UNIVERSITY OF LIMERICK
OLLSCOIL LUIMNIGH

Designing Futures 2050
International design competition

Battling the Problems of Today

Counteracting smartphone addiction & its negative consequences

My name is **Jonah Phelan**. I am a **Product Design student** from the University of Limerick in Ireland. I am passionate about designing for the future to change how people interact with the world around them in a positive manner.

To do this I have developed a **strong interest in sustainable design** both at an environmental level and at a human-centred level. I have worked throughout my time in University on projects to redesign stormwater gulleys to reduce flooding in the Netherlands, tracheostomy care products for the medical industry as well as the project I have put forward for this design challenge.

This project is my **Final Design Project** as part of my Undergraduate Studies at the University of Limerick. The aim of this project is to **provide an alternative to smart phones** and other smart devices.

These devices have adverse consequences for the end users, especially users under 35. Apps on these devices have a predatory impact on user's attention span and has been strongly linked to adverse mental health problems, increased isolation, decaying local communities, as well as fuelling overconsumption of goods which has a negative impact for our planet.

The **goal of this project was to explore an alternative device** that puts the user at the centre of the device and allows them to **reconnect with the world around them**, while still maintaining the convenience & functionality of these devices on modern life.

It does this by decentralising the device and giving the user agency to restrict when and where certain applications can and can't be used.

The Social Problem

(And the impact it has)

It is estimtated that **4.88 billion people use a smartphone** or around 60% of the global population (Gill 2024). The smartphone is joined in the smart device category by devices like laptops, smartwatches, PCs, Smart TVs, Smarthome Devices, Headphones, Speaker and so much more. They are engrained into nearly every part of modern life.

However, the way they are designed has **made them highly addictive** and their simple and easy-to-learn interfaces make it easy to get hooked in. Notifications pull the user in, bright colours stimulate the brain and if left unchecked these devices can take its tole on someone's mental health.

People in younger generations are especially susceptible to these devices. Contrary to popular belief teenagers are **aware of the negative side effects** these devices have on the brain, yet struggle to balance its usage in their life (Anderson 2022).

People in the **20-34 age demographic** actually demonstrate **higher addictive tendencies** when compared to teens in the 11-19 bracket. This can be attributed to a loss of parental control, a higher emphasis on one's social life, the requirement for networking to build a career, job-hunting, travelling, house-hunting and dating, all of which nearly require someone to use a device to interact with in the modern world. (Sandor et al 2024).

People in older age brackets are still victim to these technologies. Many initially join to stay in touch with family members/friends who have moved away, but this can lead to **insular behaviour overtime** as they grow more addicted and cause them to move away from neighbours and their local community, attributing to **loneliness** as they get older. They also act as role models for younger generations and imprint on them, furthering the problem (Anderson 2022).

Amongst all age groups there is a clear pattern of **harmful social side effects** springing from these devices. Despite the amazing functionality they provide, **it is hard to focus** on whats important with these devices.

Environmental Problem

(One of the most problematic industries)

It is estimated that roughly **7 billion smartphones have been manufactured** from a variety of companies. About 146 million tons of CO2 was created from the industry in 2022 alone in a study done by Deloitte (Wichert 2024).

Collecting all of these materials has serious consequences for local habitats and ecosystems, as they require big mining operations. This leads to deforestation, habitat loss, air pollution, waste, and high levels of energy consumption (Dyson 2024).

It must also be noted that regions where the materials can be found such as the Democratic Republic of Congo face a lot of conflict and locals are often required to work in appalling conditions for little pay (Wichert 2022).

Within my home country of Ireland around 11 million kg of electronic waste is consumed in the country annually, which is around 25 million items that contain precious & valuable metals. Users tend to store this waste within their homes, sheds, etc. instead of properly disposing of them (Lee 2023).

Many users **dispose of these goods while they are still functioning** so they can get the newest models, which is an extremely irresponsible use of resources.

