

Project 2 Report

MIU

The SHYbot

A shy interactive deskpet

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Project Guide - **Prof. Vinayak Nabbar**



IDC School of Design
अभिकल्प विद्यालय

Approval Sheet

The Design Project II titled "MIU" by Siladitya Samir
Roll Number 22M2235 is approved in partial fulfilment
of the Masters Degree (Industrial Design) at the IDC
School of Design, Indian Institute of Technology
Bombay.



Project Guide



Internal Examiner



External Examiner

Declaration

I declare that this project report submission contains my own ideas and work, and if any pre-existing idea or work has been included, I have adequately cited and referenced the original author(s). I also declare that I have adhered to all principles of academic honesty and integrity and have not misinterpreted, fabricated or falsified any idea/ data/ fact source in my submission.

I understand that any violation of the above will be cause for disciplinary action by the institute and can also evoke penal action from the sources.



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November 2022

Abstract

This report introduces the design and functionality of a novel product—an interactive desk pet engineered to encourage healthy computer habits. The "Shy Interactive DeskPet" serves as a gentle reminder system, fostering user awareness of prolonged screen exposure and promoting timely breaks to mitigate long-term health risks associated with extended computer use. Through intuitive cues and subtle interactions, the DeskPet employs non-intrusive nudges to remind users that it's been a while that they are sitting in front of a screen and they could use a break. This report outlines the design process, user interface, functionality, and the underlying principles driving its development, emphasizing its potential to contribute positively to users' health and habits in the digital age.

Acknowledgment

I would like to extend my heartfelt gratitude to all those who contributed to the successful completion of this project. First and foremost, I express my sincere appreciation to Prof. Vinayak Nabbar, whose invaluable guidance, expertise, and unwavering support were instrumental in shaping this endeavour.

I am immensely grateful to my peers and colleagues who offered their time, perspectives, and constructive criticism, enriching the project with diverse viewpoints and collaborative efforts. Their contributions significantly enhanced the quality and depth of this work.

I extend my deepest thanks to the individuals who willingly participated in the study and provided essential feedback.

Lastly, I would like to acknowledge the support of my family and friends whose encouragement, understanding, and unwavering support were vital sources of motivation and strength throughout this project.

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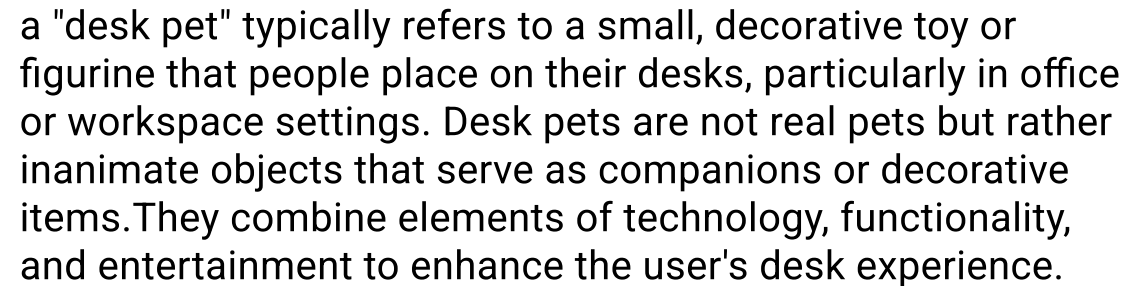
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References

Chapter 01:

Introduction

1.1



IDC, IIT Bombay

Introduction: Purpose of Deskpets

1.2

- **Stress Relief and Relaxation:**

Desk pets or toys can serve as stress relievers and help people relax during work or study. Engaging with a playful object can provide a mental break and reduce tension, which may lead to increased productivity and focus afterward.

- **Enhancing Work Environment:**

In office settings, having desk pets or toys can contribute to a more positive and enjoyable work environment. They can act as conversation starters, fostering camaraderie among colleagues and promoting a friendly atmosphere.

- **Productivity and Focus:**

While it might seem counter intuitive, some desk toys, such as stress balls or fidget spinners, can actually improve focus for individuals who benefit from tactile stimulation. They provide a physical outlet for excess energy, enabling better concentration on tasks.

Introduction: Types of deskpets

1.3

Miniature animals

Miniature animals as Desk Pets are small, artificially created or engineered creatures designed specifically to serve as interactive companions for desk or workspace environments. These creatures are not real animals but rather technological or robotic devices crafted to resemble miniature versions of animals.



Fig. source:
<https://p-yo-www-amazon-in-kalias.amazon.in/100Pack-Erasers-Classroom-Carnival-Stuffers/dp/B09QL7VCC8>

1.3.Introduction: Types of deskpets



Fig. source:
<https://p-yo-www-amazon-in-kalias.amazon.in/100Pack-Erasers-Classroom-Carnival-Stuffers/dp/B09QL7VCC8>

Bobble Heads

Bobbleheads are collectible toys or figurines known for their oversized, often comical, heads that are attached to a smaller body. The defining feature of bobbleheads is their spring-connected heads, which are designed to bob or nod back and forth with a slight tap or vibration, hence the name "bobbleheads."

These figurines typically depict various characters, celebrities, athletes, fictional personas, or animals. They are commonly made from materials like plastic, resin, or ceramic. Bobbleheads have gained popularity as novelty items, promotional giveaways, and collectibles due to their whimsical and entertaining nature.

1.3.Introduction: Types of deskpets

Fidget toys

Fidget toys are small, handheld gadgets or objects designed to provide sensory stimulation and promote focus, attention, and relaxation. They are often used by individuals of various ages, including children and adults, to help manage stress, anxiety, or restlessness. These toys come in various forms, shapes, and textures, providing tactile sensations and different types of movements to engage the user. Some common types of fidget toys include:

- spinners
- fidget cubes
- stress balls
- sensory rings
- clickers



Fig. source:
<https://p-yo-www-amazon-in-kalias.amazon.in/100Pack-Erasers-Classroom-Carnival-Stuffers/dp/B09QL7VCC8>

1.3.Introduction: Types of deskpets



Solar-powered toys

Solar-powered toys are playthings that utilize solar energy to function and operate. They typically contain solar panels or photovoltaic cells that capture sunlight and convert it into electrical energy, powering the toy's functionalities. These toys come in various forms, ranging from educational kits to fun gadgets and novelty items, and they are designed to entertain, educate, or demonstrate the use of renewable energy sources.

