**Old Design Summary**

Given our design requirements handed down by our customers and sponsors, we have to create a wireless, high bandwidth, low power embedded system in an extremely small form factor.

Given the challenges in designing this product, there is very little room for error and our options for are limited. However with extensive research and development, we believe we can achieve our goals.

We have identified several wireless transmission options and narrowed down our needs to 3 technologies that fit our requirements. We had identified 1 of the technologies as the best in terms of power consumption but unfortunately after testing, we found that its bandwidth and throughput limitations could not meet our requirements. We have pivoted and selected another wireless technology to power our transmission protocol and have had significant progress and success utilizing the new standard so far.

As for powering the device, various technologies have been explored but battery technology has been decided as the winner to powering our system. We have researched battery technologies and contacted several battery manufacturers and distributors but for our prototype stage, we will be using off the shelf metal-air batteries already in use by the medical devices industry.

**New Design Summary**

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We have decided to go with Bluetooth Low Energy for this year’s current iteration on the wireless neural recorder as it meets our size and power consumption requirements. The design of our product will be modular and made such that the radio can be changed out with better transmission technologies in the future such as Wifi HaLow, which will have high throughput and bandwidth. For the time being, Bluetooth Low Energy is able to meet our requirements for the ECoG data we are receiving from our speciality A2D chip.

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