The companies that create these goods push new models every year and design them with planned obsolence in mind, with no repairability as an alternative either. This makes the consumer have to purchase a new device if they want to have a device that runs quickly and efficiently (Bhanarkar 2022). This **completely disregards the United Nations Sustainability Development Goal #12** (Responsible Consumption & Production).

Companies such as **Fairphone have made huge efforts in creating smart devices** that can be **easily repaired** by the consumer and have a long service life, but doing this puts them behind competitors such as Apple, Google & Samsung economically (Fairphone 2025).

It must also be noted that **social media platforms constantly push advertisements** on consumers **encouraging them to purchase more goods**, which further fuels the overconsumption of today's society.

Through this project, by moving away from the common conceptions of what a smartphone is, a new product which can be designed to be entirely repairable and long lasting can be made, as well as having more a socially conscious design to prevent overconsumption.

Problematic Usage

(What's so bad about these devices?)

The average adult spends 3.5-5 hours on a device (outside of work) daily, accounting for nearly a third of the waking day. Many people believe that simply turning off the notifications or putting their device into a **do not disturb mode** can help to alleviate a lot of the problems brought on by the use of these devices.

However there have been many studies to show that doing either of these actually increases screen time, since the user isn't notified of things so goes searching for information instead (Liao & Sundar 2022), which actually increases the screen time of the user.

There is a serious draw for users to want to pick up their phone or be online which comes from the **feeling of FOMO** (Fear of Missing Out). It can put a strain on relationships, especially between parents and their children (Matthies et al 2021).

The negative usage of these devices has also been shown to rub off on children which they may bring into adulthood. Parents are also less attentive to their children because of devices which have serious impacts on young children who look to parents to imprint behaviour off of. This can lead to learning difficulties and low social skills in said children (Matthies et al 2021).

Since the internet and smartphones have taken a hold of the world there has also been an **increasing decay of third places** (places people gather outside of home and work) (Oldenburg 1997), since **social media has filled this gap in** many people's lives.

However social media can't fully fill this gap and leads to a breakdown of conversation amongst those with different views and can create bubbles of extremism, leading to increased polarisation in people (Markiewicz 2020), especially dangerous with increased levels of misinformation spread online.

There is also less of a need for people to leave their house with online deliveries, streaming & remote working, which can lead to people feeling isolated and increasingly loneliness (AlibWrites 2023).

Failures of Competitors

There are solutions that attempt to solve the problem, by either reducing access to devices or removing features from devices to reduce the addictiveness of them.

However, these solutions require strong willpower from the user and do not account for the complex emotional and practical issues that stem for removing a device that gives users access to everything.

Dumbphones

The goal of a dumbphone is to limit the amount of applications a user has access to.

However, users who have a dumb phone tend to own a smartphone as well for when they need to do certain tasks that the light phone can't do (charge an electric car, order a taxi, order food for delivery, etc.), showing their limitations.

Phone Pouches

Phone pouches are used in schools and venues as a way to get either students or an audience to pay attention to what is happening.

They work well for their designated purpose but act as a band-aid solution that fails to address the really problematic aspects of the design.