Fig. source:
<https://p-yo-www-amazon-in-kalias.amazon.in/100Pack-Erasers-Classroom-Carnival-Stuffers/dp/B09QL7VCC8>

1.3.Introduction: Types of deskpets

Kinetic toys

Kinetic toys are playthings that rely on movement, energy, and physics principles to operate. These toys utilize kinetic energy—energy generated by motion—to perform various actions, entertain, or educate users about basic scientific concepts. Here are a few types of kinetic toys:

- Spinning tops
- Newtons cradle
- Slinky
- Kinetic sand
- Marble runs



Fig. source:
<https://p-yo-www-amazon-in-kalias.amazon.in/100Pack-Erasers-Classroom-Carnival-Stuffers/dp/B09QL7VCC8>

1.3.Introduction: Types of deskpets

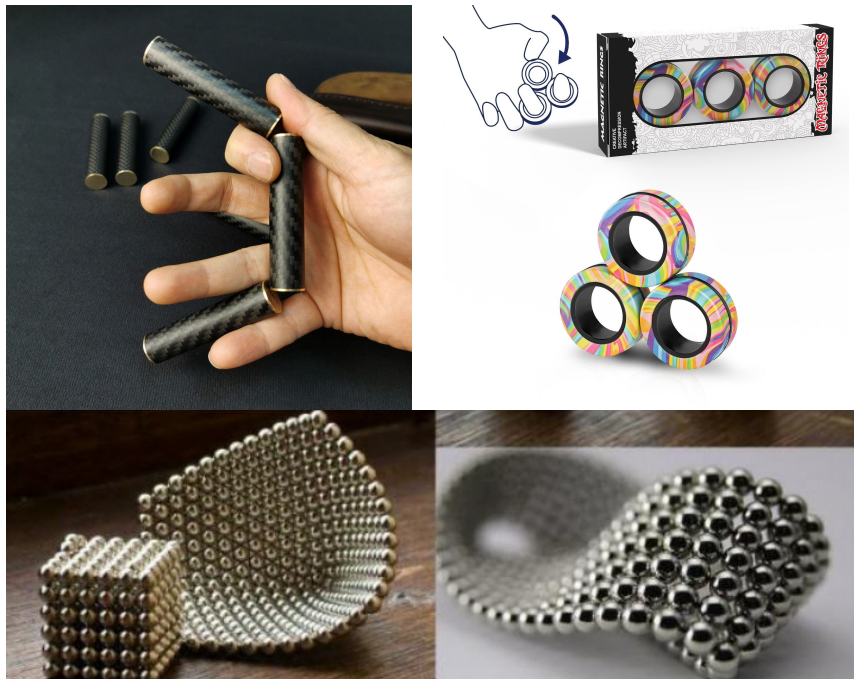


Fig. source:
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Magnetic toys

Magnetic toys are playthings that utilize magnets to create various interactive and educational experiences. These toys incorporate magnets and magnetic properties to offer entertainment, creative exploration, and learning opportunities for users, especially children.

There are also magnetic toys specifically designed for adults. These toys cater to various interests and hobbies and are often intended for relaxation, stress relief, creativity, or as desk gadgets.

1.3.Introduction: Types of deskpets

Smart toys

"Smart desk pets" refer to technologically advanced, interactive desk companions equipped with intelligent features and connectivity. These pets are designed to enhance the user's workspace experience by providing companionship, entertainment, and functional assistance while integrating smart capabilities.

Features commonly found in smart desk pets may include:

- Interactive AI and Voice Assistance
- IoT Connectivity
- Health and Wellness Reminders
- Gesture Recognition
- Entertainment and Learning
- Task Assistance

