INTRODUCTION

My design is a consumer brain-computer interface (BCI) paired with a discreet wristband. The interface is surgically implanted in the brain through a reversible, upgradeable, biocompatible, and scalable procedure (so cost remains low for universal access). The interface is capable of reading mental subvocalizations to answer queries. Results from the queries are shown on a user's wristband or communicated by stimulating the user's auditory cortex. The wristband provides status information, processing power, and discreet disclosure to others that the user is utilizing a BCI. The reversible, invisible design of the BCI allows for silent communication — composing emails and browsing the web at the speed of thought.

MOTIVATION

The modern cell phone and laptop are not human-centered designs. At their core, these devices are useful blocks of glass and plastic which cut into our pockets and palms for the entire day. They are not, as Norman appraises, invisible technology — instead, they enhance our lives while controlling them.

In my view, the solution to this design problem is a personal device that begins to understand human biology. Only then can we resolve mishmashes between technology and biology. Through this project, I also seek to conceptualize ethical implementations of brain-interfacing technologies.

MEDIUM

The product consists of two modules: a wristband and implant. On the left is an illustration of the wristband with an extended screen. The rationale for the extended screen design is so that the user can communicate their thoughts to another in visual form, quickly check on the status of their device, provide compute power, and disclose that they are using a BCI. The device itself is flush inside the head, resulting in minimal intrusiveness. An alternative intrusive implementation of the brain component is shown to the right. However, its constant presence would be intrusive and defeat the purpose of this product.

EXPERIENCE MANIFESTO

The design priorities are to be biocompatible and reversible, so that the product works alongside the mind and body. When the interface is switched off via the wristwatch, the product melts away into invisibility. When a user calls upon their interface, the interface pleasantly and predictably responds. The product does not have complex feature sets or robust customization — the core focus is to provide intuitive, quick access to information.

More specifically, when a user mentally subvocalizes a certain question with a deliberate trigger to involve the interface, the interface will in turn respond with the answer. The device will only be noticeable when called upon.

Therefore, beyond the wow-factor of this technology, the product serves a utilitarian, spartan function by design. With garnishes removed, users consider how the product can practically apply to their lives.

IMPACT

The long-term social impact of this product is a vision of a world where physical disability and technological literacy is not a barrier of access to information; where learning itself is a more egalitarian process. High-quality education is not a luxury. This interface first and foremost would be offered to paraplegics and those with medical conditions. Next, this product would be offered to the general public, especially those underserved by existing technologies. Furthermore, this interface could:

1. Reduce eyestrain and carpal tunnel, and greatly improve convenience for people with disabilities.
2. Bring out more natural spontaneous interaction. The focus is not on the technology, but how it can help us.
3. Unlock higher-bandwidth connections with information, as current mobile devices rate-limit our speed of exchange by the rate of thumb taps.

ACKNOWLEDGEMENTS

Interfacing with information today
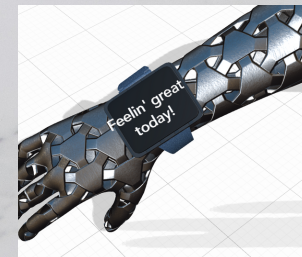
A thoughtful design.
Jason Lin, THINK 66, 2022