# Philips SmartSleep

I developed this app as an extension of Philips’ SmartSleep collection. Unlike their other apps, which have very specific uses like measuring sleep apnea, this application is meant to reach a broader range of customers. Philips SmartSleep helps the user to fall asleep and through the rewards system, conditions them to improve their sleep quality in the long term. Motivation is created by earning points, which can be exchanged against a wide range of products, all of which can be paired with the app such as the Philips Somneo light or even a mattress that slowly rocks the user to sleep. Points are earned every night by sleeping and extra boosts are given out for reaching milestones, like fulfilling a personal sleep goal! Scroll down to see some of the screens or click on the link to the high-fidelity prototype.

# Ways in the Willows

The Ways in the Willows is an interactive, online story map based on the story of The Wind in the Willows, written by Kenneth Grahame in 1908. The experience allows the user to be introduced to the story by familiarising themselves with the spatial setting. A hidden quiz tests the user’s knowledge of the book and shows a reward for successful completion. Scroll down the page to see the images or click on the link for the full experience (why don’t you try and see what’s inside the Mole’s house? 😉)

# BCI Headphones

Studio M is short for Studio Minerva, the Roman goddess of wisdom and art. The colouring and typeface are modern, energetic and exciting. But what exactly are BCI headphones?

The proposed service consists of two key components: a smartphone and an Electroencephalography (EEG) device. If you are unsure of what an EEG is, it basically makes it possible to read someone’s brain activity. For a more detailed explanation, I would recommend you look it up online. For now, let’s just say it can read your thoughts. An EEG device is often a very snazzy headcap, however, in this case the electrodes which record your brain signals, are hidden in the headphone’s headband and foam ear cups as well as inside the silicone earpiece. Why is there a phone case then? Good question. Since Brain Computer Interfaces (you guessed it, BCIs) are not very well-known, I wanted the service to include an indicator that the phone is needed to play music. Unfortunately, we still do need a speaker even if we are capable of playing music by thought.

While the headphones are designed for private music sessions, the earpiece, which is connected to your phone via Bluetooth, lets you play music out loud. This comes in handy when you’re driving, cooking or taking a shower and cannot access your phone directly. The earpiece is made up of two layers of thin, bendable silicone. In between the two layers are flexible electrodes and a Bluetooth wireless card. It is important to note here, that the headphones, too, connect to the phone via Bluetooth but can also be used with the cord. (Cable?) The software behind this is the above-mentioned EEG, any music app like Spotify or Apple Music (or, god forbid, YouTube Music) and, lastly, a BCI program installed on the user’s phone. The program is what actually translates the recorded signals into device commands using translation algorithms.

If you’re wondering where you can get your hands on one of these products, I got some bad news for you. Unfortunately, while this is a great, innovative service in theory, it is just that: theory. At the current state of science, it is very hard to measure brain activity accurately and often unclear how to translate the signal into device commands as there is no standard translation algorithm yet. (Don’t worry, they’re working on it.) Another issue is the speed of the EEG data transfer and the immobility of many EEG devices. As proposed here, mobile brain scanners are an option but their wireless connection is often very instable and not reliable. Finally, non-invasive BCIS, where the electrodes are not directly inside of your brain, lack durability. I mean, invasive BCI-electrodes lack durability but non-invasive are at an even worse level. I’m sorry if I have ruined your day but I hope you had fun reading this and that you learned something. Feel free to contact me if you’d like to know more.