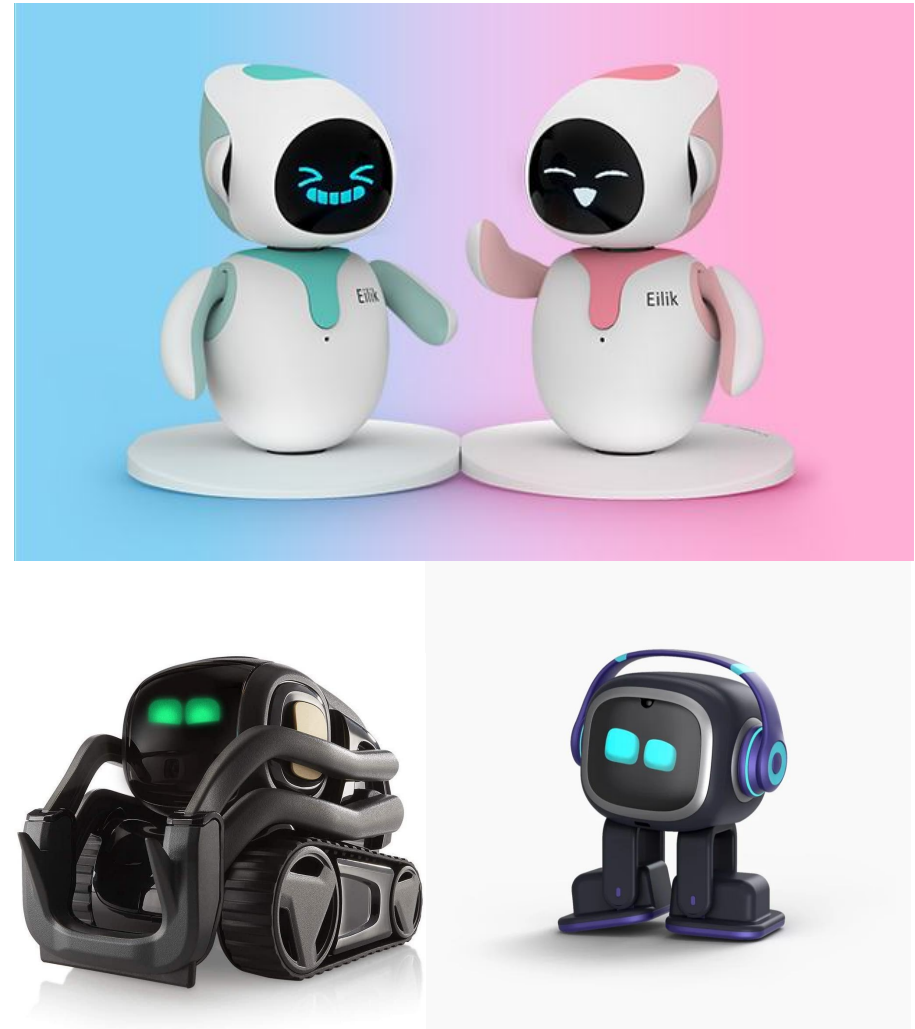


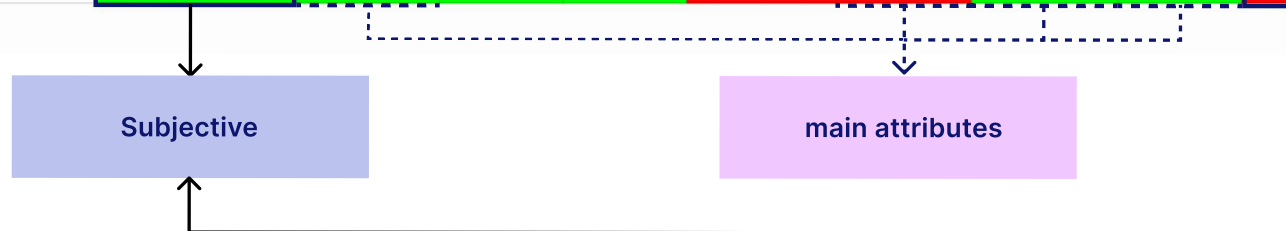
Fig. source:
<https://p-yo-www-amazon-in-kalias.amazon.in/100Pack-Erasers-Classroom-Carnival-Stuffers/dp/B09QL7VCC8>

Introduction: Market Study

1.4

break down of existing products

PRODUCTS	STRESS RELIEF/CALM	TACTILE	RESPONSIVE	SMART	CUSTOMISABLE	COLLECTIBLE	INTERACTIVE	PORTABLE	MEMORABILIA	ALTERNATE USE	COST(rupees)
figurines											100<
bobble head dolls											200<
fidget toys											200<
solar powered toys											300<
kinetic toys											300<
magnetic desk toys											500<
smart toys											15000<



Chapter 02:

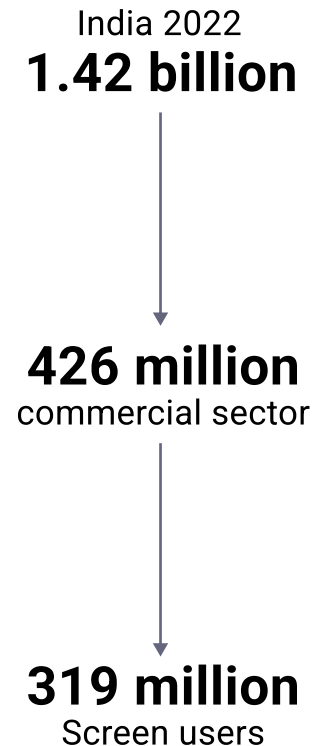
User Study

User Study: Demographics

2.1

In India, as of 2022, approx 25-30% of total population(1.42 billion) was estimated to be employed in the commercial or non-agricultural sector, which is around 426 million. This includes individuals working in industries such as manufacturing, services (including IT, finance, healthcare, hospitality, retail, etc.), construction, trade, and other non-agricultural activities.

Excluding the manufacturing and Construction Industries, where most of the workforce are manual workers, 70-75% of 426 million people work in front of some type of screen, which is 319.5 million.



User Study: Issues faced by Users

2.2

Prolonged screen time and extended periods of sitting can lead to various health issues and discomfort. Some common problems associated with these behaviours include:

- **Eye Strain and Digital Eye Fatigue:** Staring at screens for extended periods can cause digital eye strain, leading to symptoms like dry eyes, blurred vision, headaches, and eye irritation.
- **Poor Posture and Musculoskeletal Issues:** Sitting for long durations can lead to poor posture, back pain, neck strain, and discomfort in the shoulders and lower back. It can also contribute to conditions like musculoskeletal disorders and stiffness.
- **Increased Risk of Obesity and Metabolic Issues:** Sedentary behavior, including prolonged sitting, is linked to an increased risk of obesity, metabolic syndrome, and other health concerns due to reduced calorie expenditure and decreased physical activity.
- **Impact on Cardiovascular Health:** Sitting for extended periods without movement can negatively impact cardiovascular health by reducing blood flow and increasing the risk of heart disease and related conditions.
- **Mental Health Effects:** Excessive screen time, especially when associated with social media or stressful content, can contribute to mental health issues such as anxiety, stress, and disrupted sleep patterns.

2.2.User Study: Issues faced by the users

Research papers and Case studies

- Our results suggest that, as evaluated with the HADS, **working an office job elevated the risk of anxiety and depression compared to working a manufacturing job**. These effects were more predominant in workers who worked long hours (60 or more hours per week). Our results are consistent with the results of a previous study that compared the prevalence of common mental disorders between occupational groups. Specifically, a national UK survey by Stansfeld et al. showed that plant workers and machine operators (OR = 0.43; 95 % CI, 0.28–0.68) had a reduced risk of common mental disorder compared to managers and administrators [4]. Thus, our study is analogous to their finding that working an office job is a risk factor for common mental disorders.
- In a first global analysis of the loss of life and health associated with working long hours, WHO and ILO estimate that, in 2016, **398 000 people died from stroke and 347 000 from heart disease as a result of having worked at least 55 hours a week**. Between 2000 and 2016, the number of deaths from heart disease due to working long hours increased by 42%, and from stroke by 19%.
- The respondents spent an average of 6.29 hours of an 8-hour working shift in a sitting position. The results showed that 48.8% of the participants did not feel comfortable with their workstations and 73.6% felt exhausted during the workday. Additionally, 6.3% suffered from hypertension, and 11.2% of them reported hyperlipidemia. The results of the NMQ showed that neck (53.5%), lower back (53.2%) and shoulder (51.6%) symptoms were the most prevalent problem among office workers. Based upon a multiple logistic regression, only sex had a significant association with prolonged sitting behavior (odds ratio = 3.084). Our results indicated that long sitting times were associated with exhaustion during the working day, decreased job satisfaction, hypertension, and musculoskeletal disorder symptoms in the shoulders, lower back, thighs, and knees of office workers.

