

Calm at Work

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Calm at Work

Making the experience at work, just a bit more calm.

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Our office spaces are riddled with interruptions and distractions, the commute is usually mundane and uninspiring and our time is chopped and sprinkled between the many tasks we are trying to wrangle at the same time. We stay stressed continuously, and in this stress, we forget to take a minute to just breathe.

And then, at the end of the day, we wonder, where did the day disappear?

I believe that work should bring us joy. Our workday should be exciting and going to work should ideally be something we look forward to, every morning we wake up. We should have the freedom to choose how we work and what we work with.

“Calm at Work” is an 18 week interaction design project, exploring how we might make the experience at work, just a bit more calm.

The project aims to explore the different challenges workers face at work to explore if it could be better. Through desk research, observations, interviews and probes the project uncovers a few challenges, some of which were then explored using product sketches.

This report presents the journey, the key insights, the challenges and the results of the exploration.

Contents

8	Introduction		
11	Chapter 1 - The Beginning		
14	Computing		
16	Calm Technology		
18	Attention		
19	Framing #1		
21	Chapter 2 - Research		
22	Context		
24	Evolution of Workplaces		
28	Interruptions at Work		
35	Framing #2		
36	Sketching		
38	Observations		
42	Further Research		
44	Probes		
48	Findings So Far		
		Chapter 3 - Synthesis	51
		Pattern Finding	52
		Challenge Buffet	64
		Chapter 4 - Ideation and Reframing	67
		How Might We	68
		Crazy 8	69
		Framing 3	77
		Chapter 5 - Uncovering Challenge Spaces and Sketching	79
		Challenge Spaces	81
		Brainwriting	82
		Chapter 6 - Product Sketches	87

Introduction

We spend at least a third of our day at work. We go to work to use our knowledge, skills and experience to create value for the society, which hopefully, brings us fulfillment.

Though the office is, in principle, a space designed to enable us to do great work, in practice, it's difficult to get things done in an office.(1)

The workplace is full of interruptions which get in the way of our work. Small, harmless interruptions sprinkled throughout the day, like a coworker asking a quick question, a

work email notification or small unplanned meetings, divide our day into chunks and consumes our attention, leaving us with very little to show for at the end of the day. (2) This dissatisfaction, of not being able to do enough, adds up over time.

“Calm at Work” is an interaction design project which explores the challenges related to workplace interruptions to find ways to make the experience of work, just a bit more calm.

Approach

Calm at Work is an explorative interaction design project. The project employs broad research to explore the context of work to identify a few challenges that workers face at workplaces.

Then those challenge spaces are further explored for possibilities through sketches and probes.

Finally, the project proposes a few product sketches, with the hope of making the way workers experience work, a bit calmer.

About Exploration

The project acknowledges that the way we work is very personal and the challenges we experience at work are widely different.

Therefore, the objective of the project is not to solve any problems with one solution that works for everyone, rather it tries to explore ways in which work could be a bit better, for people in a few different situations.

Intention and Goal

The intention of the project was to gain a deep understanding of the context of work in order to find challenges faced by workers in their workplaces.

Further, the project aimed to produce a few product sketches which could be used to give users a better understanding of the challenges they face at work.

Outcome

The project has uncovered a few challenges with work as it is now, a few of which were explored further.

The tangible outcomes from this project include a probe, a service concept, a couple of paper based productivity tools and several product sketches.

Chapter 1

The Beginning

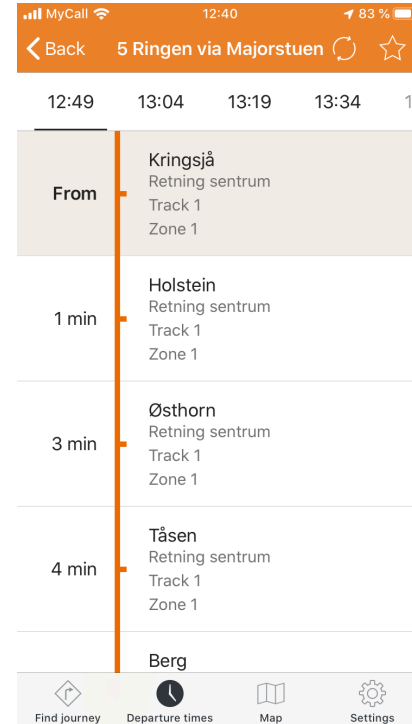
In addition to introducing the initial framing of the project, this chapter introduces some definitions, concepts and design principles, which are vital to the rest of the process.

It All Began With Metro Light.

In the fall of 2018, I designed a tiny device called Metro Light. It's a glanceable display, which stays on the wall and informs when to leave home so that you can comfortably catch your morning commute.

That means, just after a shower, when your phone refuses to recognise your fingerprint, the bag is still unpacked, the microwave is beeping to inform you that breakfast is ready and you can't find a sock, you can at least see when to leave home, without having to unlock your phone.

Metro Light offers just enough information, only when you need it, while staying fixed, always in one place. It does just one thing and in doing so, takes away a little bit of stress from your morning, making it just a bit more calm.



There's An App For That!

When I was living in Bangalore, I hardly ever bothered with bus time tables. I used to just wait in the bus terminal and get on the bus, when, and if, it arrived.

When I first arrived in Oslo, downloaded the Ruter Reise app & realised that I could see live, how long exactly I have to wait before the bus arrives, I was totally overcome with joy. The app was not beautiful and initially, wasn't even that intuitive, but I loved it.

However, now, when I'm running late, the twenty seconds it takes to find my phone, unlock it, open the app and find the bus status, feels to go on forever.

Ubiquitous Computing

First computers were mainframes - large room sized computers, shared by many people. Then came the age of personal computing, where a computer was used by only one user.

Now we are in the Ubiquitous Computing era, where many computers share each of us, a phenomenon described by Mark Weiser, late researcher at Xerox PARC. (3)

We are surrounded by computers everywhere we go - the clock on the microwave, doors that open themselves, smartphones, smartwatches, lights which change with the weather, etc.

Internet of Things

Internet of Things (IoT) is a system of interconnected secondary computing devices via the internet. (4)

Secondary computing devices, are computers, which do not need human to human or human to computer interaction, to function. (5) The requirement to be

connected mainly is what distinguishes Ubiquitous Computers from IOT devices.

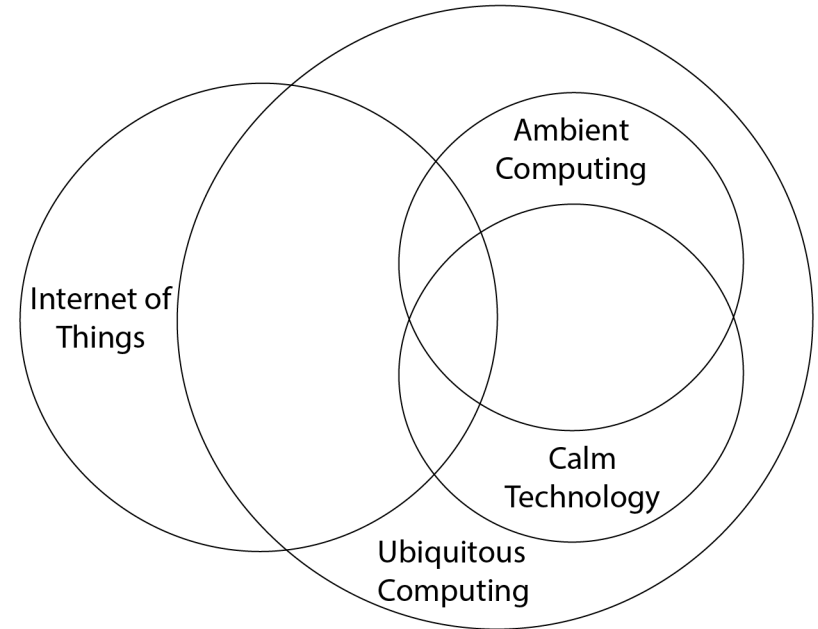
An example could be an internet connected alarm clock, which monitors your sleep and is connected to your work calendar. If that early morning meeting is cancelled, the alarm will automatically delay and the clock will let you sleep a bit more.

Ambient Computing

Embedding of computing devices within our surroundings to such an extent after which only the interface stays visible or apparent and the computing power is almost or completely hidden from sight is one of the definitions of Ambient Computing. (4)

An example could be, a door lock which senses when you are leaving the building and locks the door for you, if you forgot to do so. Another, more relatable, example is grocery store doors which automatically open, as you walk towards them.

The Metro Light is an example of all of these three.



Smartphone, A Notification Nightmare

As more and more objects become apps and start to live in our phones and watches, they usually become more attention hungry and turn our digital devices into notification nightmares.

Moreover, activities which used to take very little effort, like checking what week it is, now demand much more attention.

Calm Technology

The principle of Calm Technology was proposed by Mark Weiser and John Seely Brown, in their paper “Designing Calm Technology” in December 1995. (6) They describe calm technology as “that which informs, but, doesn’t demand our focus or attention.”

Human attention can be divided in two categories - centre and periphery. Most technology, such as smartphones and laptop computers require us to keep them in the centre of our attention, to be of use, for most tasks. However, when all

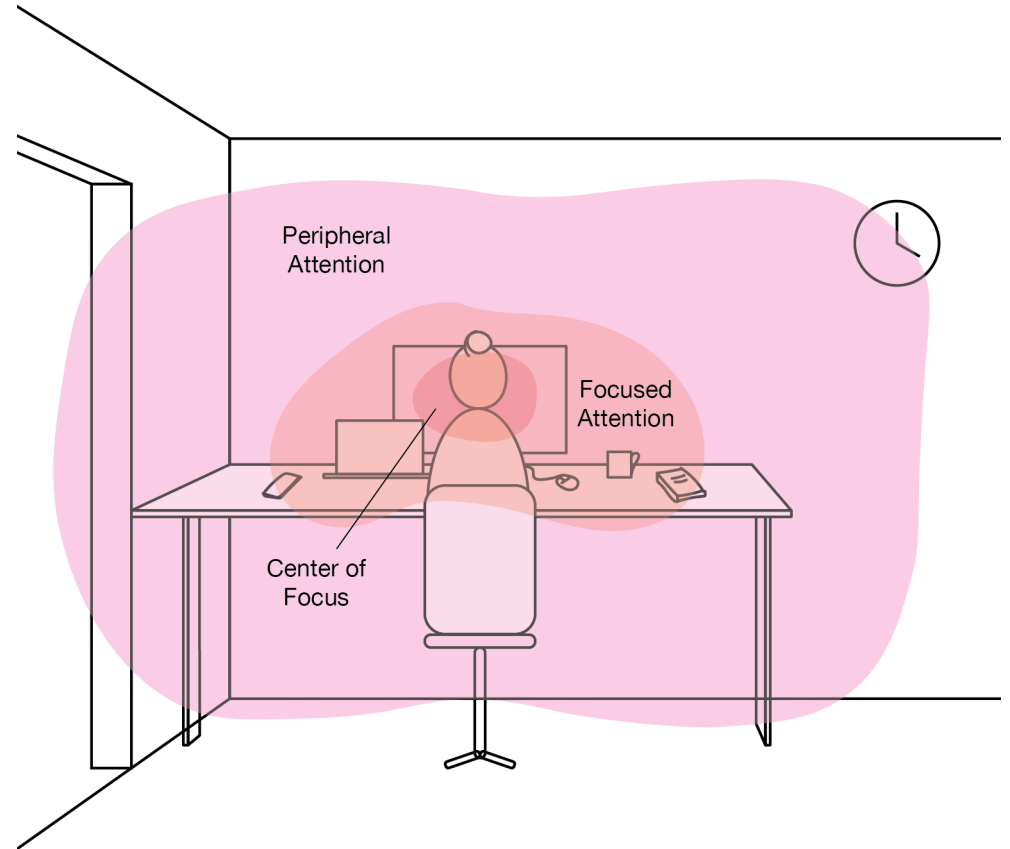
technology competes to be in the centre of our focus, it creates an overburden on the centre of our attention, while our peripheral attention remains largely free. (6)

Humans have evolved to have a huge capacity for peripheral attention. Reacting to environmental cues was central to survival and so, humans have developed finely tuned ways of attuning to the environment and reacting to tiniest of sudden changes happening in the “corner of the eyes”.

Therefore, removing information from the centre of our focus and putting it in the periphery informs while freeing up our attention and thereby, creates calm, without compromising the quantity of information we have access to.

Therefore, for technology to create calm, it must engage both the center and the periphery of our attention, and in fact, be able to move between the two, and it’s the users who decide when. (6)

Calm technology is used as one of the core design principles for the project, moving forward.



Attention is a Limited Resource

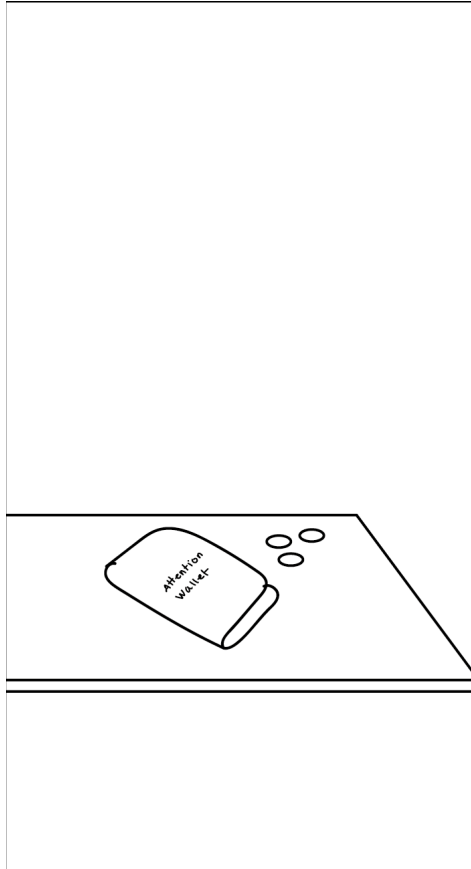
Michael H Goldhaber, in his 1997 Wired article writes that “attention is a limited resource and a person has only so much of it”. His research shows that our brain’s capacity for attention is limited. (7)

Bruce Sterling in his book, Shaping Things also says that to think about things, talk about things, pay attention to things and be entertained by things, we pay a price in our personal brain power. (8)

That price is attention.

So, if we have to spend some amount of attention for every task we perform, we might not have enough left for all the activities we need to do. Therefore, attention can be thought of as a currency.

Smartphone notifications, chats with coworkers, emails, etc, all require us to spend attention. Moreover, many small interruptions throughout the day chop our attention in smaller pieces, which causes distraction while working and leaves us mentally tired. (9)



Framing #1

How might we, take attention demanding features, out of the smartphone, into the real world, while making them less attention demanding, using calm technology?

Chapter 2

Research

This chapter discusses why the project takes workplaces as a context and then discusses the issues related to interruptions at work.

The chapter further introduces the second framing for the project, elaborates on the research methods and enumerates the findings from this research phase.

Arriving at a Context

Even though the framing was actionable, it was still too broad and lacked context. So, in the early phase of my research, in order to find possible contexts which could be interesting to explore further, I quickly mapped out how smartphone interruptions happen in different real life situations.

In order to do that, I asked a set of people, including students, doctors, designers and engineers to reflect on situations where smartphone notifications bother them.

Also, I conducted preliminary desk research related to interruptions from smartphones in different contexts.

In addition to that, I observed myself to find out when getting notifications bother me.

Findings

Responses indicated that people find smartphone notifications to be bothersome mostly, while they are with other people. Notifications were not considered to be an issue when people were alone

“I don’t like when I am talking about something and my girlfriend starts to use Instagram” - Student, 26

“When I am in a meeting, getting a text is embarrassing when I forget to put the cell on silent” - Software Engineer, 27

“It’s funny when someone at work starts getting emoji texts, while their computer is hooked up to the projector.” - Project Manager, 32

“It is very distracting to continuously keep receiving texts when I am with a patient, because I can’t switch off my work phone ever.” - Doctor, 60

“Unimportant calls from the hospital is a huge disturbance when I am at home or trying to sleep” - Doctor, 60

“Sometimes when I am almost asleep, a notification wakes me up. Even if I don’t check the notification, it breaks my sleep.”

- Student, 22

A research reported that smartphone usage is related serious to addictive behaviours, most notably in the context of sleep, driving and while at work. One of the many stats says, on an average, people touch their phones 2617 times a day and the top 10% of them do it 5427 times! (10)

I noticed that in my smartphone use, I get bothered the most from smartphone notifications, when I am at working as I always have the phone in my pocket. When I am home, I rarely have my phone with me.

Workplace Context

Based on the responses and the findings from this brief exercise, I found the context of workplaces to be most interesting as it presented the most varied set of challenges.

That’s why I chose to proceed with workspaces as my context.

Evolution of Workplaces

About 250 years ago, before the industrial revolution began, people worked mostly as farmers, craftsmen, traders and artists and they worked mostly from home. The industrial revolution brought the concept of factories and they became the new workplaces.



Factories were laid out, usually, in the form of wide open floor spaces with machinery where workers worked, and a few rooms, usually on a higher floor, from where owners and managers of the factory could keep an overview.

The rapid growth of material industries led to the information industry. Work such as accounting, insurance and banking were conceived as factories for information and this reflected in the design of workplaces.



