Power Distribution System



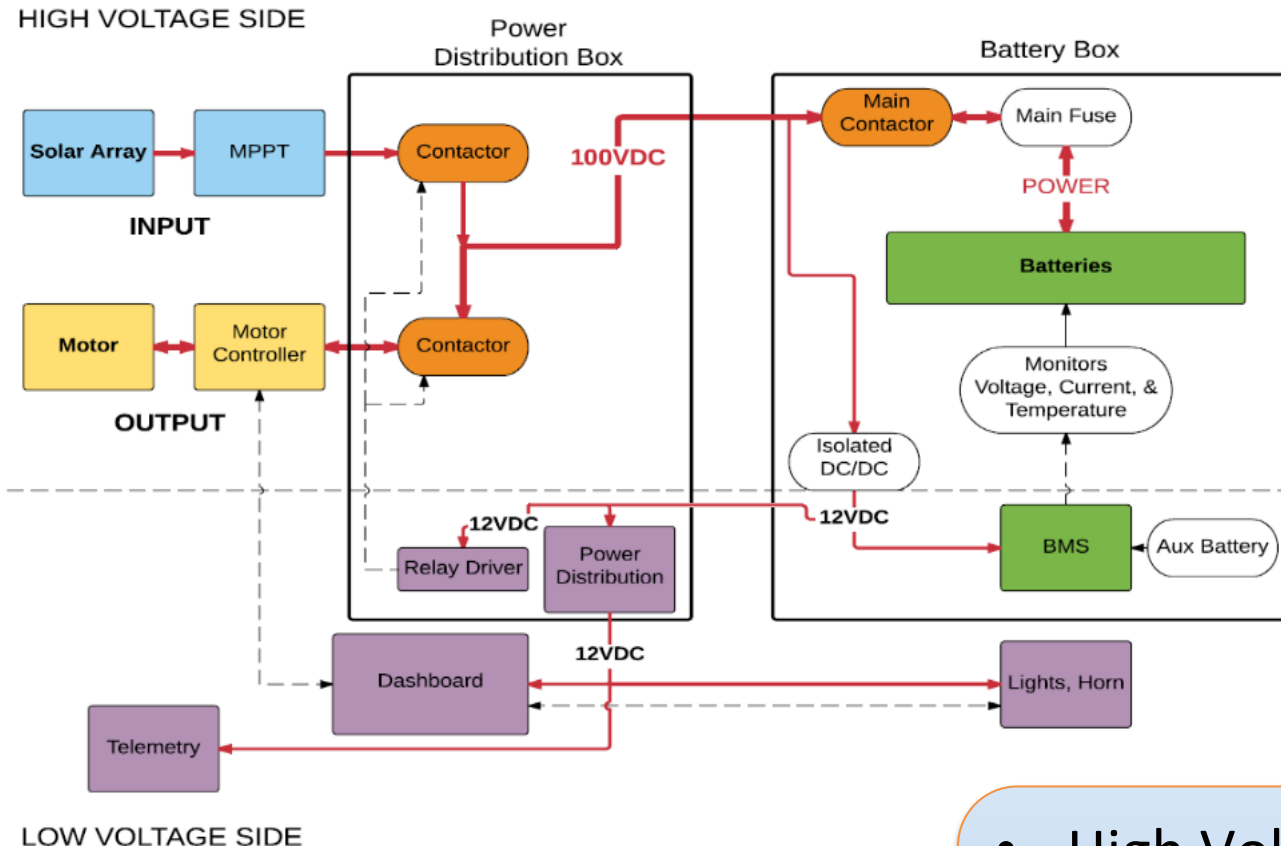
Derek Cernek
April 22th, 2021

What is the Power Distribution System?



A Simplified View

Where is the Power Distribution System?