User Study: Survey

2.3

The Survey was Conducted to understand the pain points of the users and also to double check the data collected through research.

All participants had a daily average screen time of more than 5 hours.

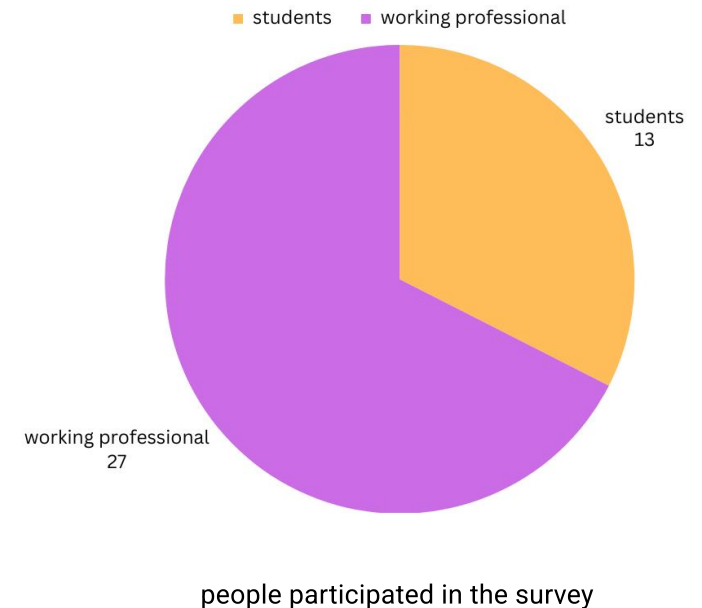
The Interview questionnaire was divided into 2 parts:

1. Health Related Questions

This part of the study focusses on the their physical, mental health, about their work habits and how their prolonged screen exposure and sitting affects their body and mind.

2. Desk pet Related Questions

This part of the study focusses on how much knowledge they have about deskpets and how they are affected by them.



2.3.User Study: Survey

Part 1 : Health

In the survey of 40 people :

- 100% of the participants were experiencing headaches, burnouts and mental fatigues.
- 86% of the participants were experiencing eye strain and stress due to prolonged screen time.
- 66% of the participants were experiencing sleep deprivation and isolation



Headaches, Burnout and Mental fatigue



Eye strain and stress



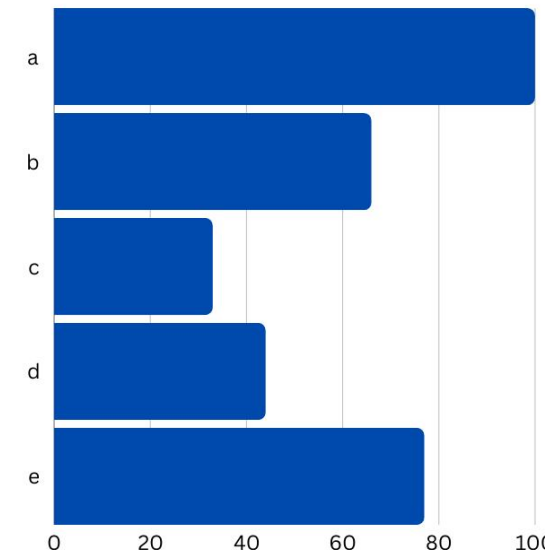
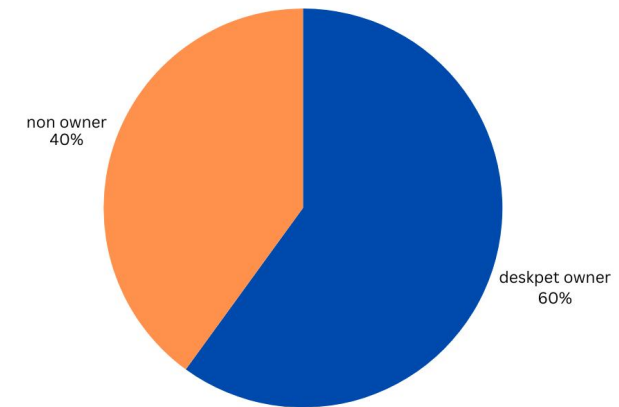
Sleep disturbances and Isolation

2.3.User Study: Survey

Part 2 : Deskpet

In the survey of 40 people 60% of the participants owned some type of deskpet.

- a. 100% of the of the participants who own a deskpet state that their deskpet makes them **happy**.
- b. 66% of the participants who own a deskpet state that their deskpet makes them **relaxed and comforted**.
- c. 33% of the participants who own a deskpet state that their deskpet makes them **motivated**.
- 44% of the participants who own a deskpet state that the presence of their deskpets is **extremely significant**.
- 77% of the participants who own a deskpet state that the most important quality of a deskpet is that it should be **interactive**.