The office, resembling other factories, was designed as a grid of many workers, doing measurable and comparable work in an open space under a roof, surrounded by managers in private offices. This was the beginning of the open-plan office.(11)

The open plan office was considered too noisy, distracting and lacking in privacy. The solution to this problem came in the form of the Action Office, by made by Herman Miller and designed by Robert Propst. (12)



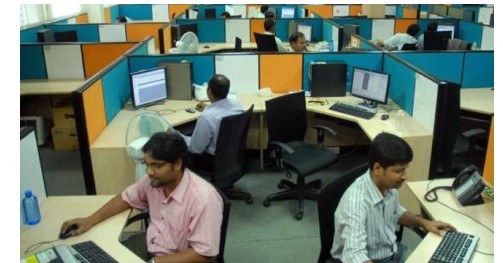
Propst was among the early designers to recognise that computers will automate routine tasks and leave workers to do “tasks of judgement”. To enable mental fluidity, he designed the space to give workers freedom to move. It was highly appreciated when unveiled, but failed as it was much more expensive than rows of desks. Propst’s answer to that was the action office II, a much cheaper, yet highly flexible and modular “individual” workspace.



Action Office II became extremely popular and led to many, even cheaper duplicates. And along the way, the walls became rigid and high and the quality reduced to bare minimum - and that gave us the cubicle.

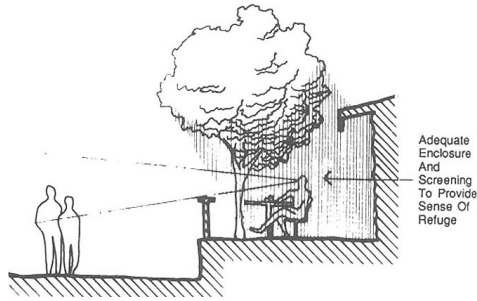


In a cubicle, every individual knowledge worker had a desk, a computer, a phone, a chair, a set of drawers and was enclosed within four walls which were of shoulder height. This is still how an office looks for a majority of people.



Bigger cubicles, called bays, which sits four people are the most common workspaces across Asia.

Prospect and Refuge



The theory of prospect and refuge (13) says that humans feel most comfortable in spaces which afford both prospect, that is, an overview of who is approaching and refuge, which is, a place to stay hidden.

This is related to human evolution where a cave was considered to be “good” if you could see predators approaching from a distance and at the same time be protected from the elements.

Research shows that the level of stress increases in spaces which do not provide adequate prospect and refuge.

“We used to think that cubicles are bad. Now we know they are.” - Scott Wyatt, Architect NBBJ (in a TEDx talk) (14)

This is one of several reasons why cubicles, especially, the ones with high walls are so stress inducing and detrimental to health. (14)

This brings us back to open plan offices.

The Open Office

Open plan office is the most type of office across US, UK and Europe. (15) One of the reasons for this popularity is that, removing space dividing walls in an office allows more people to fit in a limited space, which results in huge financial savings.

Also, many office managers believe that, as walls disappear, people come out of their private office or cubicle silos and face to face interactions increase.

Moreover, within a company, when everyone can see everyone else, it's easier to build culture and feel more social.

These reasons, in addition to the rapidly increasing real estate prices have made open offices the go to choice for office planners and the open office has become the most common choice of workplace layout.

Reality of Open-Plan Offices

However, research has shown, that even though humans thrive in community, we

need privacy while working. Our cognitive performance and work experience suffers when our workspace lacks privacy.(14)

Moreover, in reality, removing walls may not necessarily increase face to face communication. A Harvard research, which looked at two companies in transformation from cubicles and private offices to open plan offices, found that, face to face interruptions fell by over 70% and was replaced by digital communication.(16)

The research further suspects that the concern of bothering other people while speaking to a colleague in person in an open office, may be one of the reasons why people switched to digital communication. (17)

Interruptions at Work

Face to Face (F2F) Interruptions

“Hey, do you have a minute?” Being able to talk to coworkers and being social is a very important part of work, for many people.

However, untimely face to face interactions, may also sometimes break a worker’s focus and in doing so, it becomes an interruption.

Face to face interruptions are the most common and usually, the most disruptive form of interruption in an office and at the same time, they can be the hardest to avoid. (18)

Signalling, that you are not available for a conversation is the most common way of avoiding F2F interruptions, followed by social rules specific to workplaces. (18)

However, these methods aren’t guaranteed to filter all face to face interruptions.

Digital Interruptions

The next most common form of workplace interruption is digital interruption and it can happen through smartphones, laptops, smartwatches and various other devices, which may be a vital part of someone’s workflow.

According to a rescue time survey, the most common ways of dealing with smartphone interruptions, among the users were - managing notification settings (44.5%), do not disturb mode (28.71%) and scheduling heads down time (23.03%).(18)

However, it should be noted that the survey tracks people who already use Rescue Time and therefore, most probably are already wary of interruptions at work.

From an interview with a software engineer, I found that - not knowing if a message

is urgent or not keeps users in a constant state of interruption. This was verified in an observation where the UX designer being observed had Slack open on a laptop while working on a bigger screen, and was constantly glancing at it.

Self Interruption

Interruptions aren’t only caused by external sources, but could be self initiated as well. This kind of interruption is called Self Interruption and was initially described in a 2009 CMU research.(19)

When a person is in deep concentration while working and because of no external reason, suddenly gets distracted and wanders off work, it may be referred to as self interruption, and usually happens on a digital device.

Gloria Marks, another researcher working with interruptions at work, believes that self interruption is caused by lowered attention span resulting from long term smartphone use. (9)

However, self interruption may also be a

result of low mental energy levels, which leaves us less capable of fending off distractions. This finding comes from one of the responses in the culture probes (discussed later) where the respondent reported interrupting herself because she was either tired or hungry, multiple times.

Meetings

Meetings are a very common part of a work day and they can be great for many things.

However, meetings, especially impromptu meetings can be quite disruptive to work and may affect many people at the same time. So, if in a team a meeting disrupts the work of half the people, it may cause a considerable setback to the overall work.

Jason Fried of 37 Signals points out in his book - Rework that a one hour long meeting involving ten people is actually a ten hour long meeting. (1)

Responses from probes and user interviews have reported multiple times that a meeting caused them to not be able to complete their most important goals for the day.

Not Taking Enough Breaks

Research shows that taking regular breaks which distance the mind from work, has a positive effect on the overall quality of work and helps improve satisfaction with work. (21)

Dividing the workday into regular cycles of work and breaks helps in having a zoomed in, task level view and then a zoomed out, overall goal level view. Therefore taking regular breaks ensure that a worker does not get stuck on a task for a long time, without considering the overall impact of that task on the bigger goal. This helps in structuring of work and gives workers a sense of control over their work.(21)

Not taking enough breaks at work and staying in one posture for an extended period of time has a detrimental effect on work, health and satisfaction. (21)

Not taking enough healthy breaks leads to drop in mental energy levels and morale which leaves us open to distractions.

Lack of Privacy

Humans need privacy to work effectively. In an open office landscape, workers lose their sense of privacy if their screen is visible to others. (14)

The feeling that you are being watched increases the stress level and a pressure to perform.

Moreover, sitting and working close to a space where there is a continuous movement behind you, for example sitting with your back towards a corridor, causes continuous interruption and induces stress. (13)

This relates again to the theory of prospect and refuge. Having your back towards a passage provides neither prospect nor refuge and leaves you feeling vulnerable. (13)

Visual and Audible Noise

Human vision is finely tuned to detect the tiniest of movements in the surrounding. In fact, parts of the eye and the brain have specifically evolved to detect sudden movements and they work independent of vision. (22)

In addition to communication, humans use sound for establishing a sense to location in a space. This phenomenon is called Echolocation. (23)

However, humans have also evolved to attune to ambient visual and audible noise. It is because, from an evolutionary point of view, detecting change in the surrounding is much more valuable than understanding everything happening around you. (22)

Therefore, irregular audio and visual noise in a space is extremely distracting and stress inducing. Moreover, the body's natural reaction to that is flight, or to run away. So, staying stationary in a noisy environment is especially stressful. (23)

Disconnect from Nature

The natural space for humans is outdoors, in nature. Being in nature feels reassuring and reduces stress, while increasing cognitive performance. This is because, humans have evolved to be in close contact with nature and especially trees. (13)

Trees and greenery signals to humans that there is food and water around and so, green spaces feel reassuring. On the other hand, dark and vegetation less spaces signal humans to move in search for greener spaces.

This phenomenon is known as biophilia and research has shown that nature has an incredible impact on wellbeing. (14)

Within the context of work, what this means is that increasing visual, auditory, tactile and olfactory connection to nature in an office may contribute positively to wellbeing.

In practice, it could be plants in the office, a view of trees from the windows or a sound of birds or a stream, which may increase connection to nature in an indoor space.

Effects of Workplace Interruption

In general, interruptions have a negative effect on work and job satisfaction of individual workers.

Moreover, interruptions affect the quality of work. A 2013 FSU study found that the probability of making an error increased 28% after receiving a phone call and 23% after receiving a text message.(24)

Another research found that it may take up to 20 minutes to get back to where you were after being interrupted. (25)

Workers feel that interruptions at work reduce the feeling of accomplishment in a work day, which over time detrimentally affects overall job satisfaction. (2)

That being said, not all interruptions are bad. Not interrupting someone can also be expensive sometimes, for a company.

Moreover, it should not be overlooked that workplaces are social spaces as well and an office where no one talks to each other can be a very sad place.

Nature of Work is Changing

Traditionally, office work has been repetitive, predictable and formulaic. Therefore, it was easy to compare workers on absolute terms and measure their productivity.

For example, in a data entry job, accuracy and speed of the entry, in relation to the total amount of data entered could be used to compare two people, or averages could be used to predict how many hours will be required to complete a certain job.

However, work is changing. Work that can be automated, will be automated as the price of computing is getting lower and the standard of living (and so the salaries) is increasing.

However, work that is not based on formulas, that is, work which requires creative thinking, imagination, empathy, deep understanding of other humans, etc is hard to automate. Therefore work will become more and more creative, with time.

And these qualities are difficult to measure on absolute terms. For example, it's not

possible to say Jack is 90 units more innovative per hour than John.

Innovative companies, such as Google hire the best talent in the world and try to provide an atmosphere where any ideas they may come up with, can be pursued further.

Moreover, a small spark or a breakthrough can have a massive financial impact. In situations such as this, measuring human productivity can be quite moot.

I believe that the workspaces which aim to foster a culture of innovation need to measure how easy it is to innovate in that space.

This means that workspaces need to let people be more innovative and creative and facilitate exchange and mix of ideas, sparks of creativity and increase of knowledge and experience between people.

In other words, offices need to start being judged on how “nice” it is to work there. (26)

Prioritizing Experience Over Productivity

During the course of the research, many of the studies on workplace interruptions that I came across were conducted with a goal of increasing efficiency and productivity to “get more out of” an individual worker.

Though measuring productivity of an office space can be quite valueable, I believe that while chasing productivity and profit numbers, the focus may shift away from individual experiences of workers.

And as the nature of work is becoming more creative, I believe, designing for good work experience, happiness, creativity and innovation has more value than designing for productivity.

Framing #2

Previous Position

How might we,
take attention demanding
features, out of the smartphone,
into the real world, while
making them less attention
demanding, using calm
technology?

***How might we reduce
interruptions at work, using
calm technology?***

Round 1 Sketching

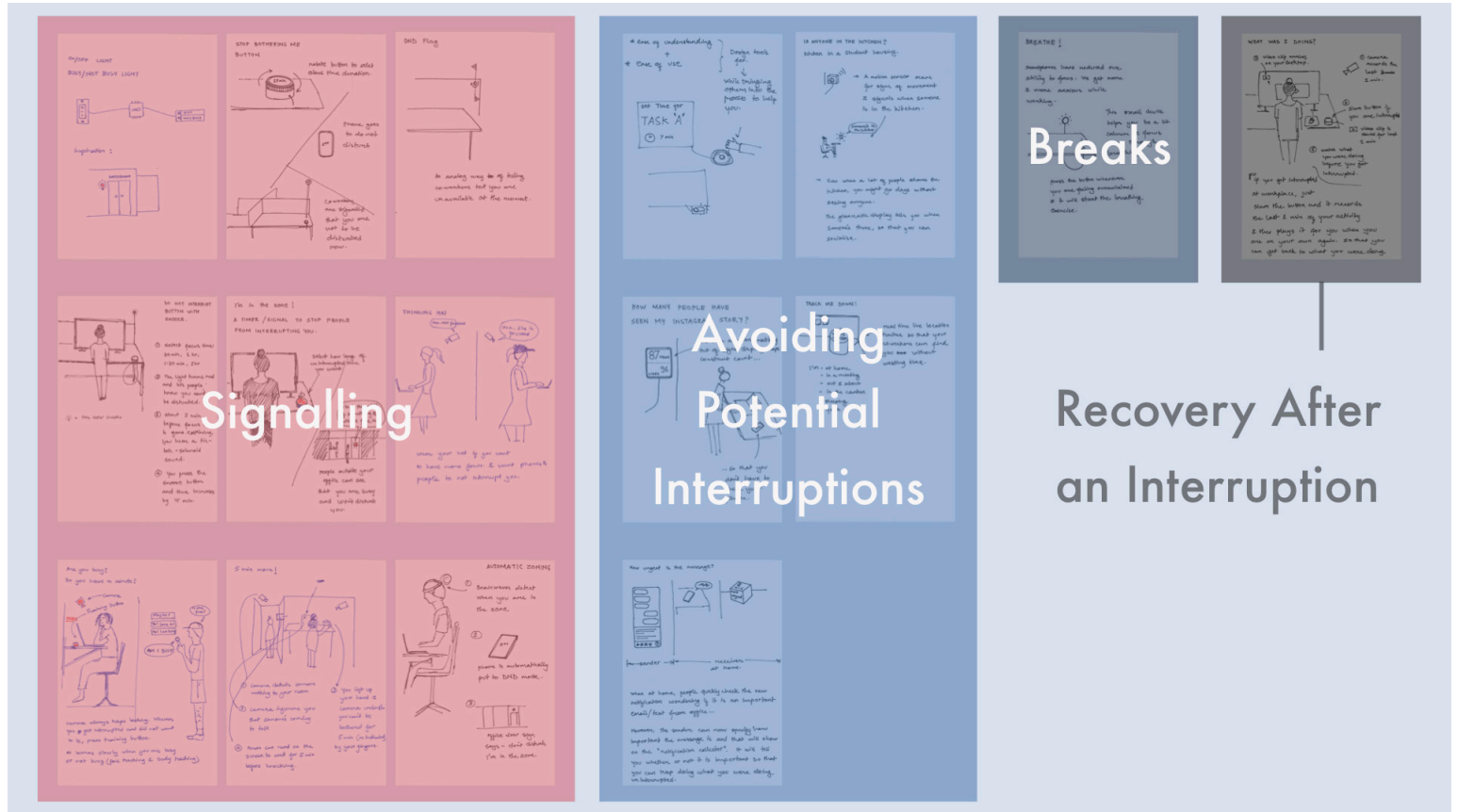
It was important to do a quick round of sketching to distill the findings from the initial desk research phase into something more tangible, before moving on to further research, in order to avoid getting stuck in long stretches of research.

Therefore, the findings from the initial desk research phase were collected in an archive which could grow with new findings.

Results from Round 1 Sketching

Taking a zoomed out view of the sketches, revealed bias towards specific issues. Also, subjective evaluation of the sketches with peers and mentors hinted that the ideas may be too superficial and not explorative and the project could benefit from a more nuanced understanding of interruptions at workplaces.

Therefore the next part of the research was aimed at finding nuances within the areas already researched rather than looking at new areas.



