BarkSpeak
Brain Computer Interface For Dogs

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Company Background:
We are a team of fellow computer scientists CSM grads who have the idea of putting a brain computer interface on a dog to decipher their barks and translate that to words. The startup was founded on the hopes to launch a kickstarter with the concept at the end of the Field session run.

Description of Work to Be Done:
As this process is still in its starting steps, we only have the hardware to collect the raw EEG data and then a speaker to turn it into words. The team of computer science students who will help us will work on translation this EEG data to certain words with the help of large language model interpreters. Students will be challenged to turn numeric data into verbal representations that align with previous semantic meanings. This will require multidisciplinary knowledge in EEG hardware, Linux, and Embedded System Programming.

Figure 1: Mental EEG signal processing flowchart and basic design for dog computer interface.
**Students will focus their efforts specifically on these certain areas:**

1) Translating the varied EEG data with different brainwaves to a new structured data structure to be interpreted and referenced later.
2) Translating this data structure into words
3) Working with the embedded language model in electronic device to continually produce contextual output.

**The students will be highly involved in this from the basic hardware already constructed.**

**Desired Skills for Students:**
- Signal Processing
- Embedded Systems
- Linux

**Preferred Team Size: 3-4 students**

**Internships at the End of the Course:**

We are happy to consider offering internships and even equity incentives by the end of the course.

**Location Where Work Would Be Performed:**

We will have weekly meetings in the Venture Center with the whole team but most of the work will be with the Mine’s group virtually or in person.