User interview with Garrett

Meeting Tags	User Interviews
Date	@March 22, 2022
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Welcome to the user interview, thanks for taking the time. Keep in mind we're very early in our design process and we're seeking interesting conversations with an interesting background or/and work experience such as you to gather some insights for the first few prototypes.

My name is Daniel, my background is and here with my we have Mark, can you introduce yourself.

Before we start

What do we want to build, what are we doing? Mention B2B, and not B2C. Few insights into the platform we want to create (don't talk too much about walled gardens).

Background

Brains@Play - Neurotechnology with Everyone

Brains@Play is developing free and open-source biomedical infrastructure supported by modern web technologies. Everyone has a brain. Let's develop applications accessible to all of them.

https://brainsatplay.com/

Brains@Play Platform

https://app.brainsatplay.com/

Questions for Garrett

- What is your background?

    - Media design, computational neuroscience, working on finishing MSc in Sol Cal.
- What are you working on?
    - Breaking down Brains@Play into APIs, want to do acquisition in the browser for bio-signal data.
    - Finishing Master’s, moving neuroscience to the browser, easy access to data.
- Why the web platform?
    - Dig into detail there why not native SDKs etc.
        - native is easier, security issues exist but browser is better for continuous integration, users don’t have to update software, ease of use.
        - User base: not focused on getting user feedback, low resource at the moment, didn’t have time for a lot of feedback. Userbase seems to be rather low, maybe 100 people connected devices, 500 people in the discord.
        - Biggest barrier is that most people don’t have a BCI, and many BCI are not compatible between different systems.
        - Plans to go mainstream? Want to create a set of APIs for different parts of the processing pipeline, data streams API, like media stream (audio, video), wraps Bluetooth API, specify name and load devices. Innovation is on the acquisition and operations on the data streams.
        - Open-source? Plan is to keep it OS, GPL license, the team may spin-out a company, but keep the source code OS.
        - By default all data saved to local storage index.db unless you stream to a multi-player game, just message passing, sending the data you want to send, minimize the amount of data being sent. User can manage the data, looked a bit a data standards.
        - Pipe the data how you want to manage your data. No low-level control of the hardware. Want to give more autonomy to the user.
- Web Bluetooth, experience with it etc?
- What would you expect from our device to also embed it into your Brains@Play platform?

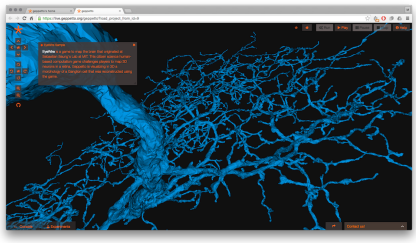
    - For consumer devices, lots of web blue tooth has already been developed for Muse, Open-BCI, ESP32 hardware, they basically made it simpler. There's no proprietary systems.
    - Open BCI2000, very hard to use, used the websocket extension, cleaned that one up a bit.
    - Neurosity closest to IDUN, just log in to your account and stream to yourself. in the end it's a pretty simple connection.
    - Stared with web BT in 2021, Josh has more experience, but there haven't been major changes since they started. 512 at 8 channels was a problem, looking to see if that can be accounted for, haven't done a lot of bench-marking yet.
- Your experience working with other consumers BCIs?
    - The best, the worst and why?
        - Likes the Muse, because of Muse.js, not because it's good, Open-BCI is to heavy to wear for too long, they just want real-time data. Wants portability, easy to use. The architecture was a bit too annoying, logging in, getting data was annoying wanted to spend 2 sec instead of 15 to use the devices.
        - IDUN could be interesting for ease of use. Not familiar with in-ear EEG yet.
        - Worst was Open-BCI, cause it was complex to use, custom start-stop commands. Neurosity was easy but felt like a lot more than needed, "like interfacing with a company and not our own bodies"
        - BT APIs were probably too early for Open-BCI javascript, they have a big processing GUI, maybe too intrenched in their GUI. Alabama built BCI.JS for processing bio-sensor data, specialized for BCI, gets FFT, etc. Aggregates a lot of stuff, but not the full pipeline.
- Your experience with Capacitor.js or the Ionic ecosystem?
    - ReactNative? Thought about it, mapped it out, to get wrapped native BT APIs, haven't gotten into as they are looking at the generic API direction, some team issues, school, etc.
    - Focused on JS to keep is easy to collaborate on the application layers. Want the contribution, but not the highest performance, want it to be easy to use,

no-low internet connection, which is possible with JS.

Geppetto

Read our paper to learn more. Besides the functional requirements, Geppetto's goal is to move away from the monolithic approach to software that is usually found in

https://www.geppetto.org/



Next steps

- Can we keep you on our user interview list for the next iteration of our user-centred design efforts, so that we can show you the first few prototypes in a couple of weeks/months?
  - Yes, happy to help out. Working with Univ. Alabama that works on BCIs.
  - For fast computations on the cloud, go with Apache frameworks and away from JS frameworks. Lots of people are replicating a lot of development work in building their systems. Interested in interfacing with 3rd party like IDUN, smooth the integration process.