Observations

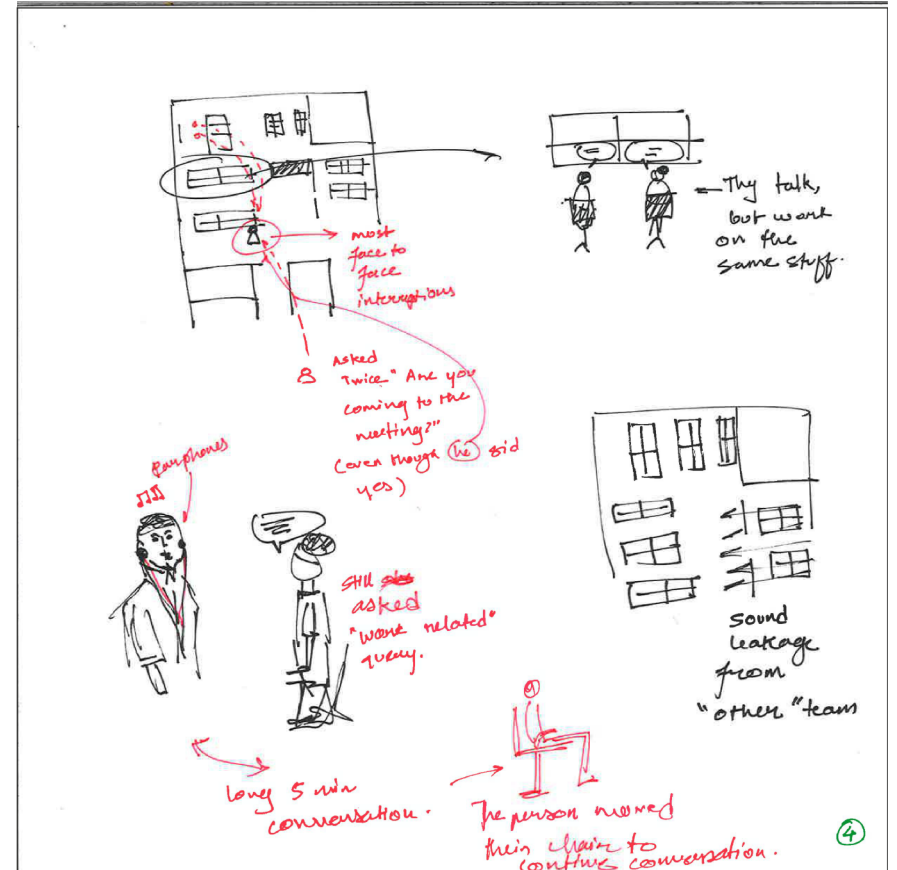
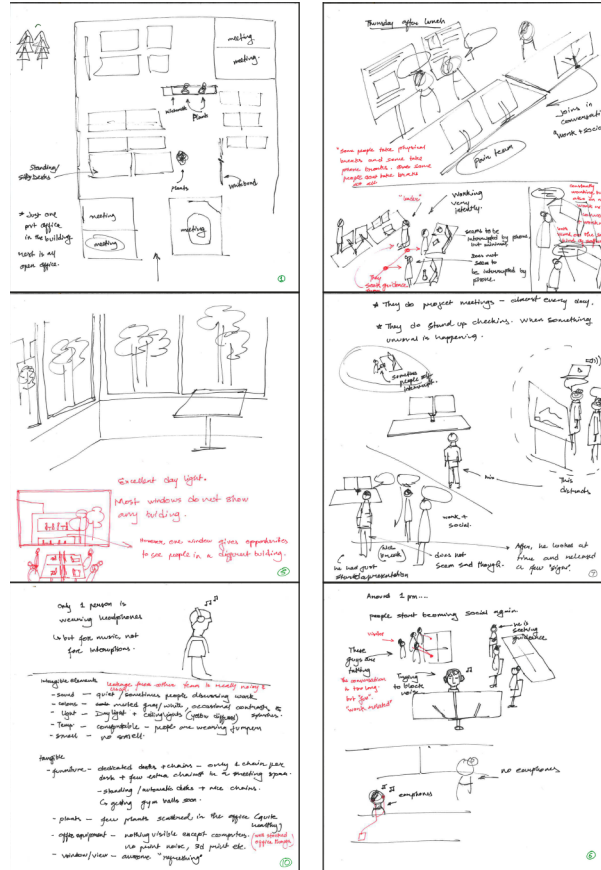
To gain a nuanced understanding of how different kinds of interruptions play out in the real world, two full day observations were conducted.

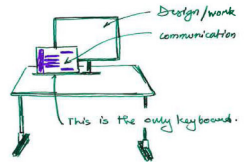
#1

I spent a full workday with the DSI team of TechnipFMC at Lysaker where I was given a desk to work from and it served as my vantage point. I took part in meetings and observed the social interactions within the whole team, which included, designers, programmers and managers.

#2

For the second observation at Pioner Labs, I took a more distanced approach where I made an effort to not affect the workplace in any way. In this observation, I stayed focused on one worker, a UX designer and I shadowed her for the entire workday, from a desk next to her desk.





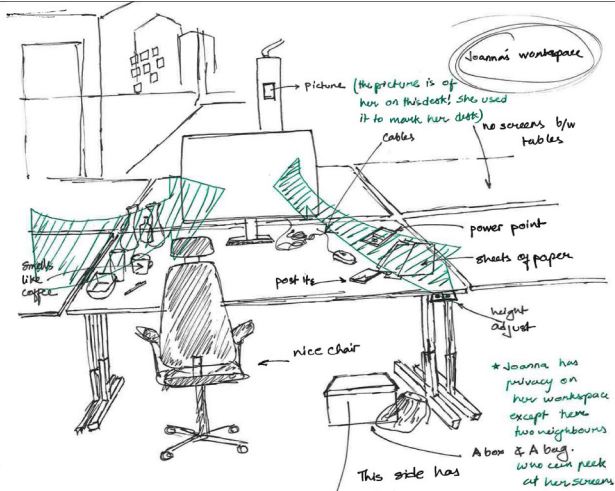
side note: Joanna has formed a community at work. She speaks Polish with her team lead and also with so many of her coworkers.
 - Joanna has great communication with her team as she can speak in Polish with them.
 - however, Joanna also is very comfortable in other languages.

When Joanna uses the big screen, she uses her laptop as her keyboard. However, the laptop screen has some channels open. This page keeps her constantly on the touch with some Slack - this generally keeps interrupting her.



13. At (13:40) - looking at maps... for work... (public alarm)
14. At (14:15) coworker interrupted with a movie trailer... At 16:00 a previous coworker came upstairs (she came to hang around)...
10. At (15:40) coworkers speak again but Joanna is wearing headphones. She does not hear. 4 min
11. but then she asks if he said anything...?
12. puts on headphones, sips coffee... continues work.

3. she then goes on to have cheerful conversation
4. they talk for about 5 minutes and then walk to the kitchen maybe? they bring coffee... (15:30)
5. The conversation continues...
7. (15:36) The conversation subsides and they settle back into their screens. Joanna is still on slack btw...
8. (15:38) puts on headphones... sips coffee & gets to work...
9. (15:40) settles into work.



* from her workspace on the 4th floor, Joanna can't see any trees/plants.
 * her work travels with her on her laptop and her desk has a few jars, a tray of 3 cups of coffee, some water.
 * she has a screen. She has a picture of herself.
 * Joanna can see only buildings and meeting rooms.
 * she also sees people pass by in front of her.

Findings From Observation

1. Non work related digital interruptions from work channels is more distracting than from non work channels.
2. The importance of indoor plants and views of nature is recognised in the offices which were observed.
3. Not knowing if a notification is urgent keeps workers constantly distracted.
4. People might get interrupted for the exact same thing multiple times throughout the day by different people.
5. Wearing headphones to signal unavailability is widely followed, but doesn't stop work related interruptions.
6. Workers hardly ever get more than 15 min of uninterrupted time.
7. Not all interruptions are bad. Face to face interruptions are a way to take breaks as well.
8. Interruptions follow a time cycle. There are times of high and low interruption.

User Interview

To gain a better understanding of what effect different work environments have on the experience of workers, I interviewed three people who had experience of working in different types of workplaces.

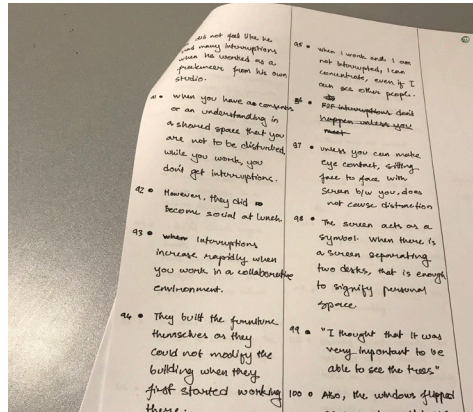
The set of people interviewed included a photographer, a manager of a coworking space and the head of a film based advertising studio.

The aim of these interviews were to gain new broader insight and so, the interviews were loosely structured. The common questions included the kinds of workplaces the user has experience in and how would she compare her experiences of working from those workplaces.



Findings from User Interviews

1. People tend to forget taking breaks while working alone.
2. Having pre-decided rules in a shared workspace is very effective to counter distractions.
3. Large computer screens create enough separation between desks and creates sufficient privacy.
4. Music is widely used as a way to concentrate and fend off distractions.



Self Ethnography

To quickly compare different kinds of workspaces and the effect they have on work, I observed myself at work from different spaces such as cafes, coworking spaces, libraries and the design studio space.

Self ethnography or autoethnography is a form of qualitative research which a researcher may use to study a user group in which that user may be considered as an established participant.

Field Trip

To learn more about the history of work, I visited the special exhibition, Clever Hands, at the Workers museum in Copenhagen, about people who worked with hands.

I gained an understanding of work from a historic point of view and an appreciation of how work is now compared to how it used to be.

Findings from Self Ethnography

1. Noise does not bother me, if it is not too pronounced and has no relation to me.
2. People being able to see my screen bothers me.
3. Unusually quiet places where there is no sound whatsoever was not at all comfortable to work in.
4. Music has a deep impact on my work. Music with lyrics was distracting, while electronic music in a wide open space (MESH Coworking) helped me concentrate.

Findings from Field Trip

5. Work conditions have improved drastically in a very short span of time.
6. Work and workplaces are in a constant change.
7. The importance of breaks has been recognised since a long time.

Culture Probe

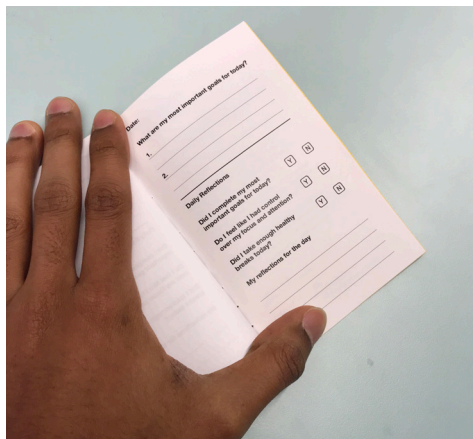
To gain a nuanced understanding of how people get interrupted, how frequently, in what situation and how the interruptions affect work, 20 culture probes were produced, of which 15 were sent out and the results from 6 of those returned.

Culture probes are a great way to cover a large ground while not being physically present. Moreover, it allows users to reflect on the questions and tasks in their own time. Another great thing about probes is that they are physical artefacts that can be personalised and kept by the user and help them reflect on their responses.

About The Probe

The probe was divided in two parts - one to log interruptions and another to track effect of interruptions at work and reflect on the day.

There was space to log 20 interruptions and reflect on 4 days of work.



Date: _____

What are my most important goals for today?

1. _____

2. _____

Daily Reflections (end of workday)

Did I complete my most important goals for today? Y N

Do I feel like I had control over my focus and attention? Y N

Did I take enough healthy breaks today? Y N

My reflections for the day

Every morning, before the work day begins, write down two most important goals for that day. After the work day ends, fill in your reflections for the day.

This will help me understand how interruptions affect your work and hopefully, will also help you reflect on your work day better.

Before I got interrupted, I was...

How did I get interrupted? (mark and explain)

Face to Face Self Interruption

Smartphone Other

Time: _____ **Date:** _____

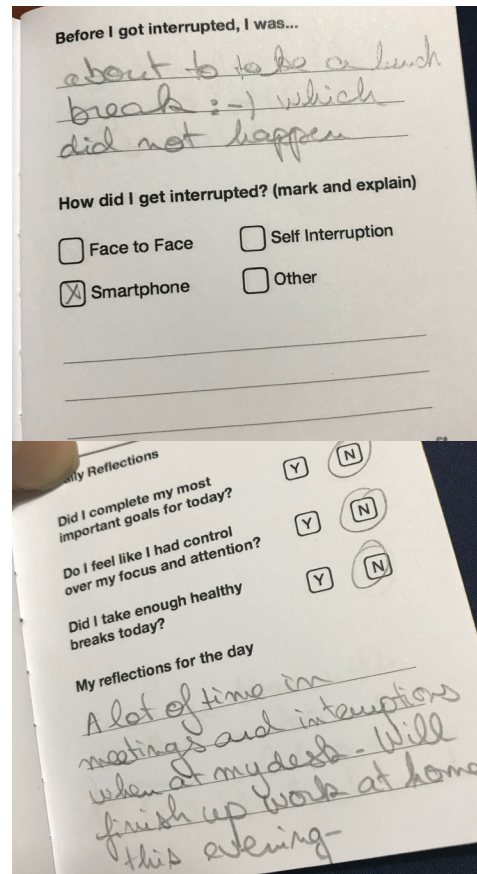
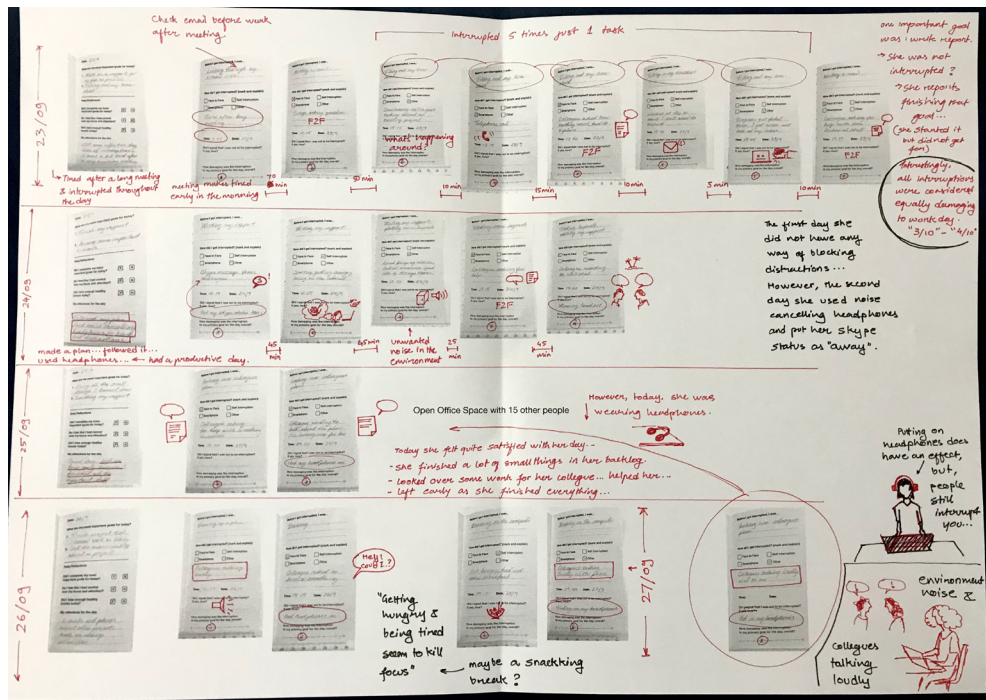
Did I signal that I was not to be interrupted? If yes, how?

How damaging was the interruption to my primary goal for the day, overall?

0 | | | | | | | | | | | | | | | | | | | 10

Every time you get interrupted, fill in this sheet. The first part would help me understand when people think they may interrupt you and might help you get back to what you were doing faster.

The rest will tell me what kind of interruption you face at work, and how often.



Findings From Probes

1. Meetings tend to be extremely disruptive to the goals and plans for the day.
2. Meetings leave people tired and it may take up to an hour to get back to working.
3. Interruptions cause delays and come in the way of finishing daily goals. Workers skip lunch and work in the evenings from home to catch up.
4. Face to face interruptions are overall the most disruptive to work.

Findings About The Probe

The probes themselves were quite distracting. They took a small interruption and made it big by forcing people to record it. However, users reported that the probes made them more aware of the interruptions around them. Some users made changes to the way they work, for example, bought noise cancelling headphones or started setting their phones to do not disturb.

All Findings Grouped

Taking Breaks

Taking good breaks positively affect productivity and are extremely important for mental wellbeing.

Face to face breaks feels more refreshing just after the break. However, digital breaks felt more refreshing at the end of the day.

Breaks heavily impact overall health and mental wellbeing. However, the breaks need to take your mind off work to be most effective.

Physical movement and exercise reduces stress and increases cognitive performance.

Physical Work Environment

Biophilia - closeness to nature reduces stress and increases cognitive performance.

Access to trees and nature causes rapid decrease in cortisol levels, heart rate and breathing irregularity and heart rate.

Loss in privacy or the feeling of it reduces cognitive performance & productivity and increases stress.

Ambient noise, chatter and visual noise creates a sense of loss in privacy.

Physical work environment has an immense impact of cognitive load, stress and emotions of workers.

High ceilings increase conceptual thinking ability. Low ceilings increase computational thinking ability. Blue ceilings increase creative performance.

Great work environments provide both prospect and refuge. Cubicles don't provide any of these. Open-plan offices generally, do not provide refuge.

Our senses are multi-modal. When we see surfaces, we are also imagining how it feels to touch, lie down on, interact with it etc.

We use sound to communicate but also, to locate ourselves. Echolocation provides a sense of bearing. Noisy and confusing places result in increased stress levels.

"Can you hear how loud is the air conditioner? Now you can!" We attune to ambient signals in our periphery easily.

Creativity is essentially an individual activity rather than collective. Voluntary and temporary solitude and isolation increases creative performance.

In US, 23% offices are fully open-plan and 46% are a combination of private and open-plan.

In London, 49% offices are open-plan because of high property costs.

Work performance increases in a flexible workspace which can be modified depending on the task.

Social Work Environment

Signalling is a way of keeping face to face interruptions at bay, however, they are not always guaranteed to work.

Exposure to new people and making new relationships increases cognitive performance.

Ringelmann Effect - individual performance goes down as the group size increases.

66% executives believe that their workers have tools against distractions, but, only

33% workers agree.

Workers use headphones to signal that they can't be interrupted. However, people in headphones still get interrupted. It is worse with earphones.

People get interrupted multiple times throughout the day about the exact same thing.

When workers feel ownership of their workspaces, work performance and satisfaction increases.

Having a previously agreed on consensus in a shared workspace has profound impacts of workspace interruptions.

Routines and rituals in a workspace have profound impact on work performance and the feeling of fulfilment.

Only 40% of interruptions at workplaces are work related.

Attention and Cognitive Load

Smartphone is a "notification nightmare."

Attention is a limited resource. It is a currency.

Every activity comes with an opportunity cost.

As products turn into services and systems, they become incomprehensible. We need representative design to cope up.

People work with 12 work spheres at the same time and usually switch between them every 10.5 min, on average.

It may take up to 23 minutes and 15 seconds, after an interruption, just to get back to where we were.