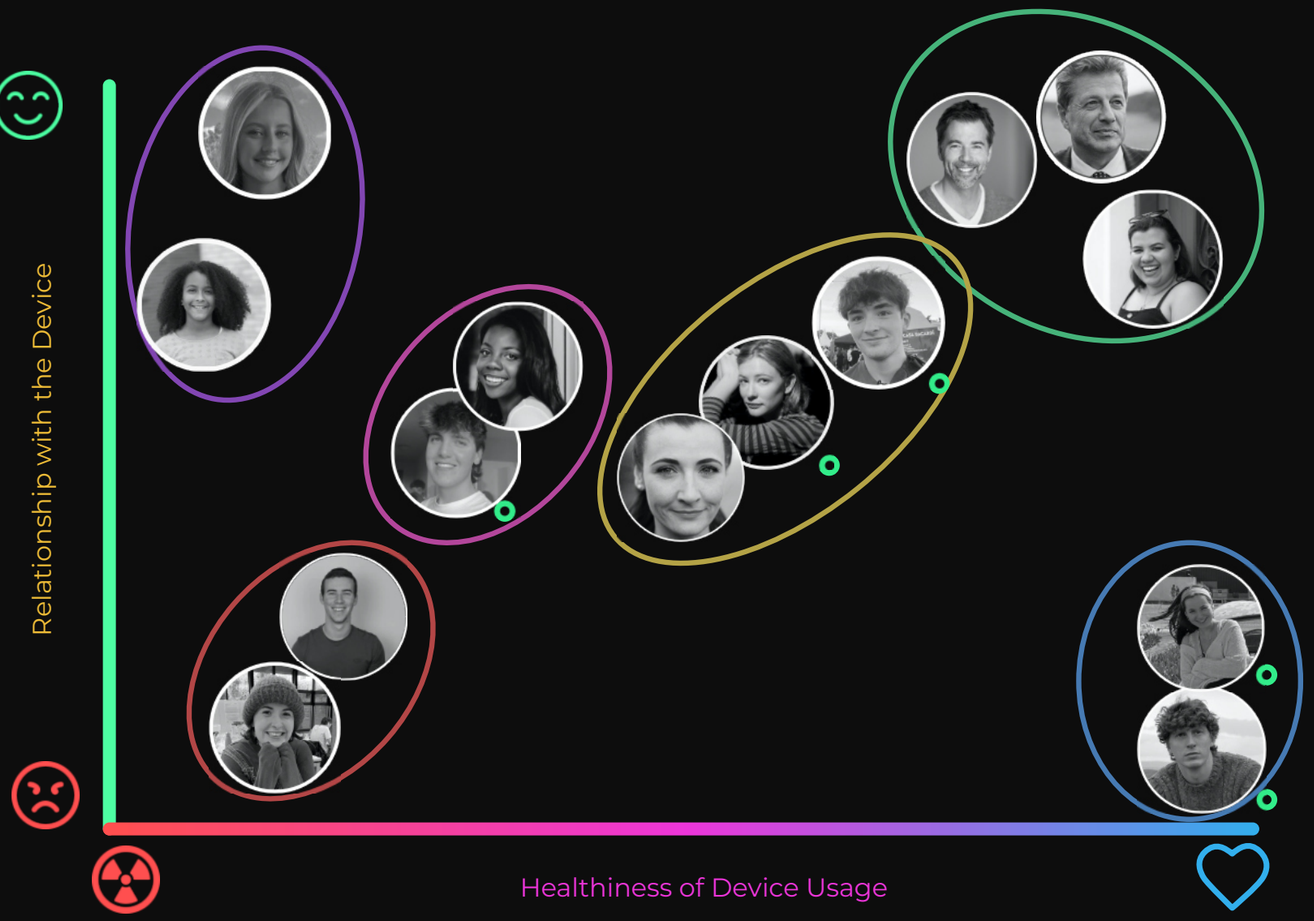
App Limits

There are third-party apps designed to limit the user from overusing the apps that are on their own device.

These apps work as more of a reminder but rely entirely on the user's willpower to use them, while the design of the device remains unchanged.

Decentralising Devices

(A new trend)



Healthiness of Device Usage vs Feelings Towards Devices

Represents user that decentralises their device

Decentralising Devices: separating apps/aspects of one's life onto different devices so the user doesn't have access to everything at once, e.g. keeping work on a laptop and personal things on a phone.

14 Participants were interviewed in a semi-structured interview where they were free to talk about their experiences and feelings of their smart devices, social media usage, annoyances, happy feelings, etc.

What I noticed was user's who decentralised their devices tended to have a healthier relationship with their devices, however they also tended to have more negative feelings towards their devices because they introduced these measures to prevent the device taking over their life.

