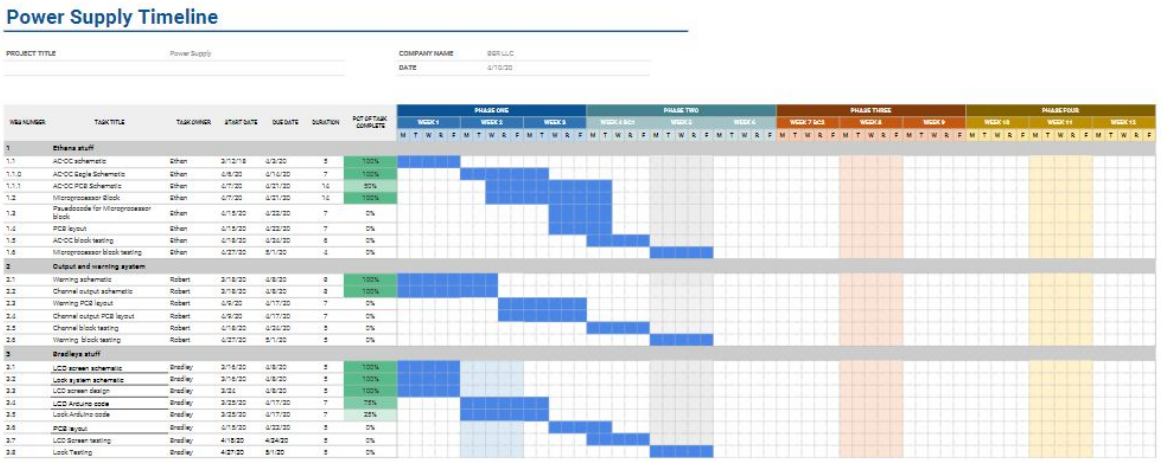
BER LLC Programmable Power Supply

Overview:

A variable voltage power supply that ranges from 2-14 volts and can source up to 1.5 amps. The dimensions of the power supply are 4.5 x 9.8 x 12 inches, making it a viable bench-top power supply for any lab setup. It can fit on any desk and is fairly portable. It uses an Arduino DUE as the interface between a laptop and the power supply. Having it be programmable gives a customer more control and versatility of the power supply. To ensure customer safety and protect the power supply, a LED warning system was implemented to inform a user how close they are getting to the maximum 1.5A current draw. In addition, a control lock interface was added to prevent unintended changes to the voltage setting. Before we built our blocks, we made our interface definitions to see inputs and outputs of each block. When we agreed on the interface definitions, we split up the blocks that would be part of the power supply and worked on them individually. Having the defined inputs and outputs of each block ensures that we can piece the project together with relative ease. Our design phases mostly revolved around each block checkoff with our designated project mentor. We had weekly meetings with the project mentor to make sure we were on track as well.

Project Timeline:



Key Lessons:

- Always keep an active timeline with deadlines
- Plan ahead and expect issues to come up; come up with back up plans
- Communicate with teammates more frequently
- Start early
- Have clear quantifiable goals