Most technology at work engages the centre of attention. Peripheral attention is under utilised. Information in the periphery does not increase cognitive load.

When external interruptions go down, people start self interrupting.

Continuous exposure to smartphone use has resulted in lowering of the average attention span.

When email was taken away, focus time on one task increased, task switching rate and overall stress level decreased.

When distraction blocking software was used, focus,

immersion and time awareness increased, while enjoyment and sense of control decreased.

When distraction blocking software was used, productivity in low self control workers increased, while in high self control people, productivity decreased.

Face to Face Interruptions

64% workers believe the most common interruption at work happens face to face.

43% of the people working from home get interrupted face to face.

51.2% workers believe face to face interruptions are the hardest to ignore.

48.26% people use headphones to avoid face to face interruptions. 20.19% tell others beforehand that they can't be interrupted.

Digital Interruptions

44.5% people manage notification settings, 28.71% use do not disturb mode

and 23.03% use scheduled head down time, to deal with smartphone interruptions.

Probability of making an error increased by 28% after a phone call and 23% after a text message notification. FSU study.

People get interrupted much more after receiving a non work related notification from work channels compared to other channels.

Rate of digital interruptions rapidly increases with the increase in the number of communication channels.

Smartphone Habits

Average users unlock smartphones 150 times a day.

Average user spends 2hr 51min a day looking at a smartphone screen.

Average user touches the smartphone 2617 times a day, the top 10% do it 5427 times.

40% users wake up and check smartphone in the middle of the night.

66% people have nomophobia.

71% people sleep next to their smartphones.

More than 50% people never switch off their phones or put it in airplane mode.

80% people check smartphones within 1hr of waking up or going to bed. Top 33% of them do so within 5 minutes.

Work Is Changing

More than 150 million people work as freelancers across US and Western Europe. Home is the most popular workspace choice.

Interruptions are Expensive

Jonathan Spira, author of "Overload!" estimates that interruptions cost up to 28 billion wasted hours a year, at a loss of almost \$1 trillion to the U.S. economy.

Chapter 3

Synthesis

This chapter discusses how the findings from the research phase were processed to arrive at a few “How Might We” questions, to be used in the ideation phase.

Initial Grouping

The findings from the primary research phase were externalised to post it notes and were transferred to walls for grouping and sorting.

The findings were arranged and rearranged and finally grouped in 9 groups :

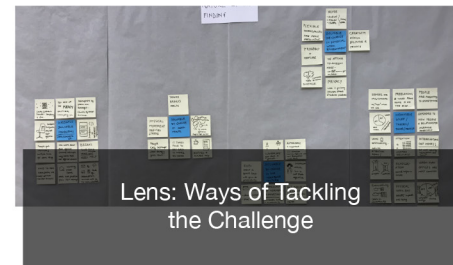
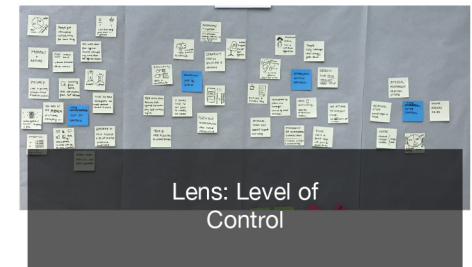
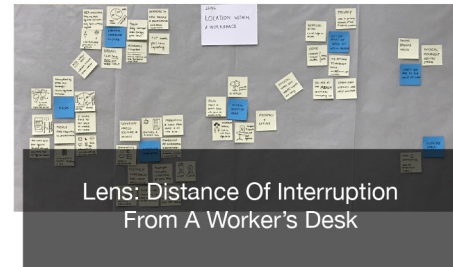
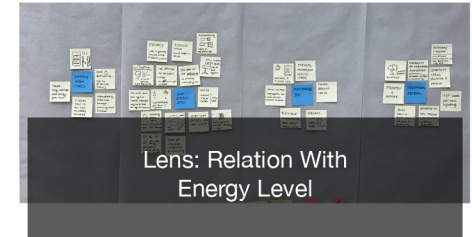
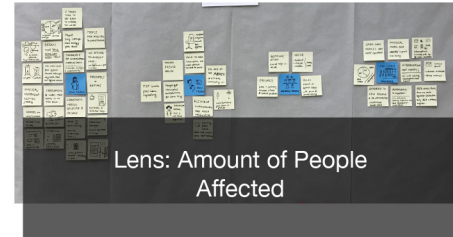
- a. Taking breaks
- b. Physical work environment
- c. Social work environment
- d. Face to face interruptions
- e. Digital interruptions
- f. Smartphone habits
- g. Attention and cognitive load
- h. Changing nature of work
- i. Interruptions have a cost

Pattern Finding Using Lenses

The long, intense and broadly scoped research phase yielded a large number of interesting findings, which were quite dissimilar in nature.

Because of the difference in the nature of the findings, the patterns were not apparent. Therefore, to uncover challenge areas, the findings were looked through a variety of lenses, to force groupings.

This way, interesting patterns emerged which guided the project towards ideation phase and informed what considerations to take, further in the project.



Lens - Ways of Tackling the Challenge

Directly Tackled
Using apps or Gadgets

Handwritten notes on sticky notes:

- YOU ARE AT THE MERCY OF OTHERS interrupting you
- Interruptions by phone one moment... chaos of other devices...
- Directly Solvable Problems Apps/Gadgets
- People get interrupted multiple times for same thing
- Non-work email from official channels interrupting way more than non-official channels
- BREAKS THAT TAKE MIND OFF WORK HELP
- FACE TO FACE Interruptions are most common hardest to avoid
- Working from home does not protect from P2P interrupt
- Interruptions increase with no. of comm. channels

Indirectly Tackled
By Changing Work Habits

Handwritten notes on sticky notes:

- TAKING BREAKS HELPS
- PHYSICAL MOVEMENT REDUCES STRESS
- SOLVABLE BY CHANGE IN WORK HABITS
- People self interrupt when energy goes down...
- IT TAKES TIME TO GET BACK TO WHERE YOU WERE
- ROUTINES & RITUALS HELP

Tackled By
Modification to Physical
Work Environment

Tackled Through
Change in Workplace Culture

Handwritten notes on sticky notes:

- FLEXIBLE WORKSPACES ARE MORE PRODUCTIVE
- PROSPECT + REFUGE
- BIOPHILIA
- Autonomy is important... Individual part goes down in groups...
- RULES About a space help with focus & productivity
- SOLVABLE BY CHANGE IN THE WORKPLACE CULTURE
- Ownership of workspaces is important... increases satisfaction & productivity
- 66% agree that there are tools against distraction, only 32% working agree...

Handwritten notes on sticky notes:

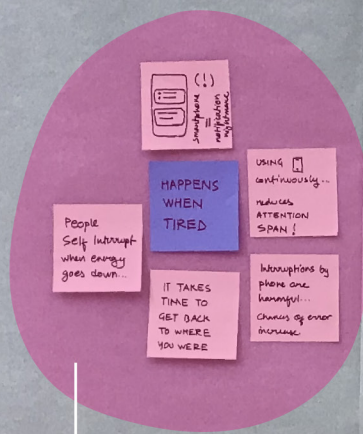
- NOISE - Ambient - Visual - Chatter
- WE ATTUNE TO AMBIENT NOISE - but ~~we~~ humans get distracted...
- PRIVACY - Less in priority for many, stress & reduces productivity
- CREATIVITY NEEDS SOLITUDE & PRIVACY

Theories Which
May be Used To Tackle
The Other Challenges

Handwritten notes on sticky notes:

- SENSES are MULTIMODAL we "feel" what we see...
- FREE LANCING & WORK FROM HOME IS ON THE RISE...
- PEOPLE ARE ADDICTED TO SMARTPHONE
- 60% VOR NON WORK
- INTANGIBLE STUFF / THEORY / THEME / PRINCIPAL
- EXPOSURE TO NEW PEOPLE & RELATIONSHIPS INCREASES PRODUCTIVITY
- USING CONTINUOUSLY... REDUCES ATTENTION SPAN!
- ATTENTION IS A LIMITED RESOURCE
- INTERRUPTIONS COST MONEY! but worse reducing interruption cost doesn't
- high conceptual low methods
- ECHOLOCATION - Sound helps us locate.
- OPEN-PLAN OFFICES ARE MOST COMMON
- Every activity costs in opportunity
- PHYSICAL WORK ENV. HELPS IMPACT HOW WE FEEL
- 46% 28% 23%

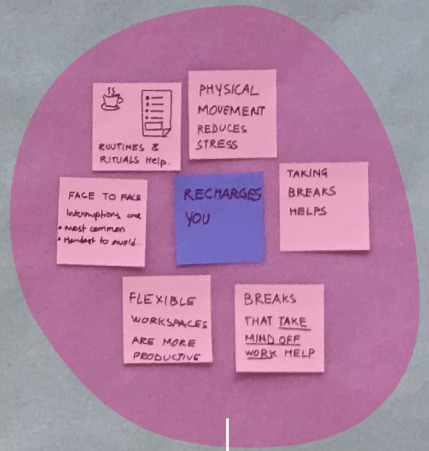
Lens - Relation With Energy Level



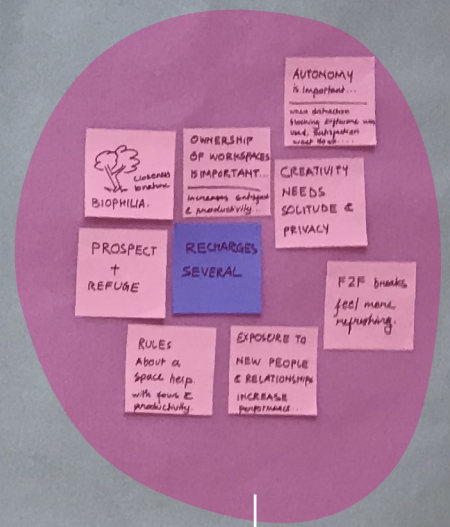
Interruptions Which Happen When Tired



Interruptions Which Lower Energy Level



Interruptions Which Recharge You



Interruptions Which Recharge Several People

Lens - Distance of Interruption From a Worker's Desk

Interruptions Related to General Work Culture

66% of execs think there are too many interruptions against their own. Only 33% of workers agree...

60% NON WORK interruptions

EXPOSURE TO NEW PEOPLE & RELATIONSHIPS INCREASE PERFORMANCE

People Self interrupt when energy goes down...

F2F breaks feel more refreshing.

AUTONOMY is important. more autonomy hearing someone on the telephone near hand.

GENERAL WORKPLACE CULTURE

BREAKS THAT TAKE MIND OFF WORK HELP

Interruptions by phone are harmful!... chances of error increase.

Individuals get down in groups.

Without email - 10 min. without - 15 min. without - 30 min. without.

Interruptions Which Happen Within Your Desk Space

DESK

IT TAKES TIME TO GET BACK TO WHERE YOU WERE

PEOPLE ARE ADDICTED TO SMARTPHONE

Non work email from official channel interrupts way more than non official channel

Interruptions by phone are harmful!... chances of error increase.

2 work sessions Rapid task switch

41.5% 28% 23%

IT TAKES TIME TO GET BACK TO WHERE YOU WERE

PEOPLE ARE ADDICTED TO SMARTPHONE

Non work email from official channel interrupts way more than non official channel

Coming up with creative responses is free

Interruptions Which Happen Within The Sight of Your Desk

WITHIN SIGHT OF DESK

PROSPECT + REFUSE

SIGNALING WORKS, but is not that effective.

WORKING FROM HOME IS ON THE RISE...

ROUTINES & RITUALS HELP

OWNERSHIP OF WORKSPACES IS IMPORTANT... increases output & productivity.

CREATIVITY NEEDS SOLITUDE & PRIVACY

EVERY ACTIVITY costs in opportunity

FLEXIBLE WORKSPACES ARE MORE PRODUCTIVE

People get interrupted multiple times for same thing

WORKING FROM HOME does not protect from P2P interrupt

RULES ABOUT a space help with focus & productivity

BIOPHILIA.

PHYSICAL WORK ENVIRONMENT helps with being

Interruptions Which Happen Within Your Immediate Surroundings

IMMEDIATE WORKSPACE

FACE TO FACE interruptions are most common + harder to avoid.

WORKING FROM HOME does not protect from P2P interrupt

OWNERSHIP OF WORKSPACES IS IMPORTANT... increases output & productivity.

ROUTINES & RITUALS HELP

CREATIVITY NEEDS SOLITUDE & PRIVACY

EVERY ACTIVITY costs in opportunity

FLEXIBLE WORKSPACES ARE MORE PRODUCTIVE

People get interrupted multiple times for same thing

WORKING FROM HOME does not protect from P2P interrupt

RULES ABOUT a space help with focus & productivity

BIOPHILIA.

PHYSICAL WORK ENVIRONMENT helps with being

Interruptions Which Happen Within Earshot from Your Desk

WITHIN EARSHOT OF DESK

PROSPECT + REFUSE

SIGNALING WORKS, but is not that effective.

WORKING FROM HOME IS ON THE RISE...

ROUTINES & RITUALS HELP

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WORKING FROM HOME does not protect from P2P interrupt

RULES ABOUT a space help with focus & productivity

BIOPHILIA.

PHYSICAL WORK ENVIRONMENT helps with being

ECHO LOCATION Sound helps us locate.

NOISE - Ambient - Visual - Chatter

WE ATTUNE TO AMBIENT NOISE - but some things get through

OPEN-PLAN OFFICES ARE MOST COMMON

YOU ARE AT THE MERCY OF OTHERS interrupting you

PRIVACY Loss in privacy increases stress & reduces productivity

OUT OF SIGHT OF DESK BUT WITHIN HEARING

Interruptions Which Happen Outside of Work

OUTSIDE WORK

USING SMARTPHONES... HELD CAN ATTENTION SPAN!

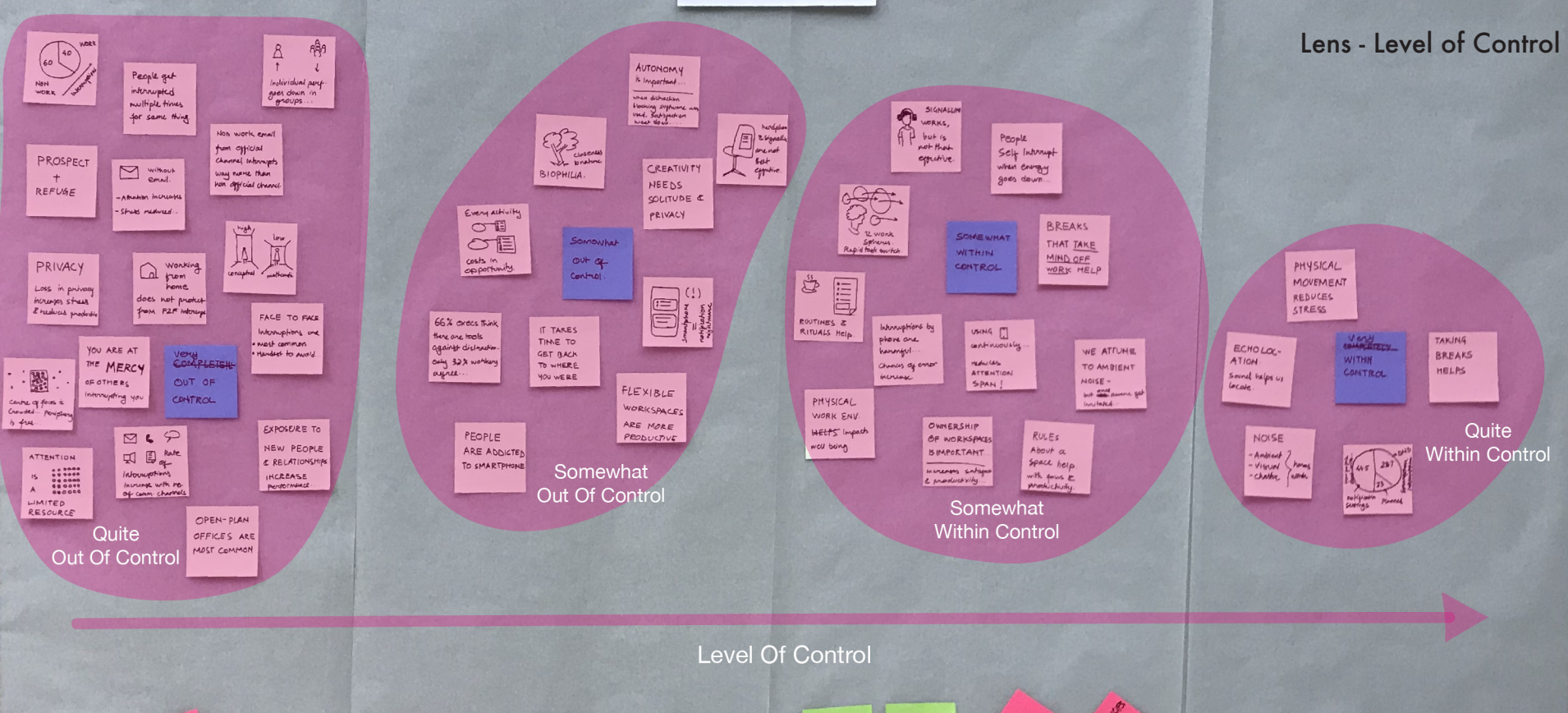
Interruptions Which Happen While On the Move Within Office

PHYSICAL MOVEMENT REDUCES STRESS

TAKING BREAKS HELPS

WHEN YOU ARE ON THE MOVE AT WORK

Lens - Level of Control



Lens - Amount of People Affected

IT TAKES TIME TO GET BACK TO WHERE YOU WERE

415 287 23 1000
 notification pinged
 10 work systems
 Rep of their work

BREAKS THAT TAKE MIND OFF WORK HELP

High
 Low
 cognitive workloads

Non-work email from official channel interrupts way more than non-official channel

PHYSICAL MOVEMENT REDUCES STRESS

FREELANCING & WORK FROM HOME IS ON THE RISE...