User Study: analysis

2.4

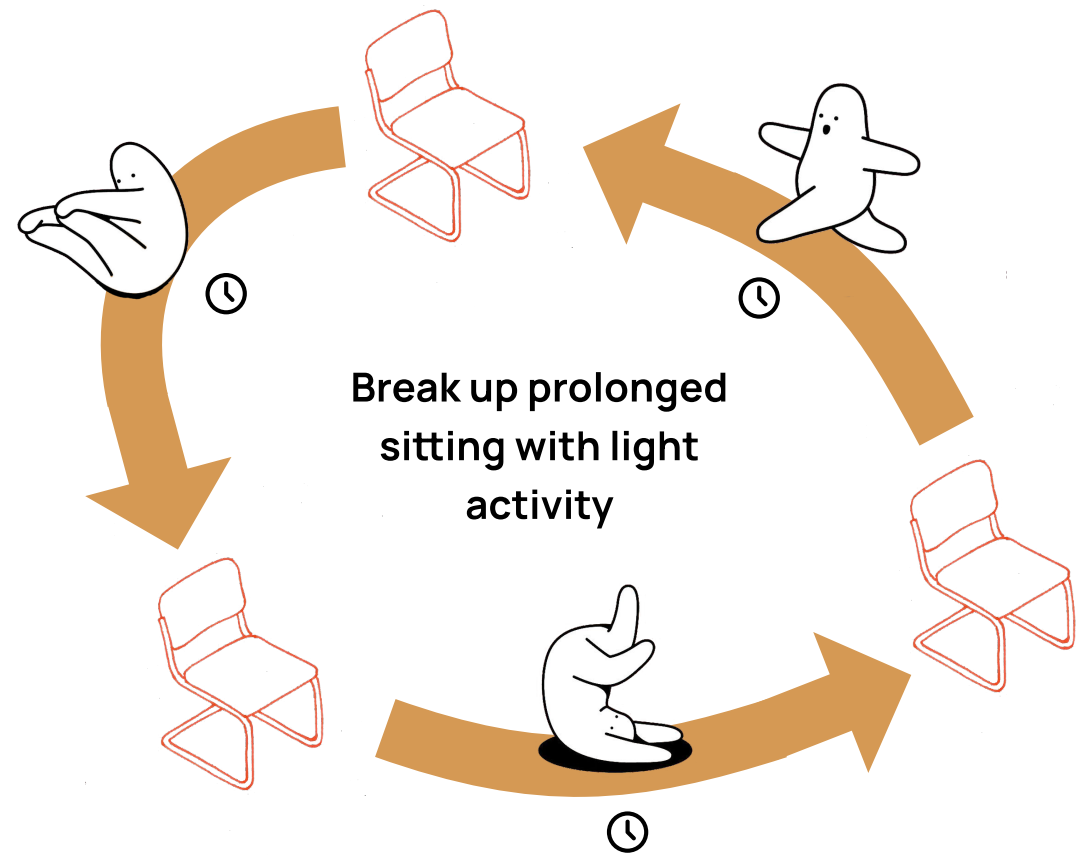
Sitting for prolonged hours is increasingly recognized as a significant contributor to various serious health effects, encompassing musculoskeletal discomfort, increased risk of obesity, cardiovascular issues, and even mental health concerns. Despite growing awareness, our reliance on technology and media consumption has become integral to modern lifestyles, making it nearly impossible for individuals to drastically reduce their screen time. Therefore, seeking an alternative strategy becomes imperative to address the adverse impacts of extended sedentary behavior and screen exposure.

Amidst this scenario, the customization of workspaces has emerged as a prevalent trend. People find solace and productivity in personalizing their work environments with items that resonate with them. This customization not only enhances their comfort but also boosts work productivity and mental well-being. Within this context, DeskPets stand out as more than just desk adornments; they serve as companions, offering a sense of comfort, familiarity, and connection in the workplace.

Users often develop strong emotional attachments to their DeskPets. These miniature interactive companions are more than mere gadgets; they become integral parts of users' work routines, offering subtle companionship and moments of relief in the midst of hectic work schedules. Their presence is cherished, providing a source of relaxation and emotional connection, effectively enhancing the overall work experience and contributing positively to users' well-being in the workspace.

2.4.User Study: Analysis

Effective strategies can trim daily sitting time by about one hour. Incorporating regular movement breaks, utilizing standing workstations, and fostering mindfulness are key. These approaches empower individuals to combat sedentary behavior, promoting better health and productivity without the need for additional tools or devices. which may lower depression symptoms by 10% and anxiety by 15%



Chapter 03:

Design brief

Problem Statement

3.1

In our modern digital era, the pervasive nature of prolonged screen time poses a significant threat to individual health and well-being, leading to a myriad of physical discomforts and adverse health effects due to extended sedentary behavior. Present solutions, such as alarms or reminders, often adopt intrusive methodologies that disrupt workflow, causing irritation or distraction, thereby failing to effectively encourage breaks from extended screen exposure.

The challenge at hand necessitates the creation of a sophisticated and non-intrusive reminder system that diverges from conventional alarm-based approaches. This innovative solution must seamlessly blend into users' work environments, intelligently signaling the need for breaks from prolonged screen engagement without causing disruptions or annoyance. Developing a reminder system that delicately prompts users, gently encouraging them to take periodic breaks without imposing distractions or irritation, stands as a crucial pursuit in mitigating the health risks linked to prolonged screen time.