The two users in the middle who decentralised devices had partners who lived far away so they felt attached to their devices so they could communicate with their partner.

Users who had unhealthy relationships displayed signs of addictive tendencies, over-dependency and were more likely to feel symptoms of FOMO, whether they enjoyed using their device or not.

For the 2 users who had negative feelings towards their devices and an unhealthy relationship they felt like they were stuck in a trap and that their phone had a lot of power over their time and they had no control. They stated that apps like Tiktok & Instagram had the worst effects.

Older users tended to have healthier relationships with devices and also had a more positive view of the devices.

Using Calm Technology

(The ethical way forward)

Amber Case

Founder of Calm Technology Institute

Some people in the field such as Amber Case have been advicating for less disruptive technology to be developed to have less harmful effects on users.

She has written the 8 Principles of Calm Technology, which acts as a framework through which all technology should be designed to allow human's to enjoy their life to the fullest.

8 Principles of Calm Technology (Calm Tech 2024)

1. *Technology should require the smallest amount of attention necessary*
2. *Technology should aim to inform and create calm*
3. *Technology should make use of the periphery*
4. *Technology should amplify the best of technology & humanity*
5. *Technology can communicate, but doesn't need to speak*
6. *Technology should work even when it fails*
7. *The right amount of technology is the minimum needed to solve the problem*
8. *Technology should respect social norms*

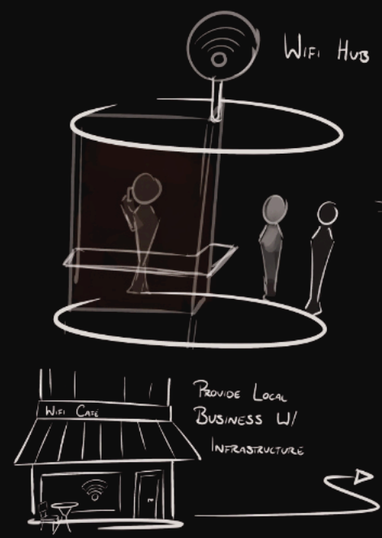
Examples

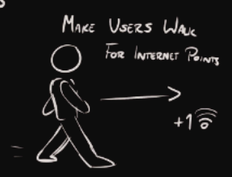
reMarkable tablet lets users take digital notes without distraction from other devices

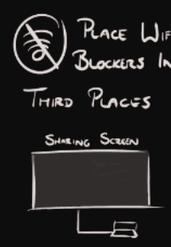
Air Quality Sensor that changes colour - informs the user without annoying alarms

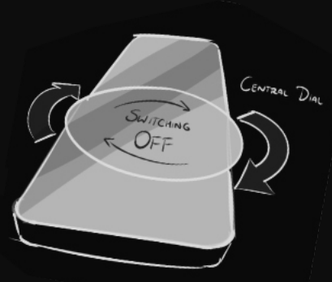
Idea Generation

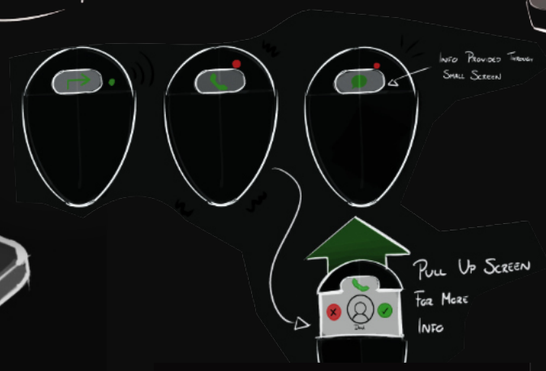
(Working out how to solve the problem)