SENSES are MULTIMODAL
 we "feel" what we see

personal behavior
BIOPHILIA

Evening activity
 eats in opportunity

ATTENTION
 is
 A
 LIMITED RESOURCE

cause of focus is changed... performing is free

People Self Interrupt when energy goes down...

PEOPLE ARE ADDICTED TO SMARTPHONE

WE ATTUNE TO AMBIENT NOISE
 but need some get notified

OWNERSHIP OF WORKSPACES IS IMPORTANT...
 increases autonomy & productivity

PROSPECT + REFUGE

ONE PERSON

CREATIVITY NEEDS SOLITUDE & PRIVACY

ROUTINES & RITUALS HELP

Interruptions by phone are harmful...
 change of over increase

USING anti-mobility...

reduces ATTENTION SPAN!

SIGNALING WORKS, but is not that effective.

FLEXIBLE WORKSPACES ARE MORE PRODUCTIVE

Working from home does not protect from F2F interruptions

IT TAKES TIME TO GET BACK TO WHERE YOU WERE

notification signals cannot be ignored

FACE TO FACE
 interruptions are most common + hardest to avoid

YOU ARE AT THE MERCY OF OTHERS
 interrupting you

FEW PEOPLE

Individual pony goes down in groups...

WORKING FROM HOME
 does not protect from F2F interruptions

IT TAKES TIME TO GET BACK TO WHERE YOU WERE

IT TAKES TIME TO GET BACK TO WHERE YOU WERE

Interruptions Which Both An Individual

F2F breaks feel more refreshing.

People get interrupted multiple times for same thing

FEW PEOPLE

ECHOLOCATION
 Sound helps us locate.

NOISE
 - Ambient
 - Visual
 - Chatter
 home work

PRIVACY
 Loss in privacy increases stress & reduces productivity

RULES
 About a space help with focus & productivity

SEVERAL PEOPLE

WORKING FROM HOME
 does not protect from F2F interruptions

INDIVIDUAL PONY GOES DOWN IN GROUPS...

YOU ARE AT THE MERCY OF OTHERS
 interrupting you

FACE TO FACE
 interruptions are most common + hardest to avoid

TAKING BREAKS HELPS

PEOPLE ARE ADDICTED TO SMARTPHONE

WE ATTUNE TO AMBIENT NOISE
 but need some get notified

OWNERSHIP OF WORKSPACES IS IMPORTANT...
 increases autonomy & productivity

PROSPECT + REFUGE

ONE PERSON

CREATIVITY NEEDS SOLITUDE & PRIVACY

ROUTINES & RITUALS HELP

Interruptions by phone are harmful...
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reduces ATTENTION SPAN!

SIGNALING WORKS, but is not that effective.

FLEXIBLE WORKSPACES ARE MORE PRODUCTIVE

Working from home does not protect from F2F interruptions

IT TAKES TIME TO GET BACK TO WHERE YOU WERE

IT TAKES TIME TO GET BACK TO WHERE YOU WERE

Interruptions Which Both A Few People

ECHOLOCATION
 Sound helps us locate.

NOISE
 - Ambient
 - Visual
 - Chatter
 home work

PRIVACY
 Loss in privacy increases stress & reduces productivity

RULES
 About a space help with focus & productivity

SEVERAL PEOPLE

WORKING FROM HOME
 does not protect from F2F interruptions

INDIVIDUAL PONY GOES DOWN IN GROUPS...

YOU ARE AT THE MERCY OF OTHERS
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FACE TO FACE
 interruptions are most common + hardest to avoid

TAKING BREAKS HELPS

PEOPLE ARE ADDICTED TO SMARTPHONE

WE ATTUNE TO AMBIENT NOISE
 but need some get notified

OWNERSHIP OF WORKSPACES IS IMPORTANT...
 increases autonomy & productivity

PROSPECT + REFUGE

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IT TAKES TIME TO GET BACK TO WHERE YOU WERE

IT TAKES TIME TO GET BACK TO WHERE YOU WERE

Interruptions Which Both Several People

OPEN-PLAN OFFICES ARE MOST COMMON

PHYSICAL WORK ENV. "BEEPS" impact well being.

Rate of interruptions increase with pop-up-calls channels

THE WHOLE WORKSPACE

INTERRUPTIONS COST MONEY!
 but would reducing interruptions cost more?

without email
 -Attention increased
 -Stress reduced

EXPOSED TO NEW PEOPLE & RELATIONSHIPS INCREASE PERFORMANCE...

AUTONOMY
 is important...
 when determining working performance and satisfaction wear their...

66% GROSS THINK
 there are health agencies discontinue say 87% working against...

60
 WORK
 NOT WORK

IT TAKES TIME TO GET BACK TO WHERE YOU WERE

IT TAKES TIME TO GET BACK TO WHERE YOU WERE

Interruptions Which Both The Whole Workplace

Number Of People Affected

Challenge Buffet

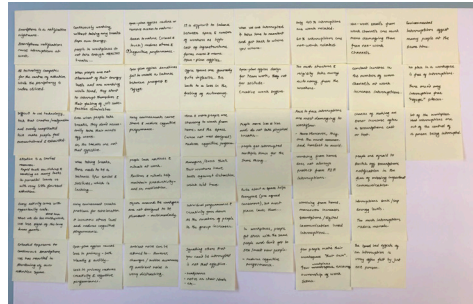
After distilling and reducing all the findings into a more concrete set, the next step was to uncover challenges spaces.

In order to do this, all the findings were reframed as challenges with work, as it looks like in the present.

These challenges were grouped together on a piece of foamboard, which I called a "tray".

Different physical contexts, including open offices, home offices, shared spaces and coworking spaces were represented on post it notes and arranged on a context "tray". And along with a "tray" for users and a tray for design considerations, it took the form of a library from where how might we questions could be generated by picking and choosing.

A separate blank "plate" with limited space for post it notes was used to gather related challenges alongside contexts, users and design guidelines, with the objective of arriving at a few "How Might We" questions.



All the findings rewritten as challenges, arranged in a random order, on the "Challenge Tray"



A few challenges (light yellow), alongside a few design considerations (green), physical contexts (blue) and user (orange) on a "buffet plate" - hinting at a "How Might We" Question (pink).

- How might we reduce interruptions from (non work related), that occur digitally
 - in open office workspace
 - faced by an individual
 - using calm & social tech?

How might we, for an individual working from home, reduce digital & F2F interruptions, free up their attention and while providing them structure that helps them get better over time, using calm technology & social tech?

How might we take better breaks, which take our mind off work, balancing b/w social & solitude, to keep our energy levels high, and making sure to move and make it routine, in variety of work environment, using calm & social tech, ~~which~~

How might we reduce ambient visual & audible noise in open plan workspaces, to increase privacy for an individual workers,
 - using calm, social and non distracting technology?
 - while providing flexibility?

How might we, make digital devices less taxing on attention, and reduce the overall complexity of digital tools, using representative design, to provide structure, reduce cognitive load and help an individual get better over time with calm & social tech.

How might we bring nature into our workspace, in a pleasing and personalised way to have a visual connection with nature, and while making it calm, social and not distracting? (for an individual)

How might we bring back control over attention and autonomy of work and workspaces to individuals working in an open plan office, by creating flexible workspaces in a calm and social way, technologically.

How might we reduce F2F interruptions & its harmful effects on work using ways like signalling, rules, providing a refuge and ~~making~~ make tools, while making it easy on attention, calm, social, non distracting and improve over time

Raw Notes for "How Might We" Questions. The edited version of these questions have been presented in the next chapter.

Chapter 4

Ideation and Reframing

This chapter discusses how the “How Might We” questions were used to generate ideas and how the prototypes helped reframe the design challenge.

How Might We :

1. Reduce, non work related digital interruptions, in an open office?
2. Make open offices more flexible and feel more personal so that workers feel more autonomy.
3. Remind workers to take breaks which take the mind off work and ensure physical movement?
4. Design good work rituals, which reduce interruptions, free up attention and provide structure working from home, to improve the workflow, over time?
5. Increase connection with nature in a workspace, in a pleasing and personal way?
6. Reduce ambient (visual and audible) noise to increase privacy, in an open office?
7. Reduce the negative impact of face to face interruptions on work, in an open office?
8. Take attention demanding features out of the smartphone and into the real world, while making them less attention demanding, in an open plan workspace?

Crazy 8

After deciding on the 8 How Might We questions, the crazy 8 method of ideation was used to come up with 64 ideas, in a short time.



Processing the Ideas

The purpose of quickly sketching 64 ideas was to cover a wide area. The ideas were, by themselves, not very original and needed further processing.

After the ideation round the ideas were put up on walls. After an incubation of 2-3 days, the sketches were ready for evaluation.

The ideas were sorted and filtered based on different high level criterias some of which were:

1. Is it interesting?
2. Is it interaction design?
3. Does it create calm?
4. Can it be manufactured?
5. Would it be easy to adopt?
6. Would it be practical within 2-3 years?

Initial Prototypes

From the library of these sketches, three ideas were chosen for prototyping.

Goals and Reflection Pad



Workers, when working from home, lose the sense of overall structure and routine at work.

Moreover, dealing with small tasks which keep popping up, distracts them from their important goals of the day.

Goals and reflection pads help you note and remember your most important goals of the day, gives you space to reflect on the day's work and lets you put in where you left and from where you might continue tomorrow.

Availability Lights

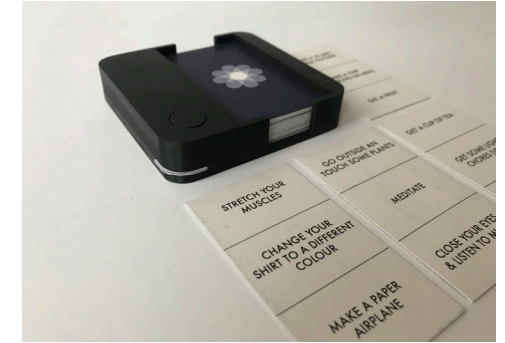


When a few workers, who have their desk in the office are working from home, there is nothing to represent them on their empty desks.

Moreover, when working from home, the amount of digital interruptions increase considerably.

The availability light stays in the office on the desk of the home worker and allows coworkers to see if their colleague is at work that day and if they are available for a conversation.

Break Machine and Cards



Workers, when working from home forget to take breaks, and there is no one else around them usually, to remind them.

Break machine is a little box with a few cards which give you options of what kind of breaks you can take.

It has a little light, which lights up, and stays lit up when you have not taken a break in a while, so that, whenever you notice it, you are reminded to take a break.

Expert Interviews

The prototypes and the idea cards were meant to exemplify the challenges that were uncovered in the process and act as conversation starters with experts. I wanted to use this part of the process to understand how the experts think about work in the future.

I approached four experts, including two CEOs of small tech startups (tech and film), a design head of a UX lab and a high level divisional manager in a massive tech corporation.

Findings

Work in the future, will be distributed. The freedom to employ talent without geographical constraints will make companies switch to remote work.

Employees might be employed by multiple companies at the same time and highly specialised skills and talents will be for hire, instead of people.

Realisation

Even though the objective of filtering, sorting and grouping of the sketches was to evaluate them and develop ideas for prototypes, spending a few days with the sketches made me realise that I was trying too hard to tackle open office challenges.

This realisation in alongwith the findings from expert interviews brought me to the realisation that I had accepted the open office environment as a given and was not considering how work might be in the near future.

After this realisation, I started asking myself, could there be other ways of working? Could other models of work exist in parallel to the open plan office?

Further Desktop Research

Trello has made an incredible guide to remote work - "How to embrace remote work". This free to share document contains great insights about distributed work and how Trello makes it work and thrives on it.(27)

Cognizant's report on the Future of Work points out that many workplaces have already adopted regular part time work from home. (28)

Rework, a book by 37 Signals is another great resource for insights into how startups which were born working remotely achieved success while doing so. (1)

A research showed that workers who work from home are much more productive and satisfied in their jobs. Far fewer workers who have the choice to work from home quit their jobs. (xx)

Moreover, the ability to work remotely is one of the most sought after perks while switching jobs.

Scene

Remote work is going to become more and more common in the future. The ability to work remotely is a highly sought after perk at jobs. More than half of the workers say that they would work remotely if their work lets them.

On the other hand, companies which have traditionally been tied to a specific location and are very rigid in the way they work, are skeptical of letting their workers be “out of sight”, as it makes it harder to measure things such as productivity and efficiency.

Companies which are born working remotely and have adopted it as a core part of their work culture usually have invested heavily in learning how to work this way and have developed processes and proper infrastructure enabling it.

Hypothesis

Between a future where working remotely is the norm and now, there will be a transition period when more and more workplaces experiment with working remotely.

To stay relevant and attractive, companies will try to build remote work in their work culture. Technology will develop to enable this transition.

Employers and workers will work collaboratively to learn how to work from home.

Opportunity

I believe that working partly from home and partly from open-plan office environments will provide workers with the best of both worlds while letting employers experiment with remote work.

However, when workers have a dedicated desk at an office and work occasionally from home, they do not have a proper home office setup, the like of which is accessible to workers of a fully remote company.

Vision

What if going to the office was just a matter of choice? What if workers had the freedom to choose to work from any location?

Imagine if work was a combination of going to the office for collaborative tasks and maintaining a social connect, and staying at home to work on tasks which require focus and quiet.

In the proposed vision of work, the project assumes a scenario where once a week, the whole team comes together in the office to get on the same page.

Then it is up to the team members to decide how many days of the week to spend in the office and how many days could be work from home days.

Validation from Users

The hypothesis was tested with users in user interviews to find out if they may have any concerns or reservations around partly working from home on a regular basis.

These are a few quotes from those interviews -

- *“I truly believe that life goes by, one commute at a time”. - Man, 31*
- *“I would have quit my job a long time ago if I did not have the choice of working from home”. - Man, 36*
- *“I prefer going to the office as I can’t get anything done at home. However, I would like to have that choice”. - Woman, 32*
- *“I fully support work from home, but I really believe that teams can’t be built over video conferences. You need to meet physically sometimes to build culture”. - Woman, 34*

Previous Position

How might we, reduce
interruptions at work, using
calm technology?

Framing #3

***How might we,
make the experience of
working part time from home,
just a bit more calm?***

Chapter 5

Uncovering Challenge Spaces and Sketching

This part enumerates the challenge areas which were uncovered after arriving at framing #3.

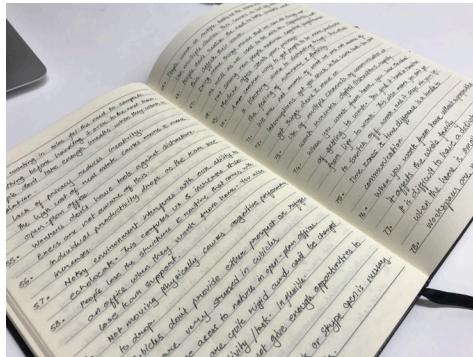
Then it describes the way “Brainwriting” method was used for quick ideation.

Reviewing All the Research

As I had spent almost the full duration of the project with a mindset of reducing open office interruptions, I was afraid that it may have affected my research.

Therefore, all of the research, findings materials and sketches were reviewed in the light of the new frame, and rewritten as challenges.

This led to a document of one hundred challenges with how we work now. Then the challenges were grouped, & sorted into categories, uncovering a few challenge spaces.



Challenge Spaces

Particular to Working From Home

Workers do not take enough healthy breaks when working from home.

Working from indoor spaces for long stretches of time distances us from nature, which causes stress and reduces cognitive performance.

Workers lose the structure, ritual and routine associated with going to office, while working from home.

While working from home, workers feel the need to prove that they are working as employers feel that the workers are not productive at home.

Home is filled with distractions and it's difficult to make a dedicated workspace in an tiny apartment.

Particular to Working From Open Offices

In an office, people stay long hours even if they have finished the work in fear of judgement.

Open offices are visually and audibly noisy and lack in privacy.

Signalling to convey that you are not to be interrupted is rude and not always very effective.

Independent of Workplaces

It takes time to get back to where we were if an interruption causes us to lose track of what we were doing.

Not knowing if a notification is important or not keeps workers constantly interrupted.

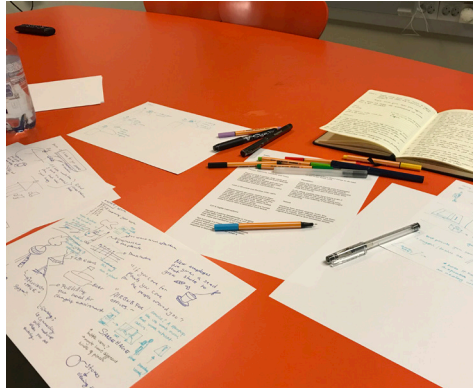
Brainwriting

The objective in this round of ideation was to generate many unique ideas in a short amount of time.

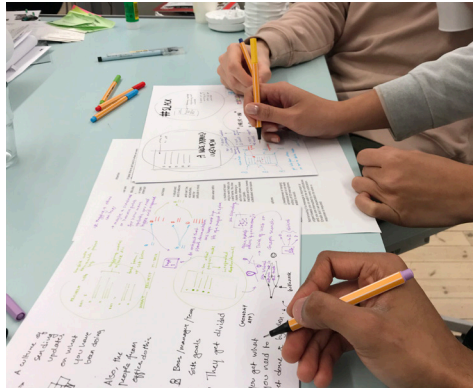
Therefore, a modified Brainwriting method was used, in pairs for 5 of the challenge areas.

