**Research for components for brain ballast sensor**

Going to change the tone of the proposal to more so be along the lines of “Improving upon the current device by adding additional hardware” which is already kind of the case but will need to get into more specifics of the actual device (like what hardware components are already being used, what components we plan to add, the software that is already in place, the code we will use to test the new sensors before installing them into the device, how we plan to test the device with our new components added to it)

Dr. Barry said that we can go into the lab and dismantle the current sensor in order to see what is taking up all the space and to get a diagnosis of the components that are inside of the device.

* Need to get a list of the current components in the device so that we can add it to the final proposal

Dr. Barry then mentioned adding an accelerometer into the device to be able to detect when the device itself actually moves.

* There are likely to be several different components that we will add to the device and need to get a list of these to add to the final proposal also
* Link to accelerometer: <https://www.bosch-sensortec.com/products/motion-sensors/accelerometers/bma400/\>
* Able to ‘sleep’ when not being used, uses 'C’ as its code base, and if it will work with the current device could be a great addition to the brain ballast sensor.
* There is some sample code in a website that can be used to test the accelerometer before we implement it into the device itself. The sample code can be seen at: <https://community.bosch-sensortec.com/t5/Knowledge-base/BMA400-accelerometer-design-guide/ta-p/7397>
* This will most likely need to be added to the final proposal as well
* Itd be nice to get an idea of the software that is being used in the current device so that we can add that to the final proposal also.
* Another possible option that has more software capabilities is the BHI260 AP: <https://www.bosch-sensortec.com/products/smart-sensor-systems/bhi260ap/#applications>
* This sensor can give direct orientation of our device and perform many other features but from the research I've done it seems it needs to be hooked up to an external CPU to be able to perform a lot of its calculations.
* Bosch also has a Bluetooth sensor that if would work with our current device might be able to improve connectivity : <https://www.boschtools.com/us/en/boschtools-ocs/drill-driver-attachments-gcy42-203552-p/>

**List of Components to add (if they’d be compatible):**

* **BOSCH Bluetooth connector (Bluetooth® Tool Module)**
* **BOSCH BMA400 (Accelerometer to detect movements)**
* **Possibly an eMMC device for onboard storage within the sensor:** [**https://www.longsys.com/embedded-storage/subsize-emmc.html?app=53**](https://www.longsys.com/embedded-storage/subsize-emmc.html?app=53)

Thinking about adding something along the lines of “The device currently consists of several different individual hardware components. These components are [list of components]. Our first goal will be to add additional hardware components such as [accelerometer, etc.] into the existing hardware scheme in order to improve upon the current device. These additional hardware components will make the device to be able to recognize when it has moved from its original location (accelerometer)….”

It’d be nice to get a schematic of the current device (at least a picture of the outside and all the internal components to add to the proposal)

We need to know how much pressure the current device can measure and make sure that it is at least 10psi