Electrical System Overview

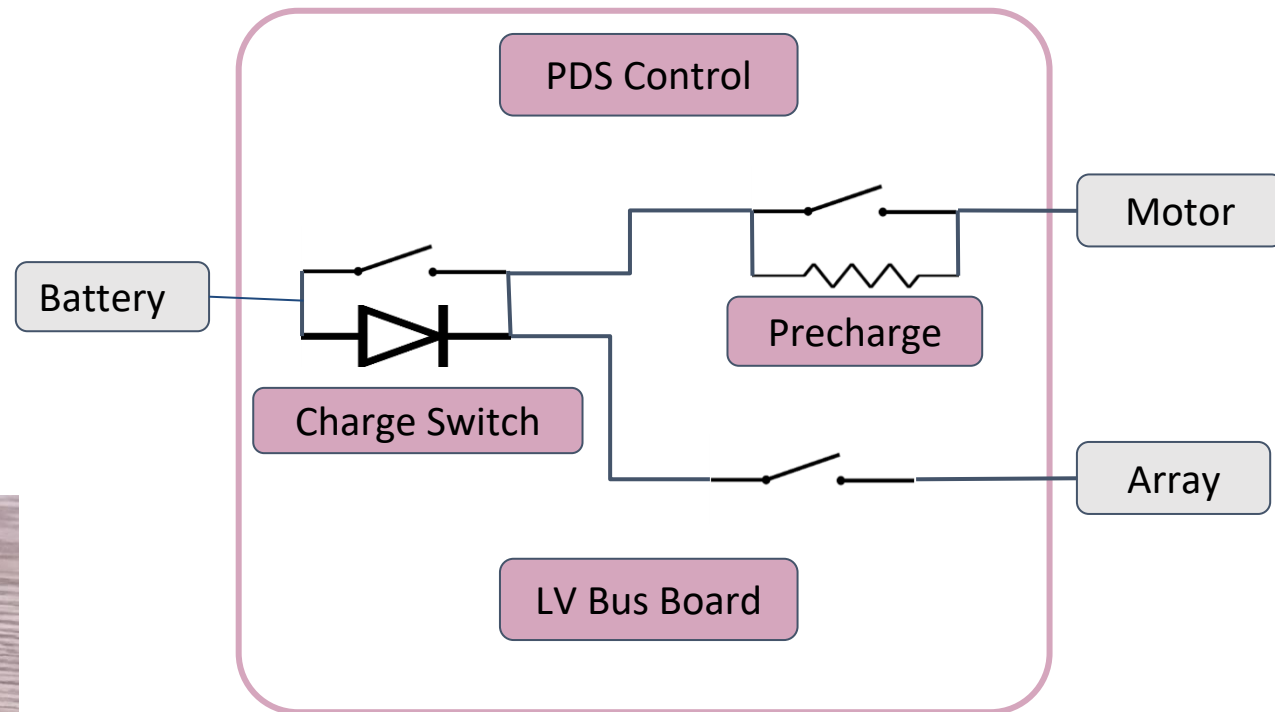
- High Voltage Interconnections
- Low Voltage Power Bussing
- Contactor Control for Car Startup

Solar Car Power Overview

System/ Component	Power Out (Max)	Power Out (Typical)	Power In (Max)	Power In (Typical)	Net Power (Typical)
Telemetry	4	2	0	0	-2
Lights	12	3	0	0	-3
Relays	3	3	0	0	-3
Horn	66	0	0	0	0
Fans	20	6	0	0	-6
Dashboard	3	2	0	0	-2
Various PCB's	4	2	0	0	-2
Wiring Losses	2	1	0	0	-1
Solar Cells	0	0	890	700	+700
Motors	6000	1200	6000	0	-1200
TOTAL	6114	1219	6890	700	-519

Power Distribution System In Depth

- Main PCBs
 - PDS Control
 - LV Bus Board
 - Charge Switch
 - Precharge

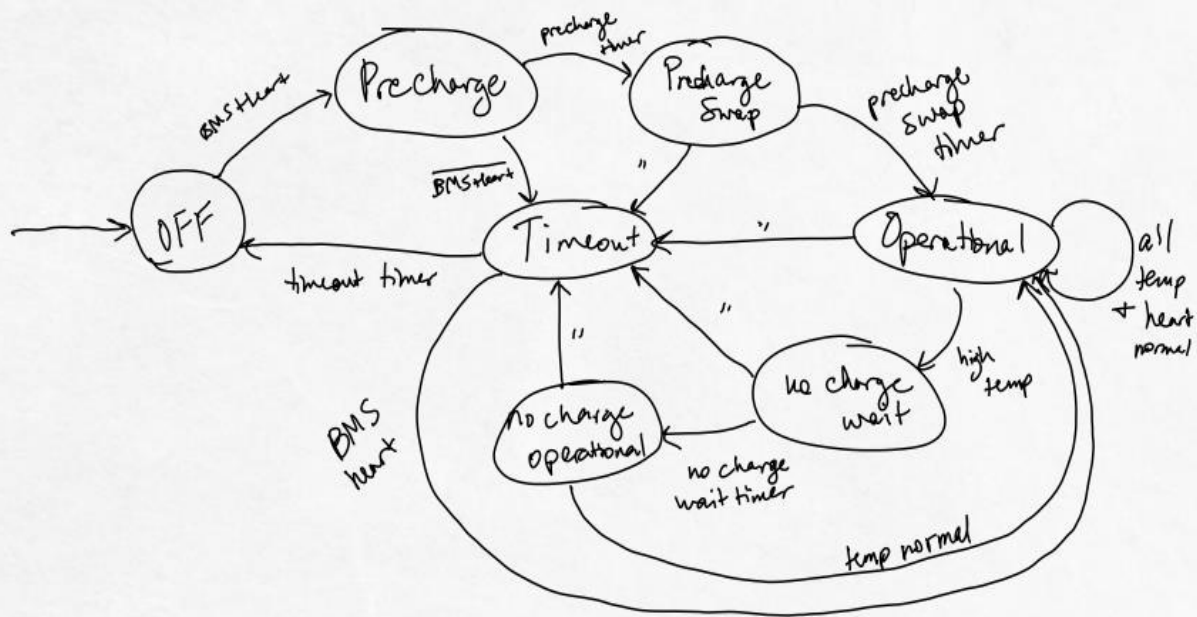


PDS High Voltage Interaction

The Contactor - A Gateway to High Voltage Power

Power Distribution Firmware

PDS State Machine - Transition Diagram



- Controlled Contactor Activation
- Temperature Sensing
- Voltage Sensing
- CAN Messaging Protocol

The Brizo Power Distribution System

IMAGE PENDING

Thank You!