The sketching was done in pairs where each person sketched as many ideas as possible in 3 minutes and then exchanged the paper to iterate upon each other's ideas. This was repeated 3 times, with time for discussion between the iterations.

This was done for 5 of the challenge areas, with 5 different people.



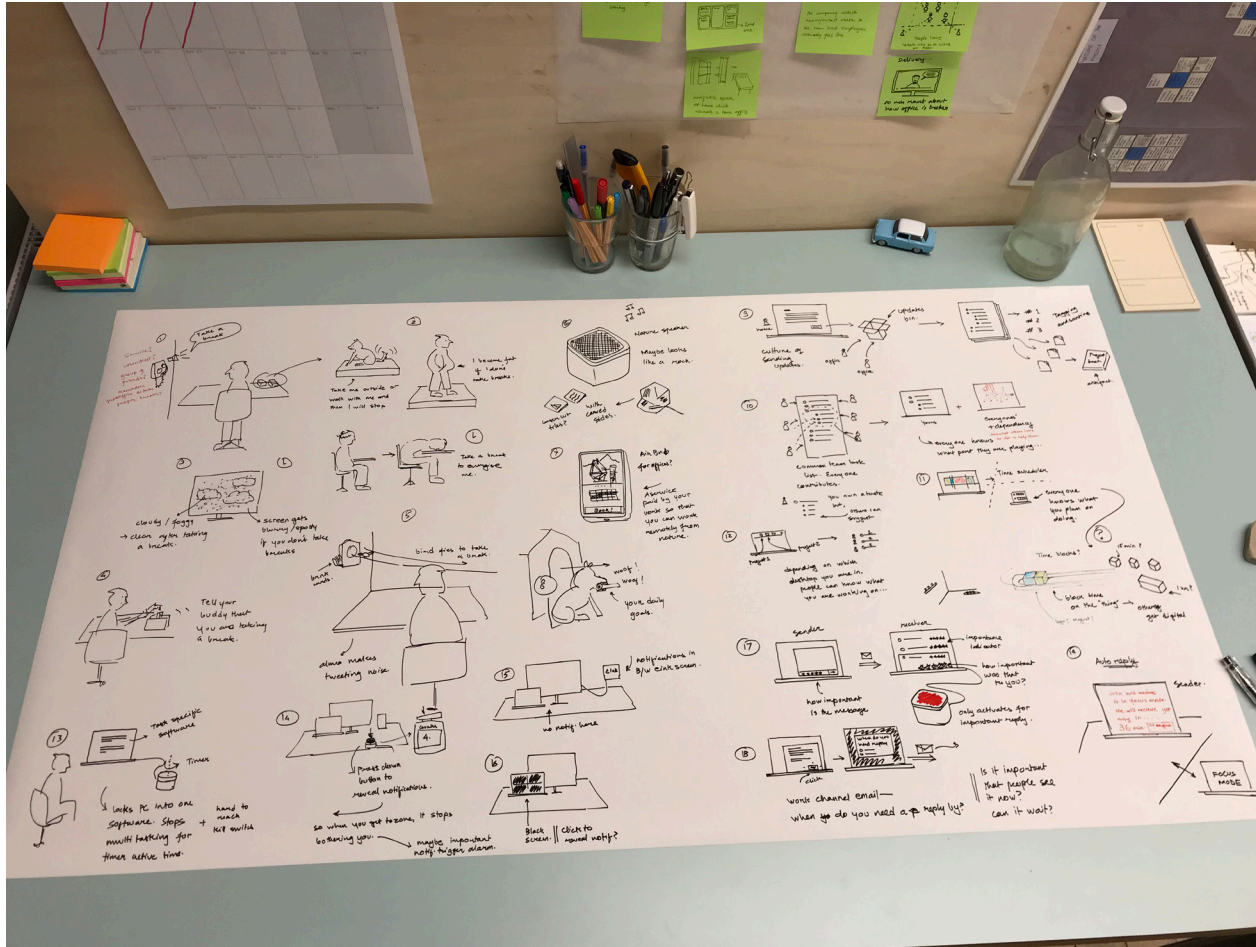
How might we bring nature into workplace?



How might we change the perception that "workers who work from home are not efficient"?



How might we deal with digital interruptions better, while working from home?



Moving Forward

After exploring some challenge areas through sketches, I chose to focus in the context of work from home and within that, I focussed on the first three problem areas -

- taking better breaks while working from home,
- facilitating closeness to nature while working from home, and
- enabling work structures and routines while working from home.

This choice was dependent on the vision that as work from home is going to become more and more accepted, the most relevant challenges will be related to facilitation of a good work from home experience.

The results from the sketching were taken as input into the next phase, building product sketches.

Chapter 6

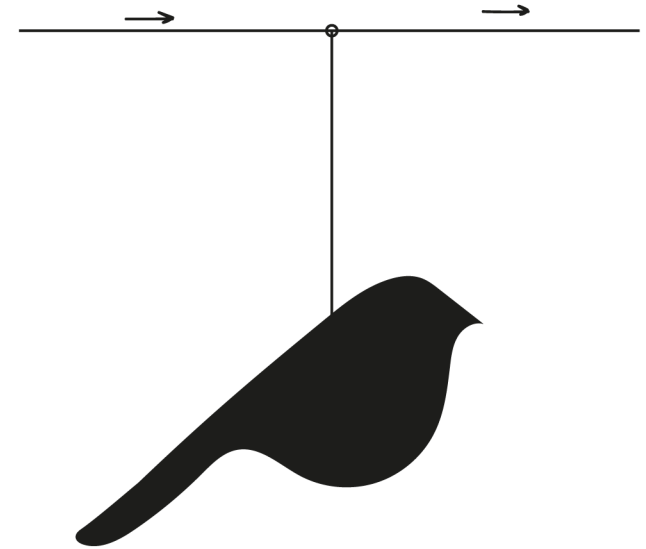
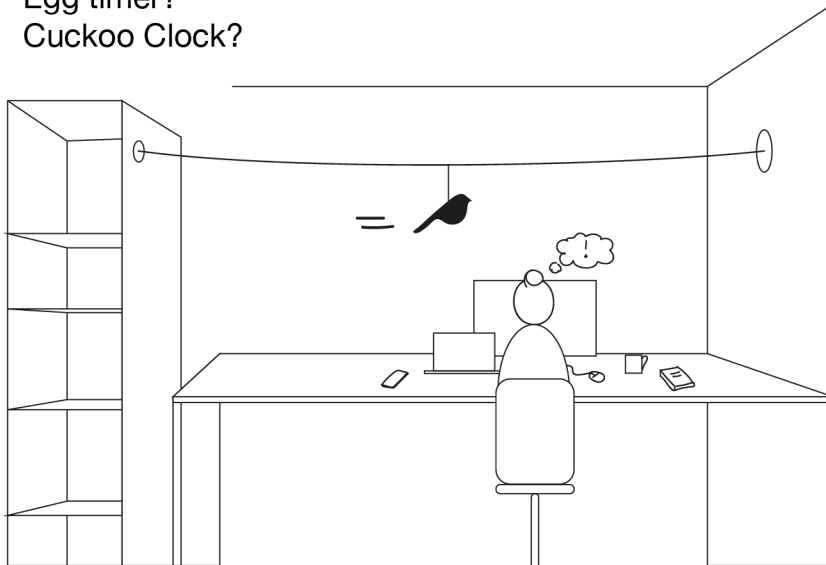
Product Sketches

Take a Break Birdie

Reminding people to take breaks.

What symbols may we use to remind people to take a break?

Egg timer?
Cuckoo Clock?



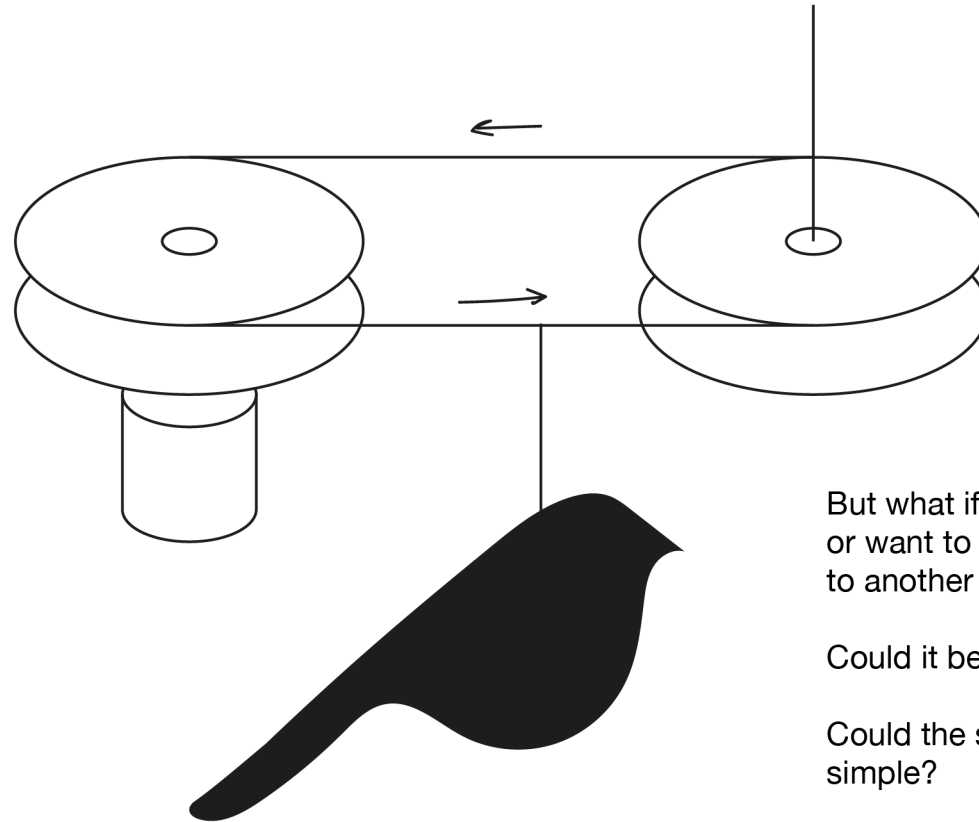
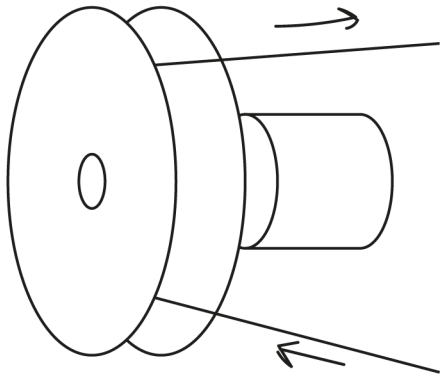
How do we move the bird?

Cable Cars hidden in Birdhouse?
Do people need to reset it?

How do we move the rope?

The bird needs to move rapidly and then turn, wait for a while and move back.

The only way is to move the rope in a loop.

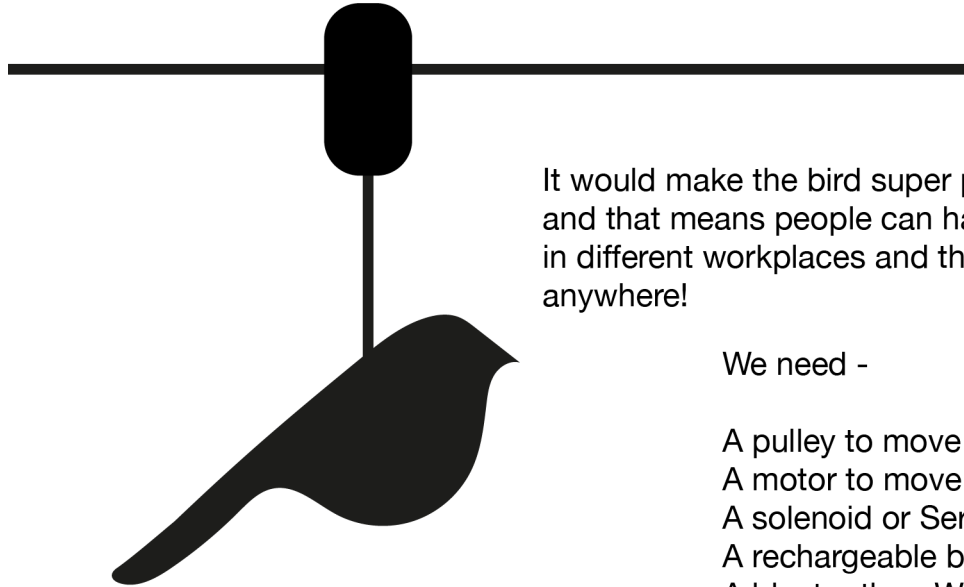


But what if people need to or want to move the contraption to another location?

Could it be made portable?

Could the setup be made dead simple?

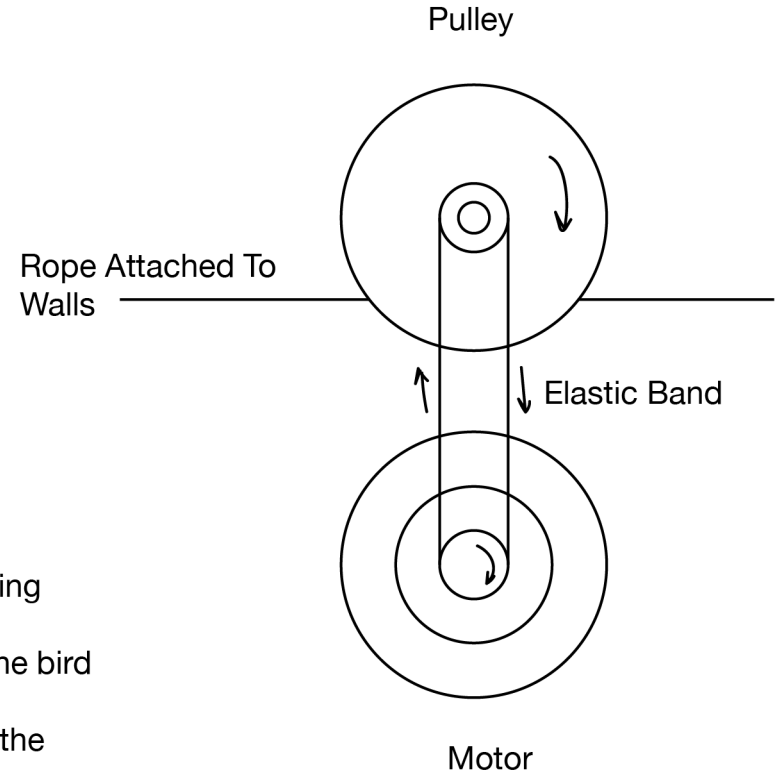
Can we put all the electronics
in the bird?



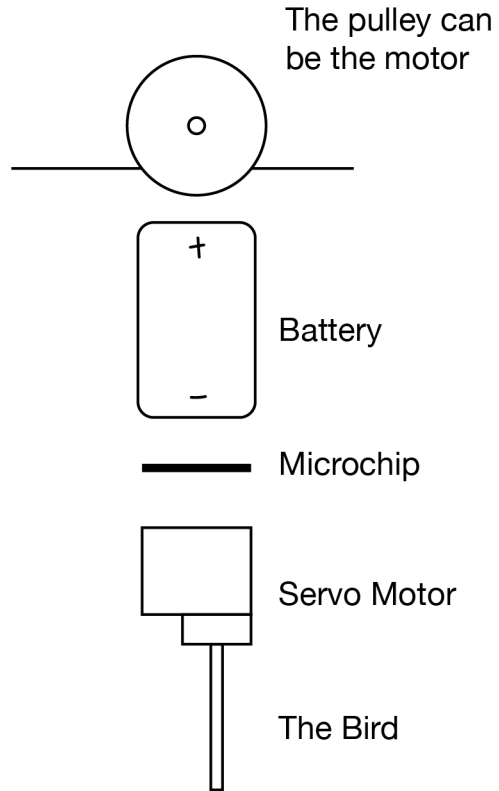
It would make the bird super portable
and that means people can have ropes
in different workplaces and the bird fits
anywhere!

We need -

- A pulley to move the bird on the string
- A motor to move the pulley
- A solenoid or Servo motor to turn the bird
- A rechargeable battery to power it
- A bluetooth or WiFi Chip to charge the battery and interface with an App.

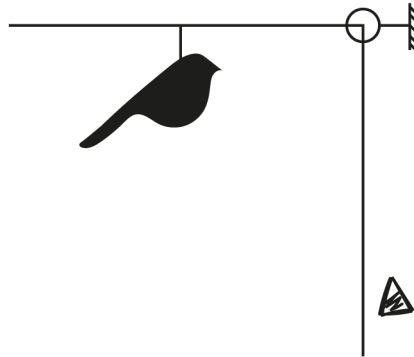


How can we make it as small as possible?

