

The original prevue of our project was to create a two-channel power supply capable of operating within a set range of voltages and currents, which could also be controlled via serial input. The system was of course required to be safe, durable, and able to plug directly into the wall without need for an intermediate transformer. Our team decided to expand upon these requirements by adding in the ability for the system to be controlled wirelessly over Bluetooth, making the system more convenient as well as a screen and buttons to control and monitor the device directly, as one does not always want to use their laptop to control their power supply. This type of power supply would be very useful to a student such as ourselves or a hobbyist who simply needs an adjustable voltage.

As a team we broke down the system into blocks and worked to figure out what would be an appropriate amount of work for each person. It was clear from the beginning that the power supply module itself would be most complicated, and we spent quite a bit of time designing a system we would also be able to control with our Arduino. The display and analog inputs were fairly simple, and we already had working examples from various dev boards we had used in the past for other classes, which only left code and the Bluetooth module. Luckily one of our members was already familiar with the way an Arduino can be communicated with over Bluetooth, meaning we were able to move forward fairly early on into actual production.

Some things that we learned are the need to start early on planning specifics of the project so we don't get caught at the last minute. Some examples of this are things like having PCB's designed and ordered in time for the final checkoff and having parts ordered on time. We did not anticipate how long both of these orders would take and both led to us having delays. The last big lesson we learned was to work on dividing work evenly from the start, as we did not always anticipate how difficult a specific block would be to create, which occasionally led to one team member having to do more work than they should have.