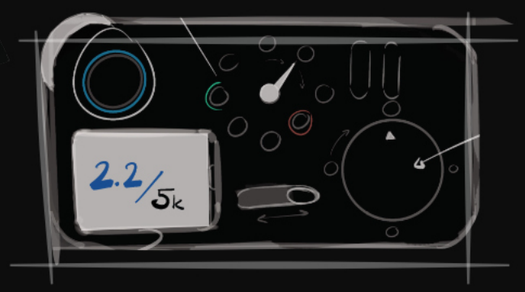


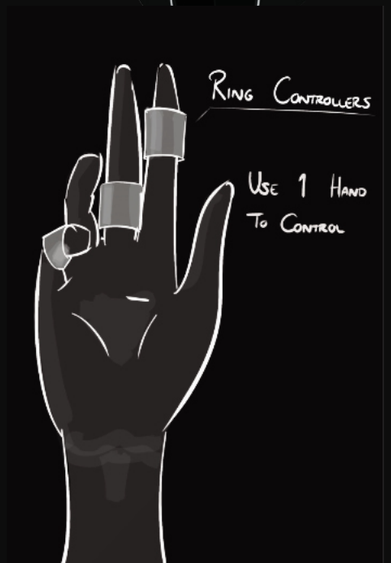


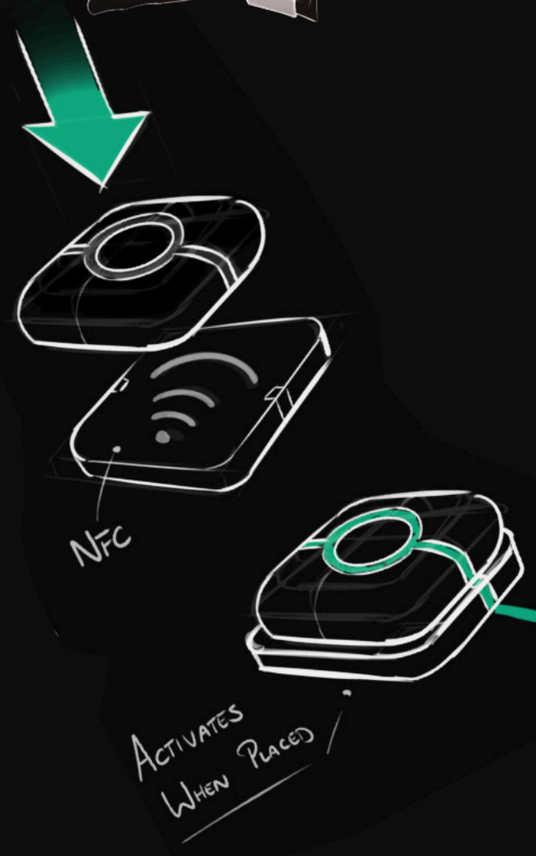












Around 100 ideas were generated to provide solutions to this problem, through sketching and prototyping. Some ideas included:

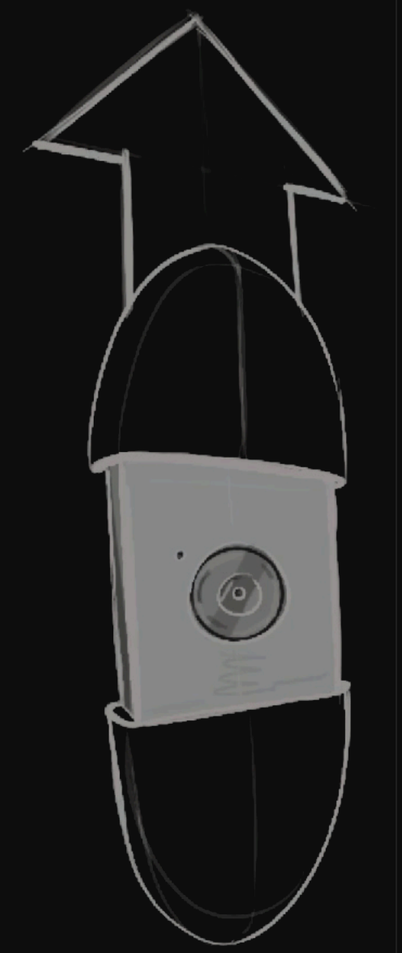
1. *Screenless smart companion device*
2. *Modular Screens that have limited functionality*
3. *Interfaces that only work through social interaction*
4. *Device that requires communal wifi hub*
5. *Returning analogue features to ground users & making repairability easier*