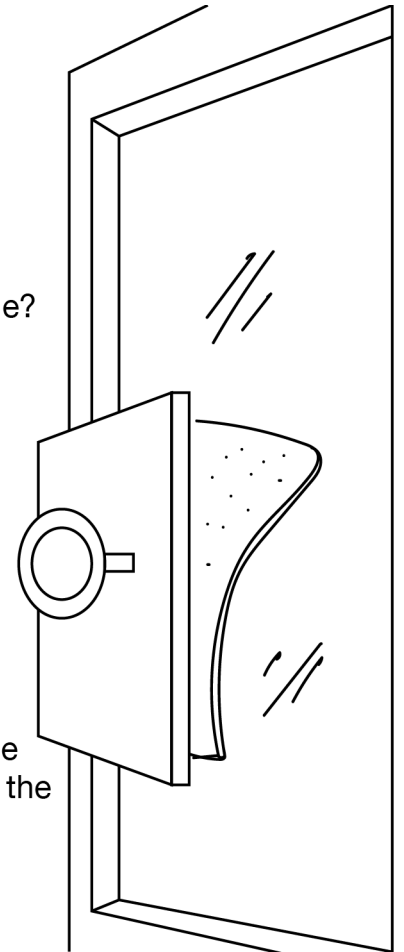


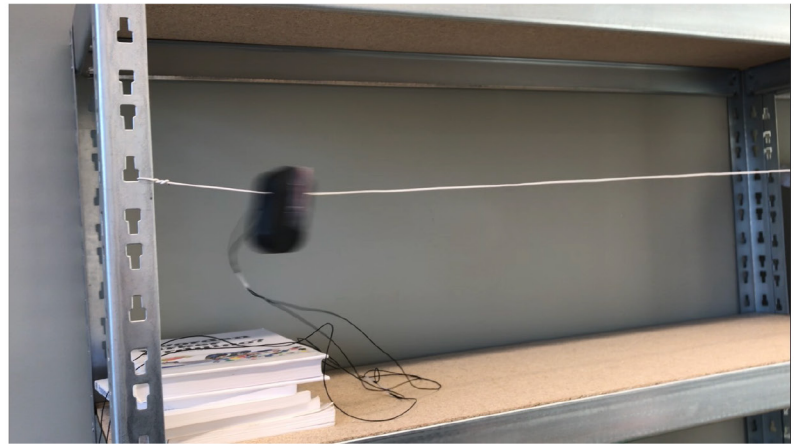
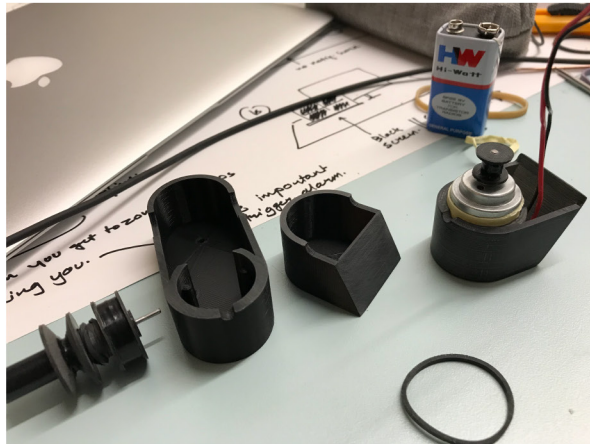
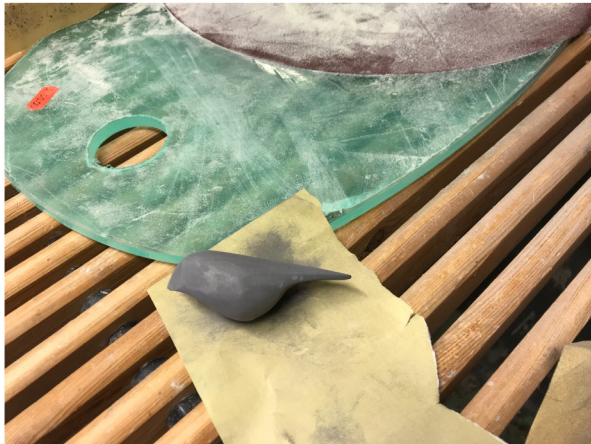
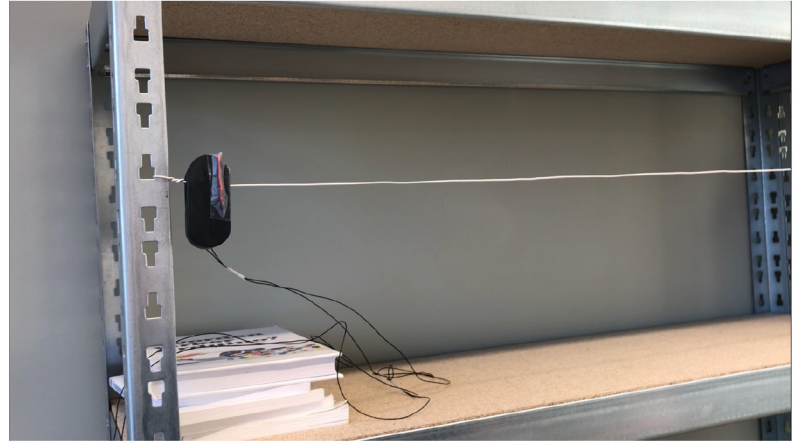
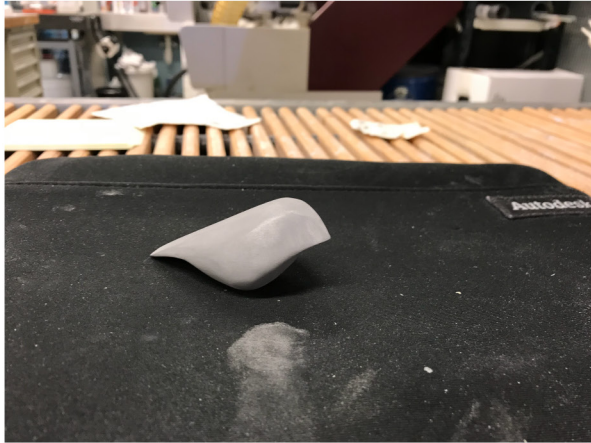
How do we maintain tension in the rope?

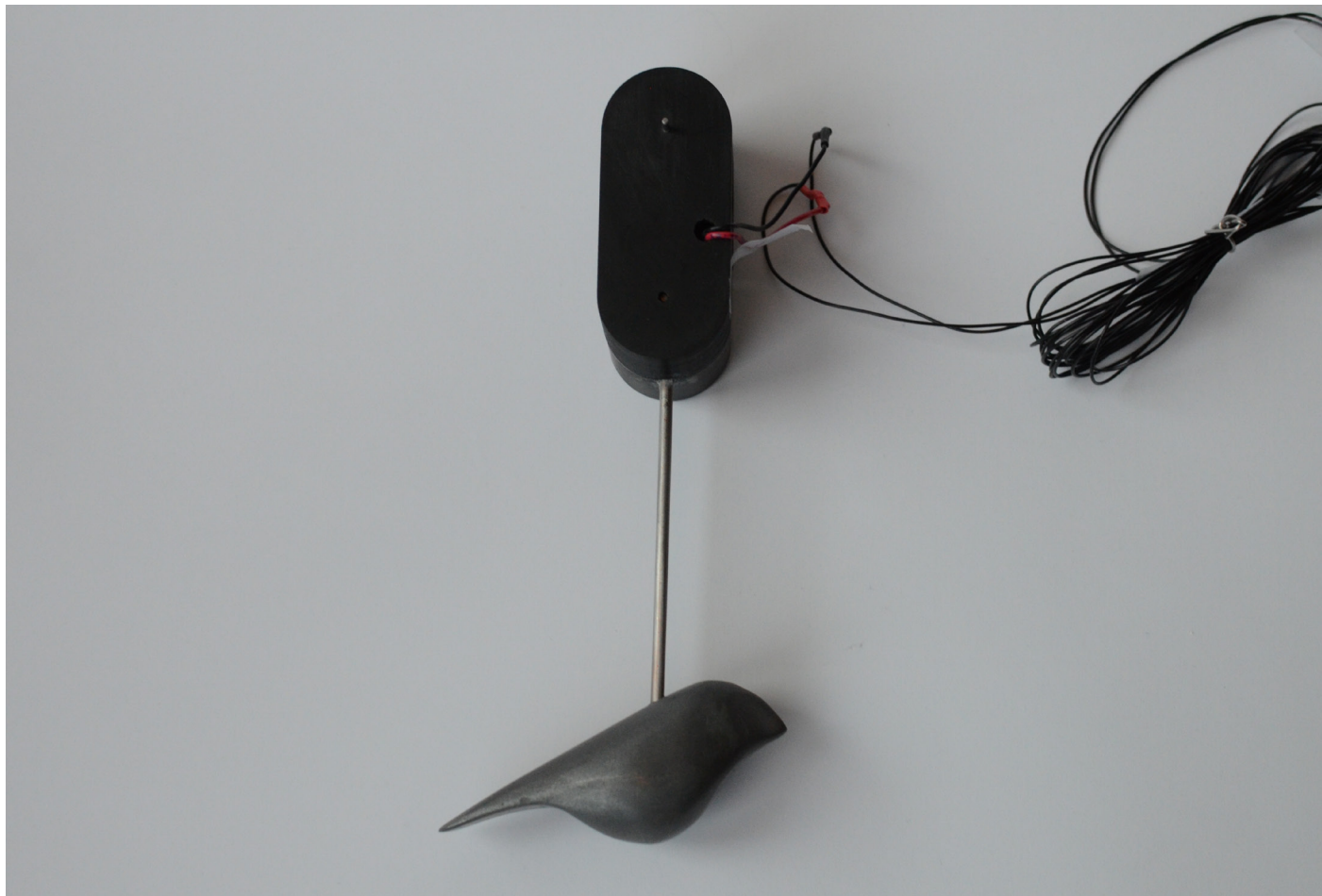
Use special stretchable rope?
Can we use weights on one side?
Can we use springs on the attachments?
How do we make the attachment as simple as possible?



Can we use reusable Sticky Tape to stick the attachment to flat surfaces?







Calm Timer

Helping people to structure their time.

Egg Timer



Mechanical Tic Tok Sound

Too Precise

Associated with Kitchen

Hourglass



Fragile

No Feedback

Only One Duration

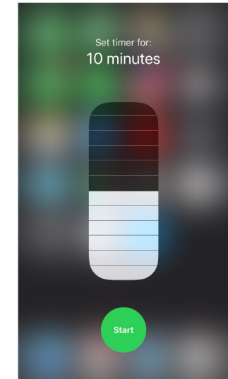
Desk Timer



Too Visible and
Attention Demanding

Tic Tok Sound

Phone Timer

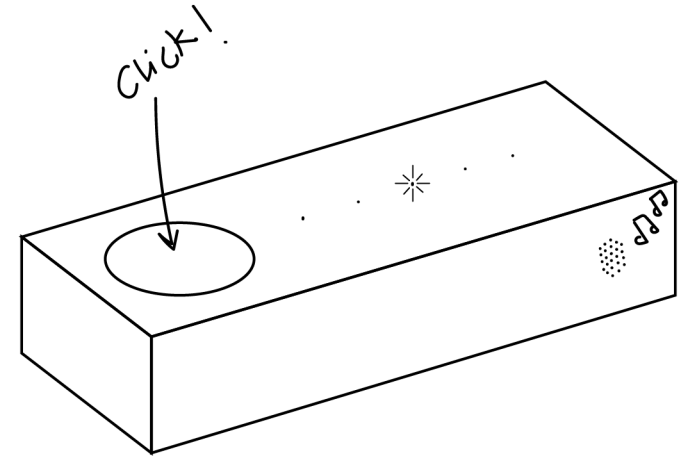
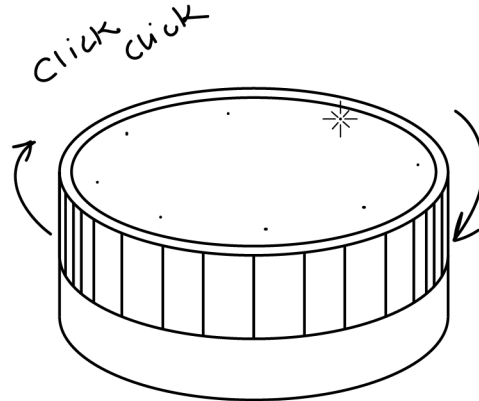
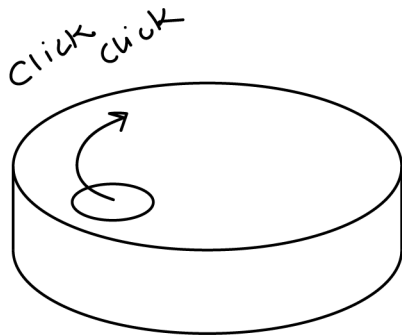


Requires Tap When Finished

Requires A Phone Near Your
Workspace

What makes a desk timer calm?

Have different settings, but not too many.
Should enable timer for all types of task, including breaks.
Should have a feedback at the end.
Should not require any action when timer finishes.
Should be portable.
As low blink / noise as possible.
Nice to have on the table or in the pocket.

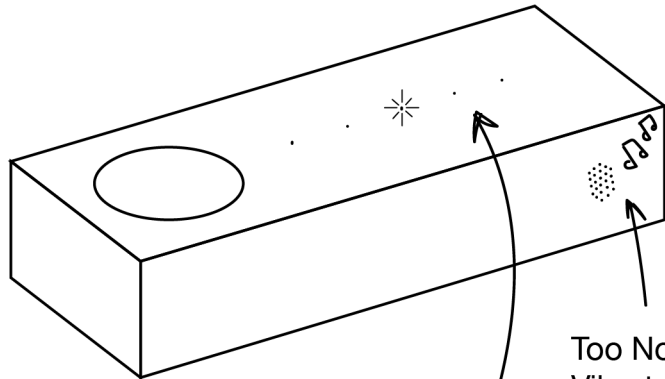


A Small Block of Time

Click to select timer duration
Light shows the duration selected
Block makes a tiny beep when finished

Natural resting position
Should not show blinking

Keep Face Down?

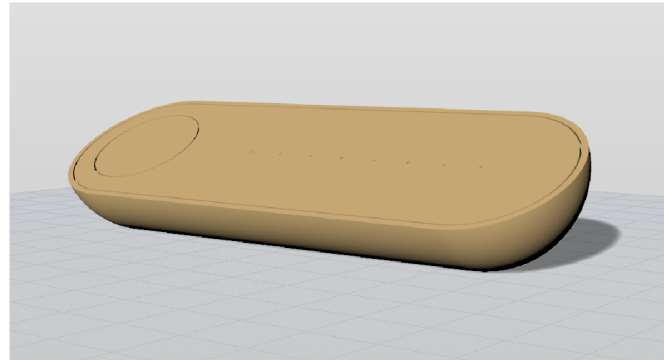


Edges too sharp

Too Noisy;
Vibrate instead?

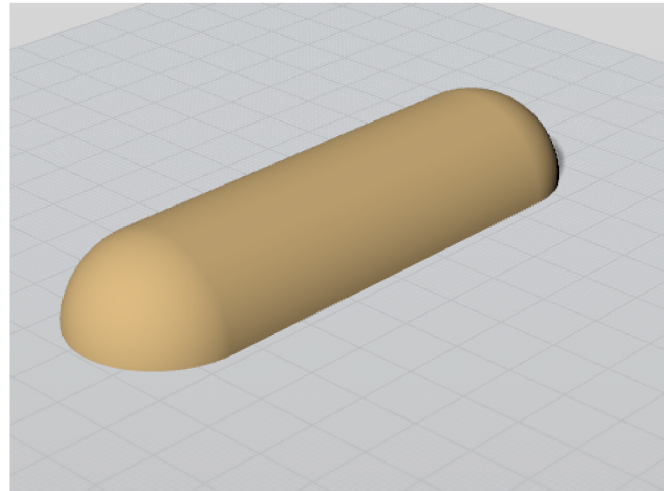


5, 10, 15 min for breaks
20, 30, 45, 60, 120 min for Work



Weighted to adjust
which way the timer faces

The users can choose if
they want to see time left
or not.



