Requirements:

* Be capable of converting 12V down to the necessary 5 or 3.3V. (May need both 5 and 3.3V available or just one or the other. More clarification will be gained as this project progresses.)
* Reasonable high current capabilities. (Unsure of exact current needs at this time)
* Reasonably high efficiency given the limits of the power supply. (Can’t dissipate too much power as heat otherwise, we will overcurrent our power supply)

Research:

Buck converters offer a considerable advantage over voltage regulators regarding their overall efficiency. The voltage regulators that were researched would require heat sinks due to the large voltage swing necessary for this project. Voltage regulators offer a price advantage, given they cost under a dollar; buck converters only cost around $5. Buck converters appear to be the better option at this point since no heat sink will be needed, indicating less power wasted as heat, therefore limiting potential issues overdrawing the 12 V power supply. All instances appear to have overcurrent and thermal protection.

Buck Converter Options:

* 12V to 5V buck converter:
  + <https://www.adafruit.com/product/4739>
* 12V to 3.3V buck converter
  + <https://www.adafruit.com/product/4683>
* These buck converters share the same data sheet, shown in the research folder. Please note page 14 indicating the necessity to have a a 55kohm resistor between Vin and the enable pin.

Voltage Regulator Options:

* 12V to 5V voltage regulator
  + <https://www.adafruit.com/product/2164>
* 12V to 3.3 voltage regulator
  + <https://www.adafruit.com/product/2165>
* Datasheets are in the research folder along with this document.