Proposed Solution

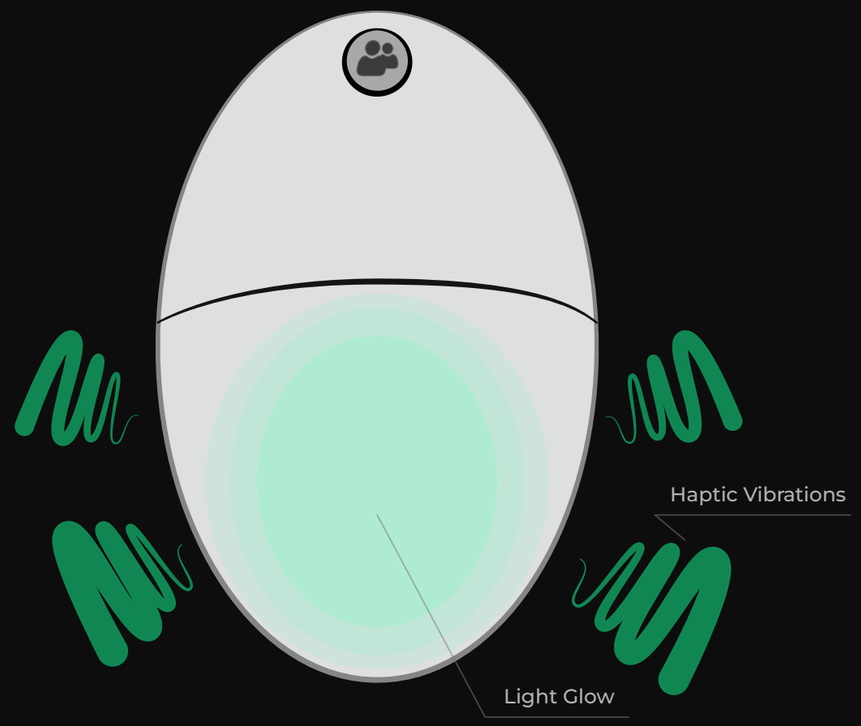
(A better alternative)

A simplified device can be carried around with the user to perform necessary tasks (phone calls, take photos, maps, etc.), but to access the other features typically found in smart phones it must connect to other peripherals which are less convenient for on-the-go use, decentralising the device.

Limited functionality when the device is opened



Camera is also exposed when device opens



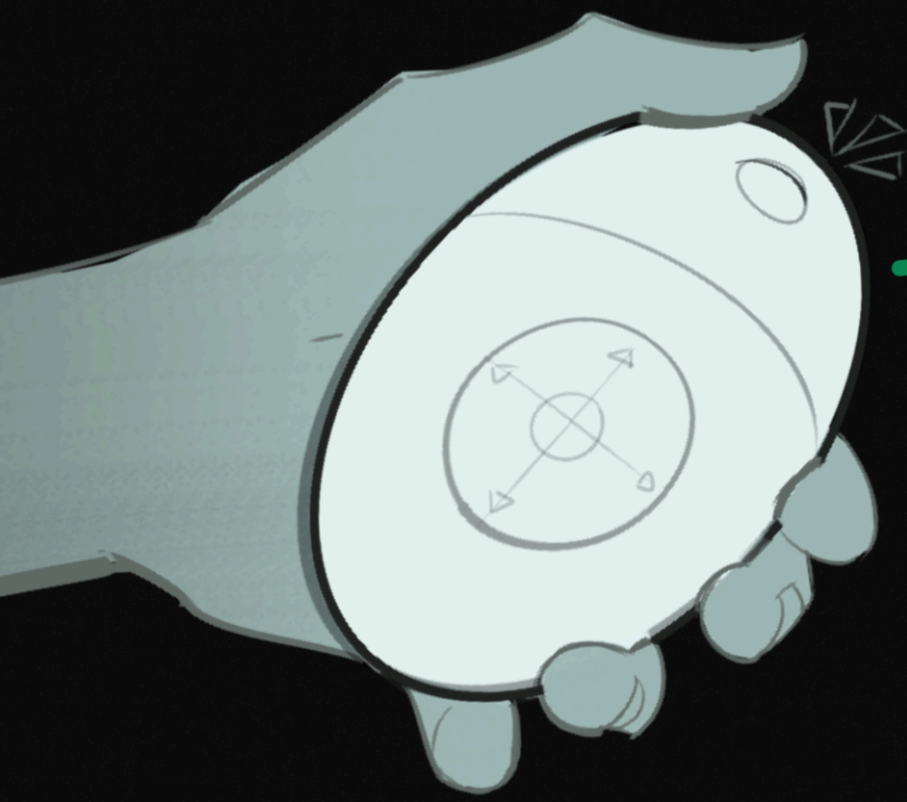
When closed the device glows and vibrates to inform the user of information, the user can interact if its urgent or remind themselves for later if it can be done at home.