Rounded shape
which is pleasant to hold

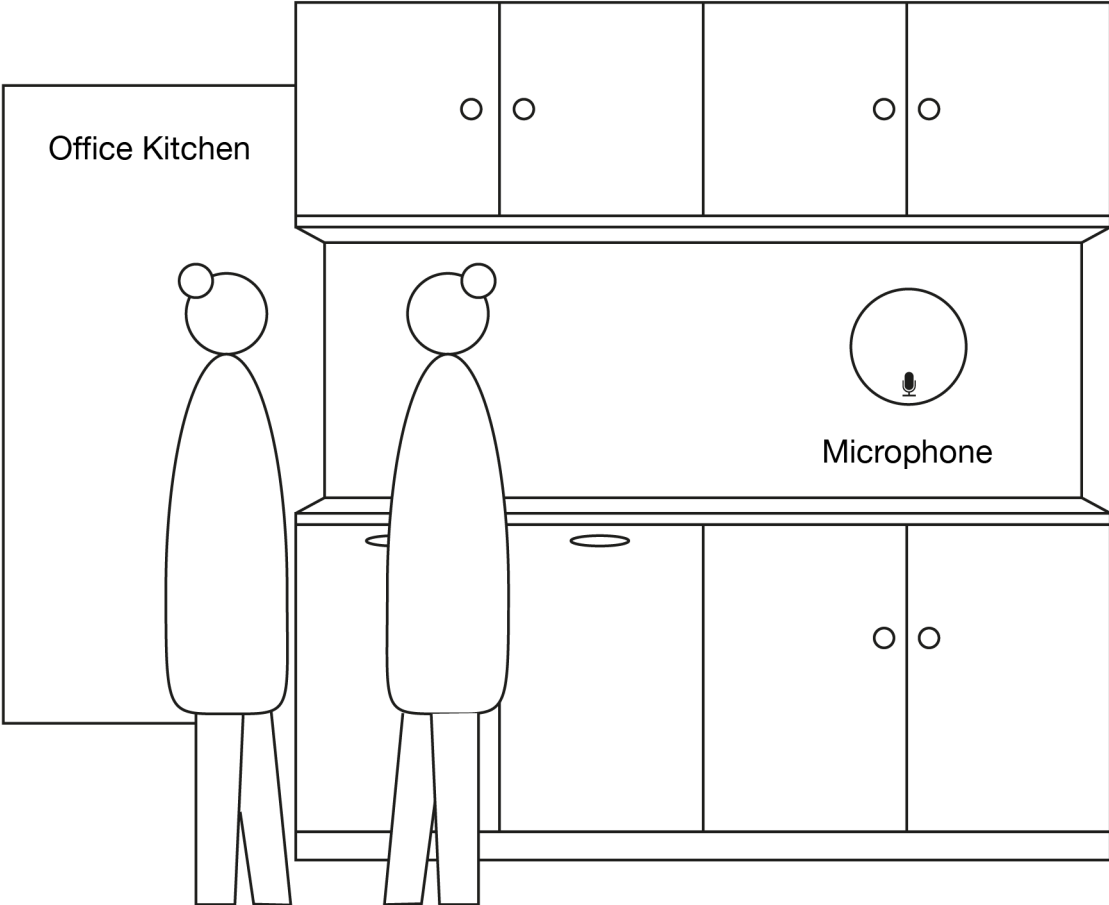
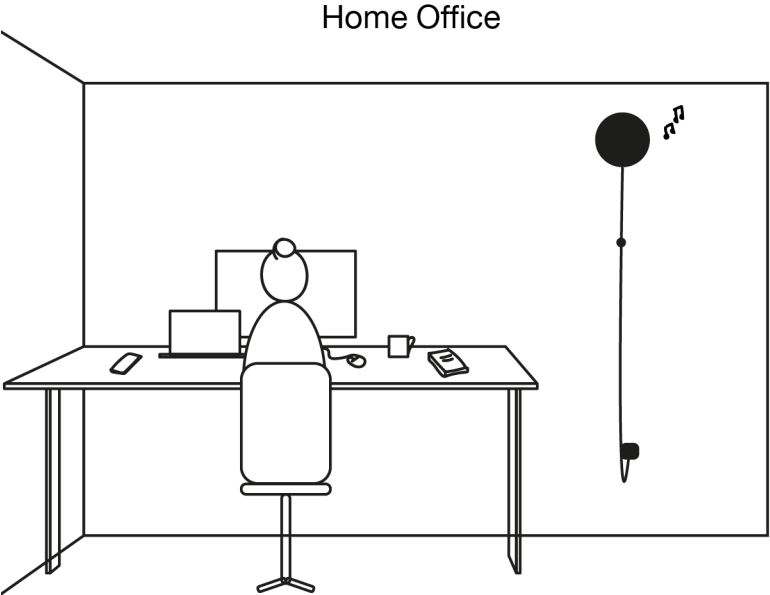
Can be put face down
to show no lights.





Office Radio

Helping home workers gain a sense of what's happening in the office, hopefully, bringing some structure to their workday.

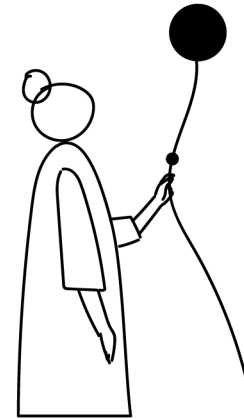
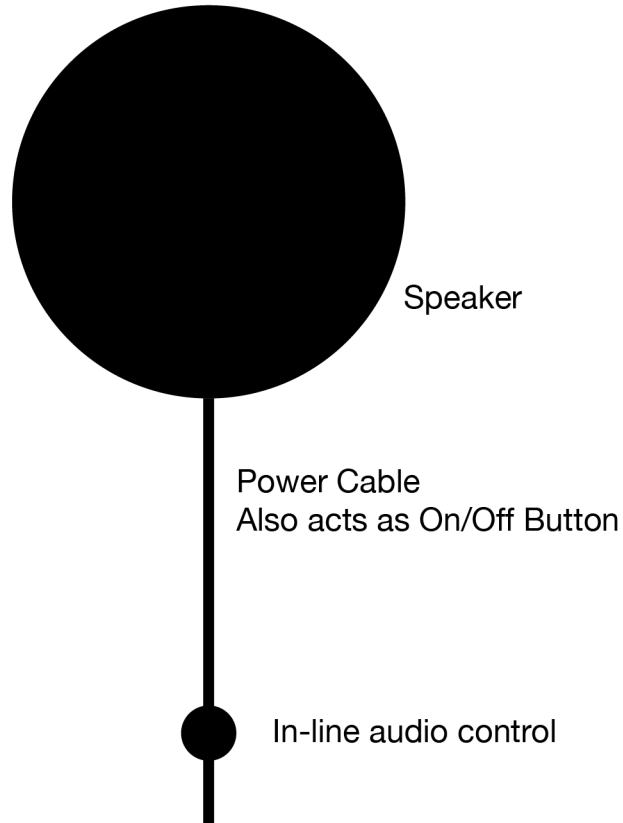


The Speaker

The speaker plays audio based on the live input from the office microphone.

It could be pre recorded audio played based on noise levels in the office.

Since it can get distracting, speaker should have a volume level control as well as an effortless way to switch off.



As the speaker may be mounted on the wall, quite high up, having the power cable as the on off can be useful.

Moreover, the volume control should be within easy reach.



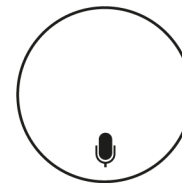
The Microphone

The microphone stays in a visible location, within the eyeline of people around it.

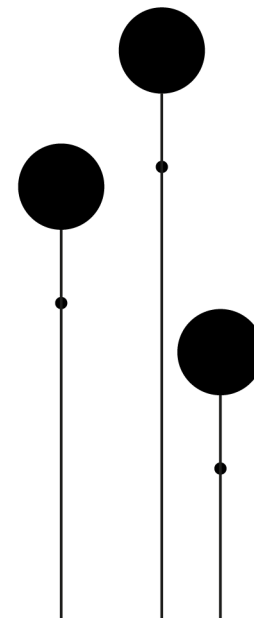
The microphone has a symbol of a mic as well to remind people they may be listened to.

There isn't a mute button as it may be undesirable to the home worker if the audio in their speaker stops.

However, there may be a "muffled sound" button.



A microphone may support many speakers and may also be portable to different areas in the office.





AirBnB NatureWork

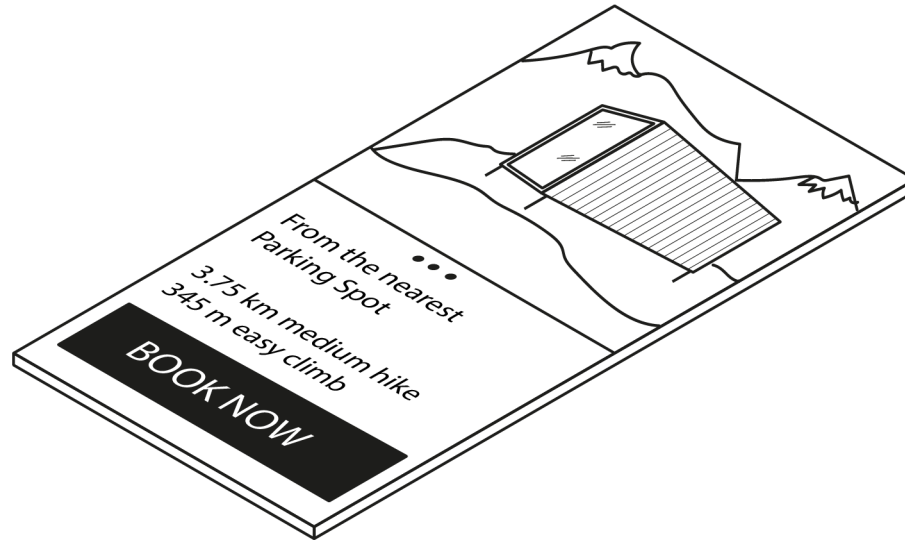
Helping home and office workers getting in touch with nature, at work.

The Service:

AirBnB Nature Work is a subscription service paid by your workplace.

You can browse and rent Office Spaces surrounded by Nature, and can book a space for a few days.

Your every need related to stay and work will be taken care of. Food, internet, towels, etc.



How it Works?

You browse and book available office spaces in advance. Prior to your trip, you get a information package detailing things such as how to get there and what to bring.

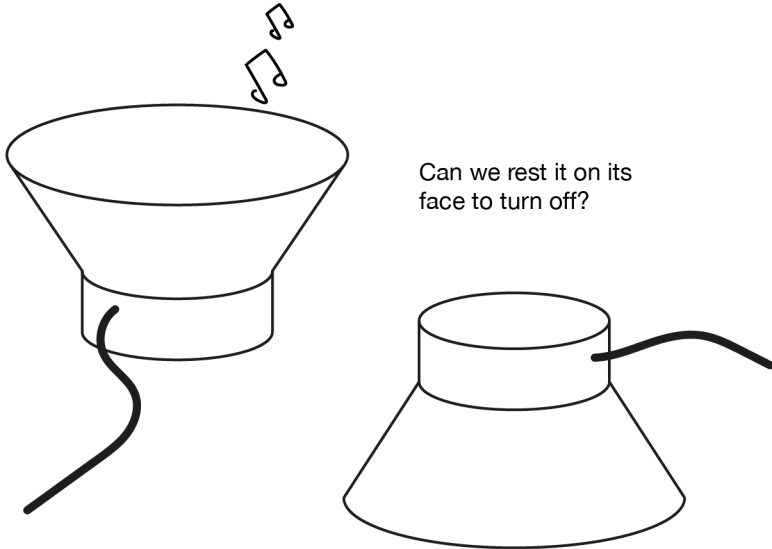
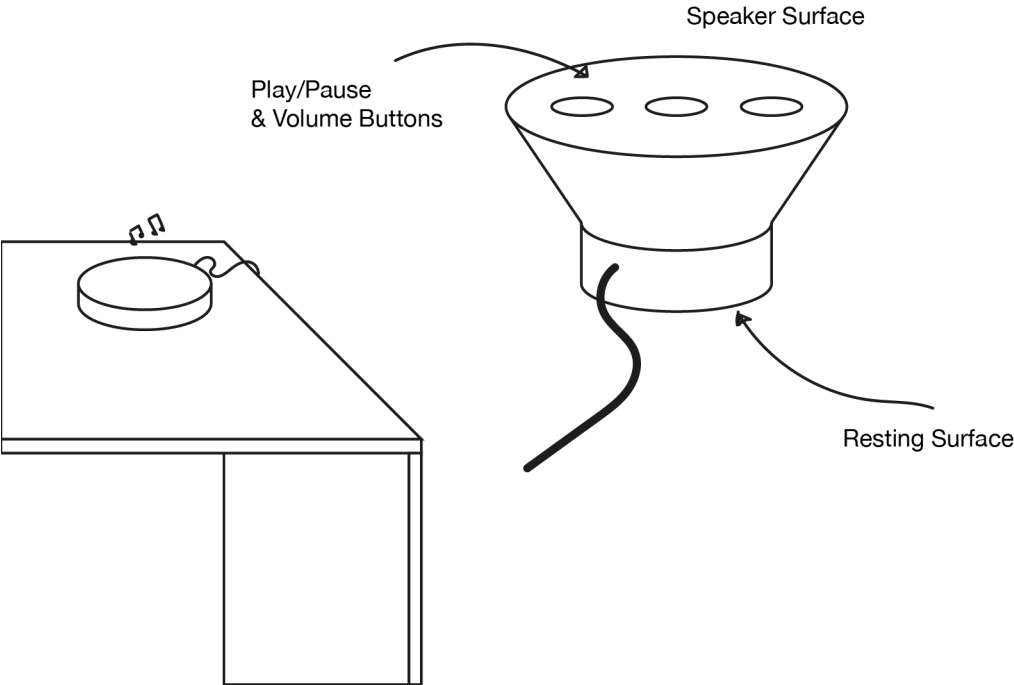
Then you travel there and the space is ready for you to work from and stay.

In case of emergency, there will be a caretaker nearby.

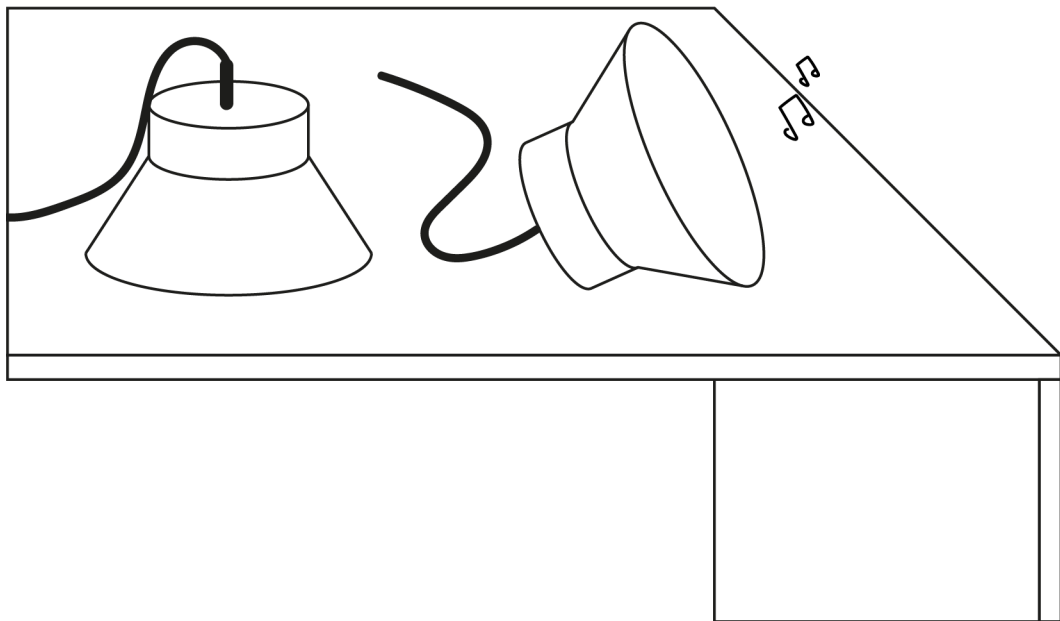
As your office has adopted remote work, it does not need to spend as much on office spaces and so, can afford these services.

Nature Speaker

Helping home and office workers to focus on work with sounds from nature.

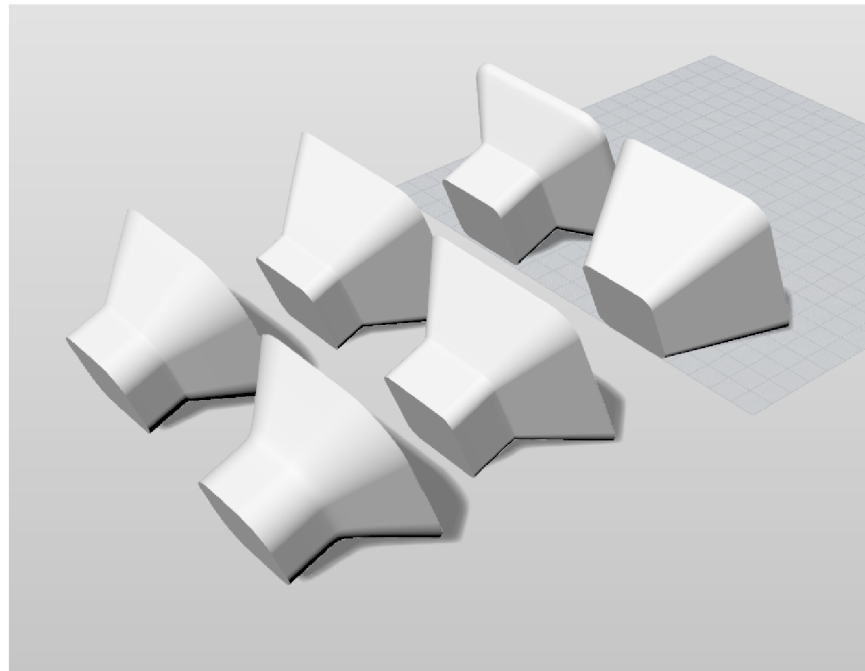


This seems like a natural interaction but the cable comes in the way.



Can we have 4 sides for 4 different audio streams?

For example, river stream, thunderstorms, forest sounds





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Reflections

Calm at work was a really exciting project and one of my most challenging ones so far. At the start of the project, I had no idea how nuanced and experience driven work is and I had not anticipated the long and intense research phase it required.

During the project, I had to shift my primary focus from prototyping to research as I felt I needed to have a better understanding of work in order to proceed.

The project went through multiple rounds of scoping and framing and though it made the research and the focus more robust, it badly affected the overall plan.

Looking back, I realise that I had widely underestimated how much time and effort it takes to do certain parts of a diploma project, most notably the report.

Poor planning on my part threw the project off by about a week, which has had a huge detrimental effect on the project and it suffered in certain parts, most importantly validation and testing.

In the future in a project like this, I would delve into prototyping even if I am not satisfied with the quality and robustness of the research.

Writing the report made me realise how different writing a design report is in comparison to an engineering report.

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An explorative interaction design project,
exploring how might we make the experience
at work, just a bit more calm.

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