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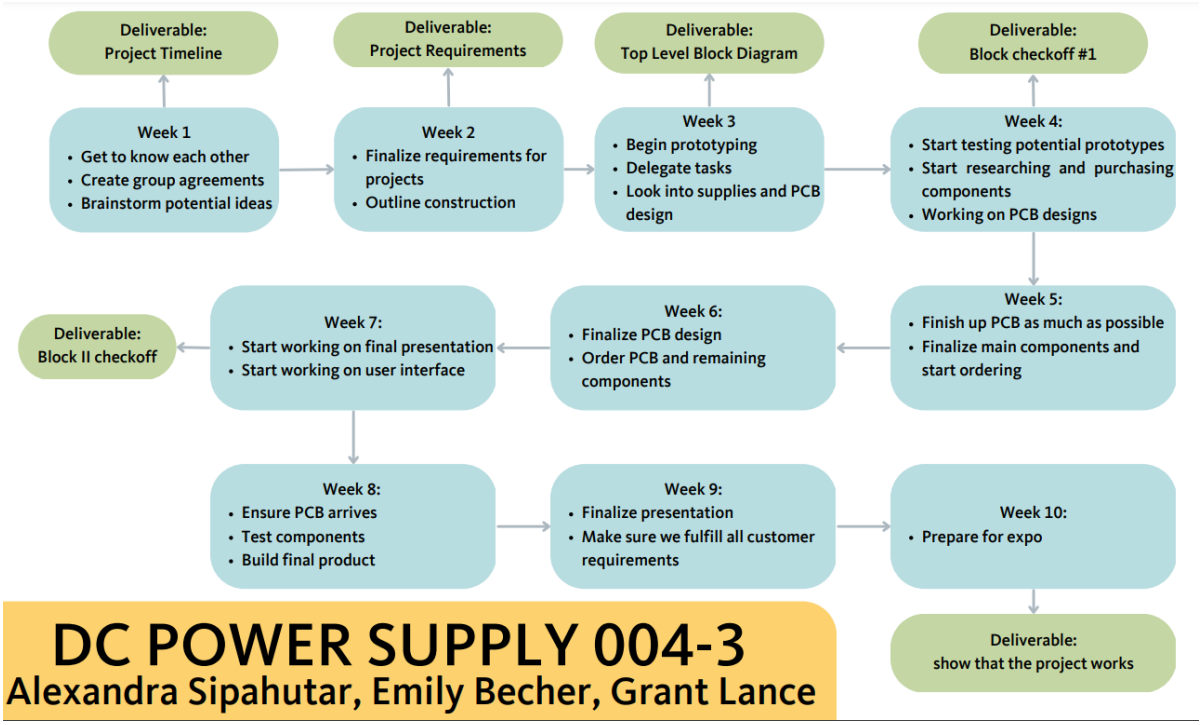
PC Controlled DC Power Supply - Group 004-3

Project Summary

Purpose:
The purpose of this project was to create a DC power supply that can be controlled using a computer. This computer interface will provide the user with easy and understandable control over the system and with more information than typical button controlled power supplies.

Approach:
The general structure to the progress of this project was in four phases. The first phase includes writing the project requirements and top level diagrams. This first phase took place over the first three weeks and basically set the stage for the entire project. In the first phase six blocks were defined that composed the final system. Phase two consisted of designing and building the first three of the six blocks. The first three blocks completed were the SCPI interface, LCD, and temperature sensing. During this phase we determined that all our sensors needed to use the I2C communication protocol. The second phase was completed in week 4. The third phase was the design and implementation of the remaining three blocks. These blocks included current sensing, buck converters, and enclosure. By the end of this block the PCB was ordered and most of the code for the project was completed. The final phase, starting in week 8, consisted of integrating all the blocks to create the final project. The final product was completed and tested at the beginning of week 10.

Timeline:



Lessons:
The key lessons learned over the course of this project were to under promise on the project requirements and then over deliver in the final implementation rather than write the requirements as lofty goals that we struggle to reach. Another important lesson was to fail early while there is still time to redesign and make adjustments.