User's can do tasks such as add people as contacts without a screen and holding devices together for a more seemless experience

Concept Proposed: “Soul”

(Decentralising the user’s device)

The soul device solves this problem by limiting the user’s access to applications, so they never have access to everything at once. It does this by connecting to shells which unlock features.

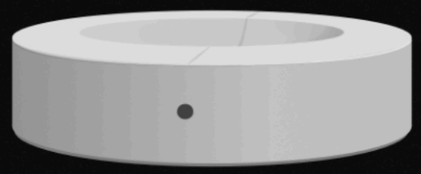


Soul Device

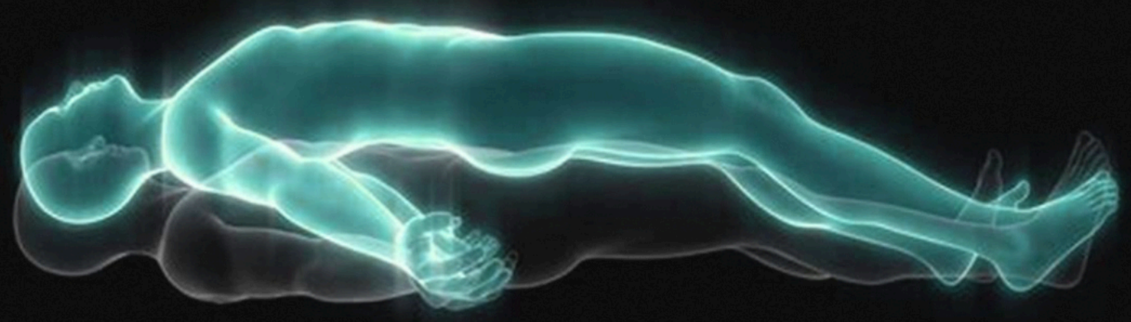
Handheld Device that contains the user’s data & provides notifications to the user, but is limited in what it can do

Zen Shell

Work Shell



Home Shell



The name of the device takes inspiration from souls, leaving and entering the body - showing how the device embodies the device it controls