Product brief

3.1

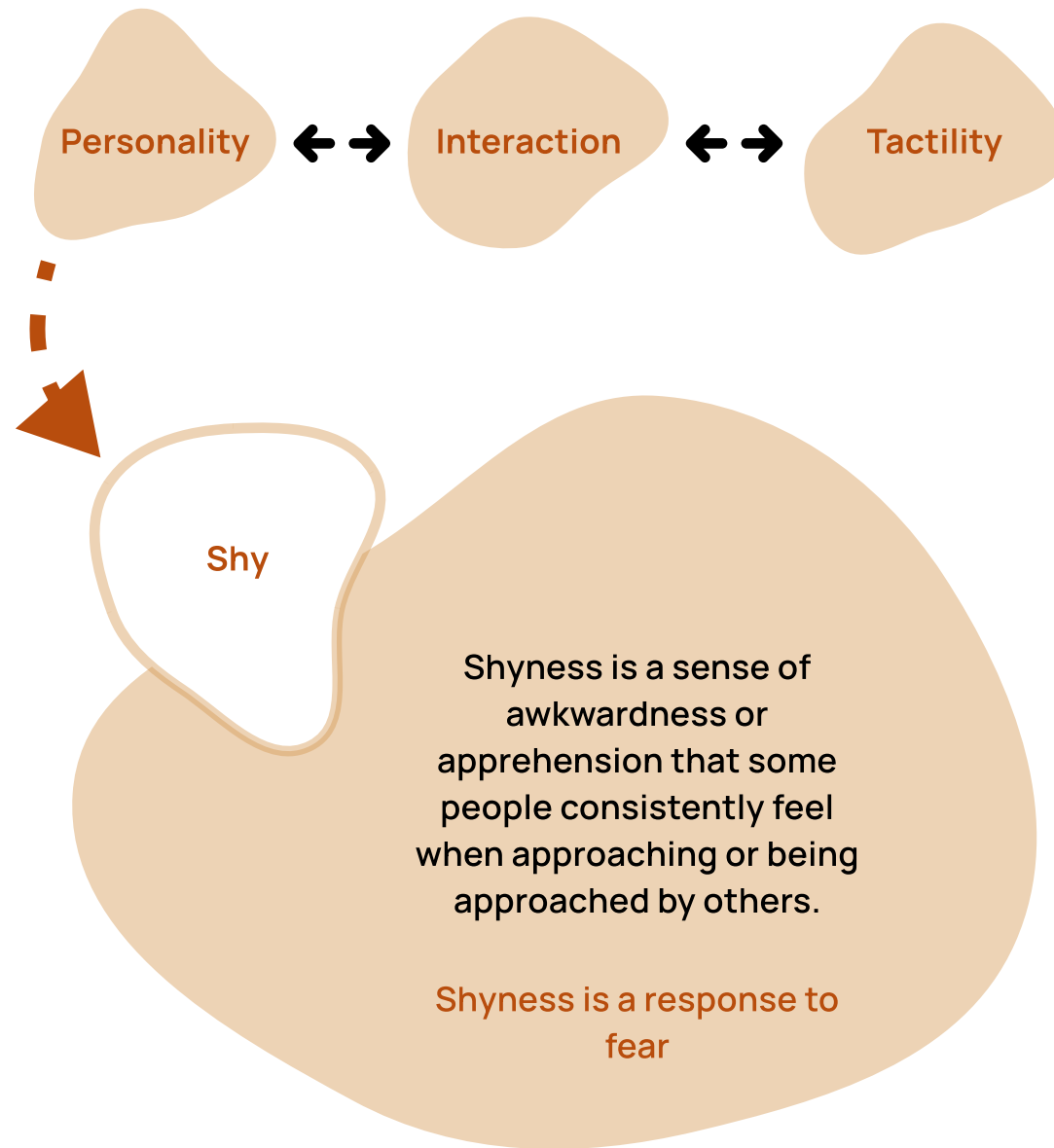
Create an interactive desk pet that adds personality and charm to a user's workspace. it should serve as a friendly companion on a user's desk while also functioning as a reminder system for specific time intervals to encourage positive work habits and enhances productivity. - polish these lines

Chapter 04:

Ideations

Stage 01

4.1



Simplified interaction sequence of shyness

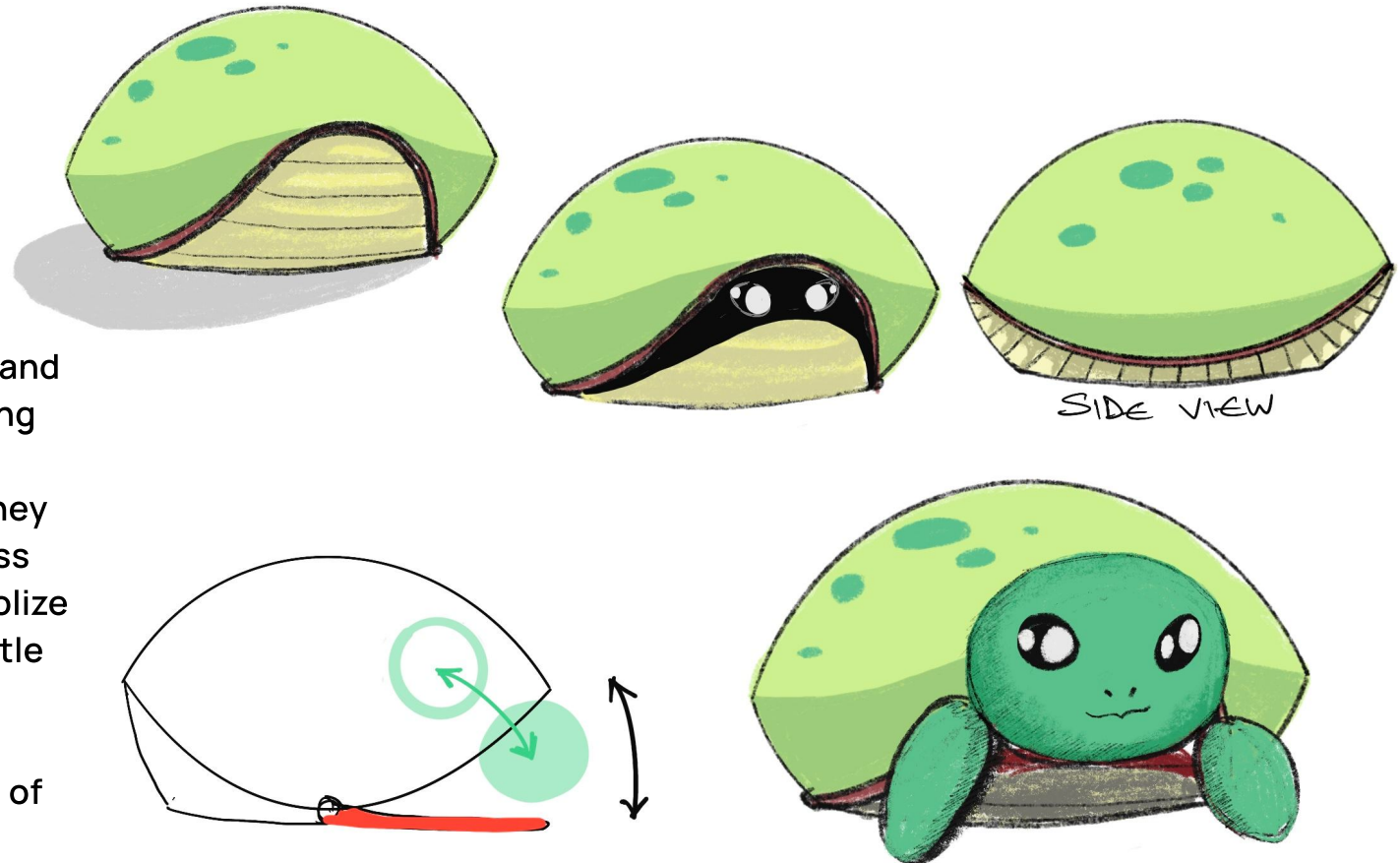
4.2



Concept ideations: 01

4.3

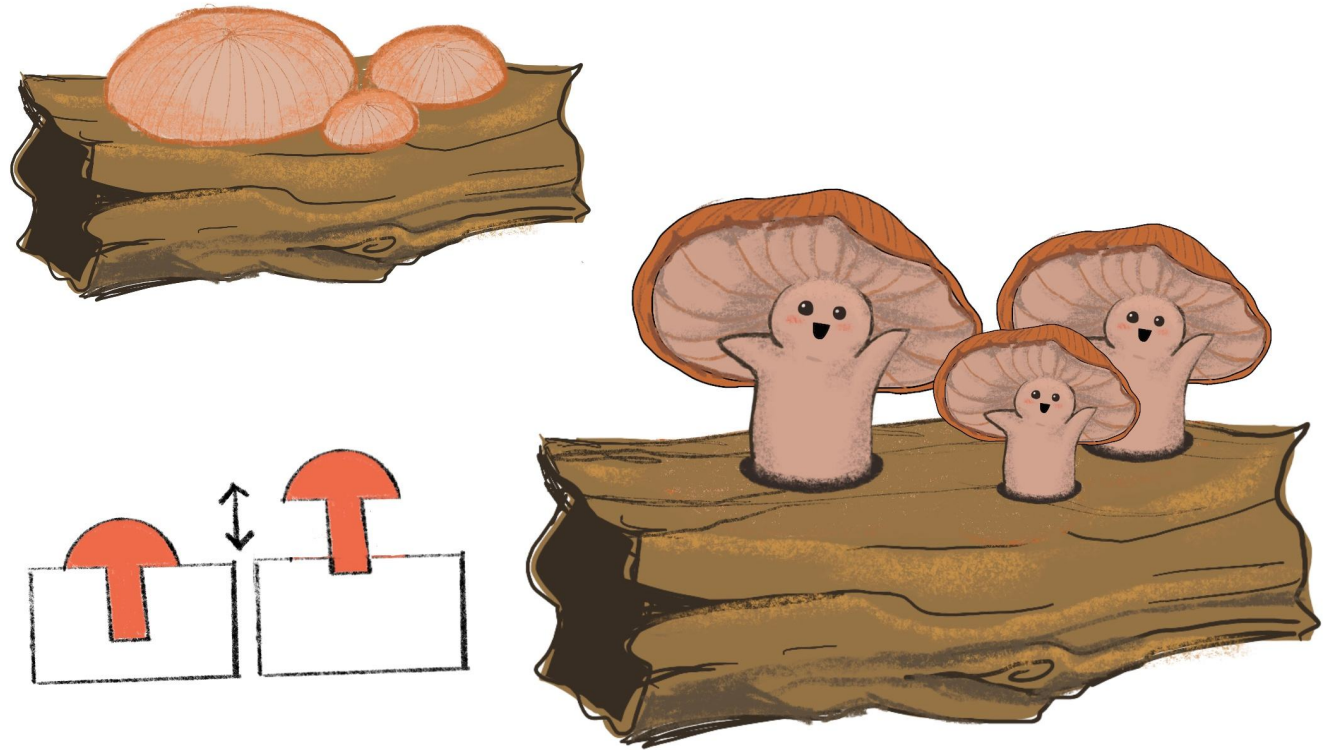
Turtles are known for their shy and reserved nature, often retracting into their shells when feeling threatened or overwhelmed. They embody a sense of cautiousness and introversion. Turtles symbolize patience, tranquility, and a gentle demeanor, all of which can contribute positively to the character and interaction style of the deskpet.



Concept ideations: 02

4.4

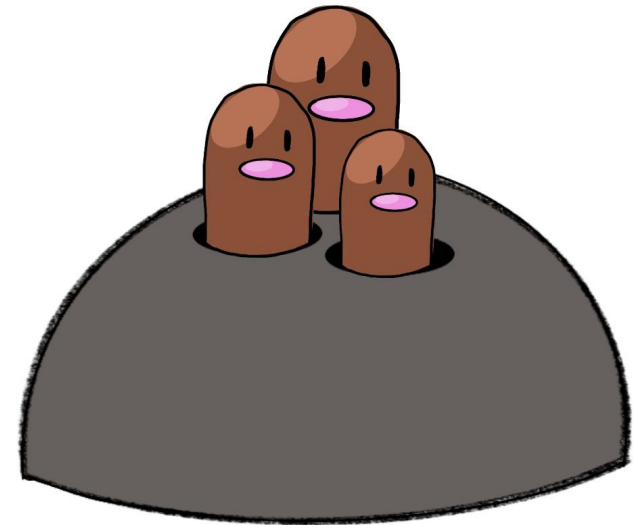
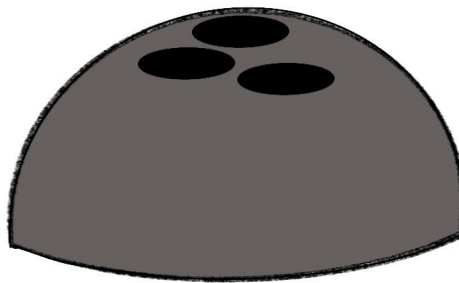
Mushrooms often grow in secluded, shaded areas, reflecting a reserved and introverted nature. Their growth process, starting as small, hidden entities and gradually emerging, mirrors the gradual opening up of a shy personality. Moreover, mushrooms symbolize resilience, adapting to various environments despite their delicate appearance, which could add depth to the deskpet's personality, showcasing strength beneath a shy exterior.



Concept ideations: 03

4.5

Worms typically live in underground burrows, displaying an introverted and reclusive nature. Their tendency to avoid exposure and seek shelter aligns with the shy personality we are aiming for. Additionally, worms play a vital role in soil health, symbolizing hidden importance and quiet contributions, reflecting how even shy individuals can have significant impacts despite their reserved demeanor.