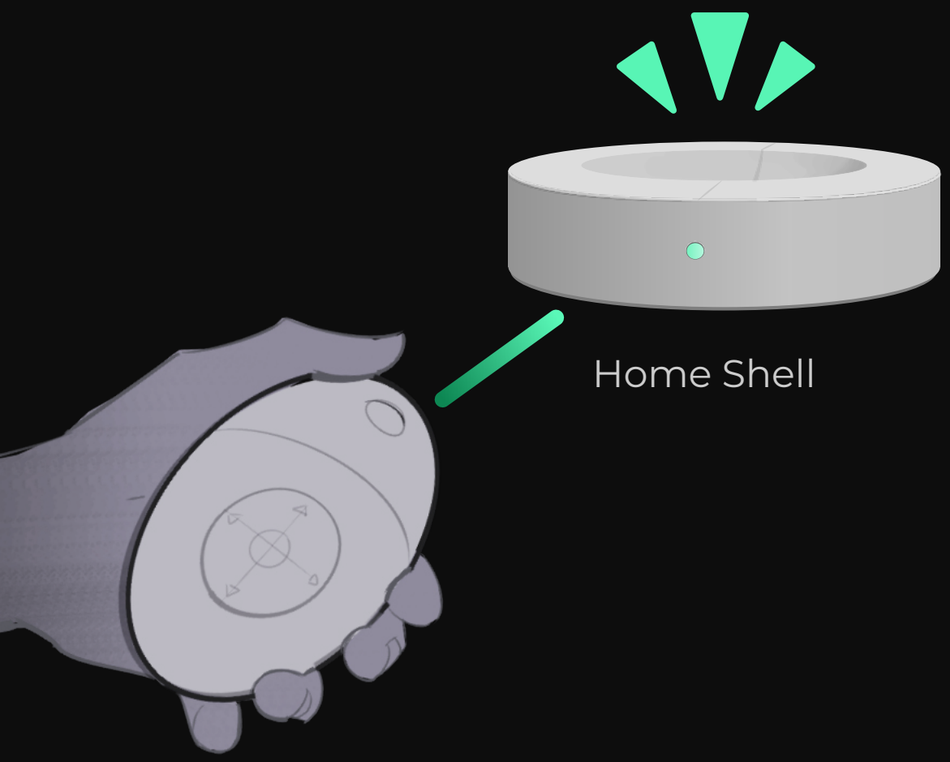
Connecting to Shells

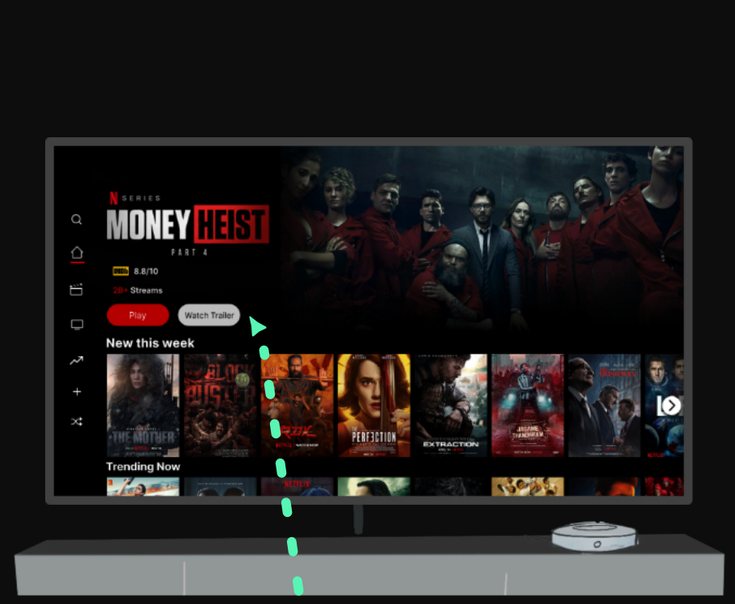
(A better alternative)

Soul Chip

Once connected to a shell the user gains much more functionality, but also much more focus. The soul device can only do one task at a time and if the user wants to do something else (e.g. finish work to watch a show), they need to change the shell they're using.

Shells can come in a variety of shapes and sizes for bespoke needs for certain jobs or hobbies. **Open-source soul chips** could be available so users can programme and create their own souls, which also gives users more agency over how their electronics are made and more **knowledgable on how to repair them**.





**Since shells have certain functionality they contain less complicated tech - making them easier to repair*

The home shell lets users browse streaming, social media, etc. but since its not portable restricts when they can be used, making it easier to leave them behind.

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