Concept ideations: 04

4.6

The image of a cat hiding in a box reflects a common behavior where cats seek seclusion when feeling shy or cautious. It resonates with the idea of withdrawing from social interaction, showcasing a shy personality. Additionally, the curiosity and occasional peeking out of the box signify a gradual, hesitant approach to engaging with the world, adding depth and charm to the deskpet's character.



Concept ideations: 05

4.7

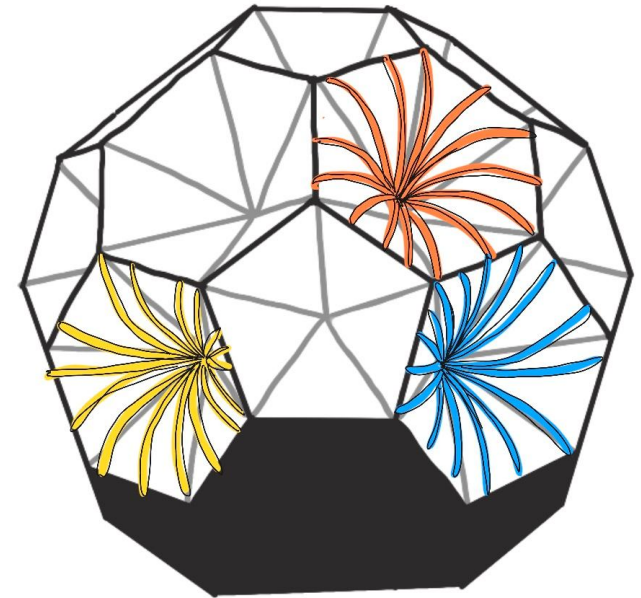
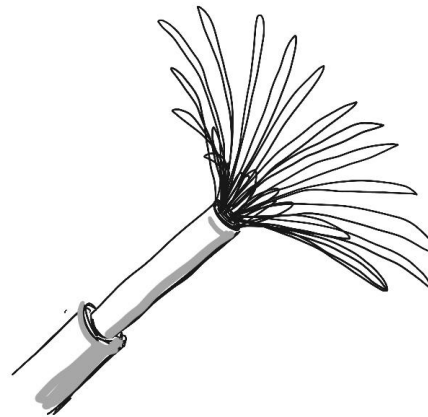
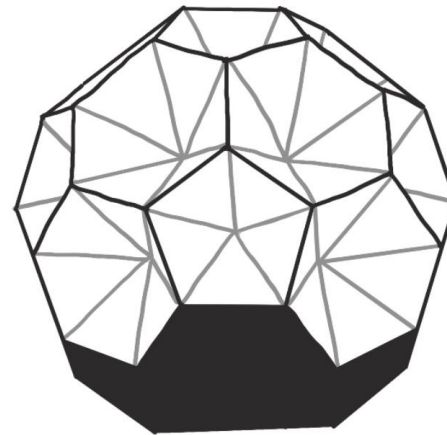
Forest pixies are often depicted as shy and elusive beings, preferring the tranquility of nature over bustling environments. Their connection to the forest symbolizes a deep affinity for solitude and a gentle demeanor, embodying the qualities of a shy personality. Furthermore, the magical and whimsical elements associated with pixies can add an enchanting and endearing aspect to the deskpet's character.



Concept ideations: 06

4.8

Anemones often retract into their protective shells when disturbed, mirroring the behavior of a shy personality seeking to retreat from overwhelming situations. Additionally, their delicate appearance and serene swaying movements in the water convey a sense of quiet beauty and grace, reflecting the gentle and reserved nature you aim to portray in the deskpet.



Final Concept - reasons for choosing

4.9

1. **Relatable and Endearing:** Cats in boxes are a universally recognized and beloved image, creating an instant connection and appeal among a wide audience. Their behavior of seeking comfort and security in enclosed spaces resonates with many people, making it relatable and endearing.
2. **Expressive Behavior:** Cats often exhibit shy or reserved behavior by hiding in confined spaces, showcasing a personality that aligns with the concept of shyness. This behavior allows for a range of expressions and interactions, from cautious peeking to playful exploration, adding depth to the deskpet's character.
3. **Versatile Interpretation:** The image of a cat in a box can be interpreted in various ways, allowing for creative and versatile storytelling. It offers opportunities to explore themes of curiosity, cautiousness, gradual opening up, and the balance between seeking solitude and tentative social interaction.
4. **Iconic and Memorable:** The simplicity and universality of the concept make it memorable and easily recognizable. It can serve as a strong visual representation, making it easier for users to engage with and remember the deskpet.



Chapter 05:

Concept Development

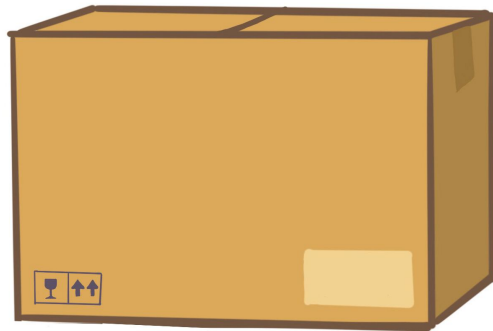


Concept Development

5.1



Shybot sits quietly on your desk next to your desktop until you sit down for some work. Once it notices you, it wants your attention but is very shy so it takes its time to gain confidence.



**when no ones
around**



**when you are in your
workspace**

**it will keep peeping and as
time passes and as it gains
confidence, it will show itself
more.**



while in your workspace

after a certain time, once it has accepted you and its not shy anymore, it will completely show itself.

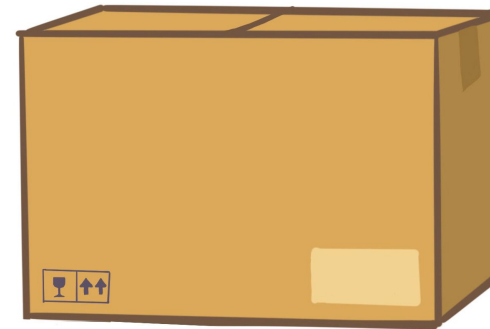


while in your workspace

after it completely shows itself, you can pet it. It has a haptic response while petting. After which it will go inside its box, restarting the cycle.



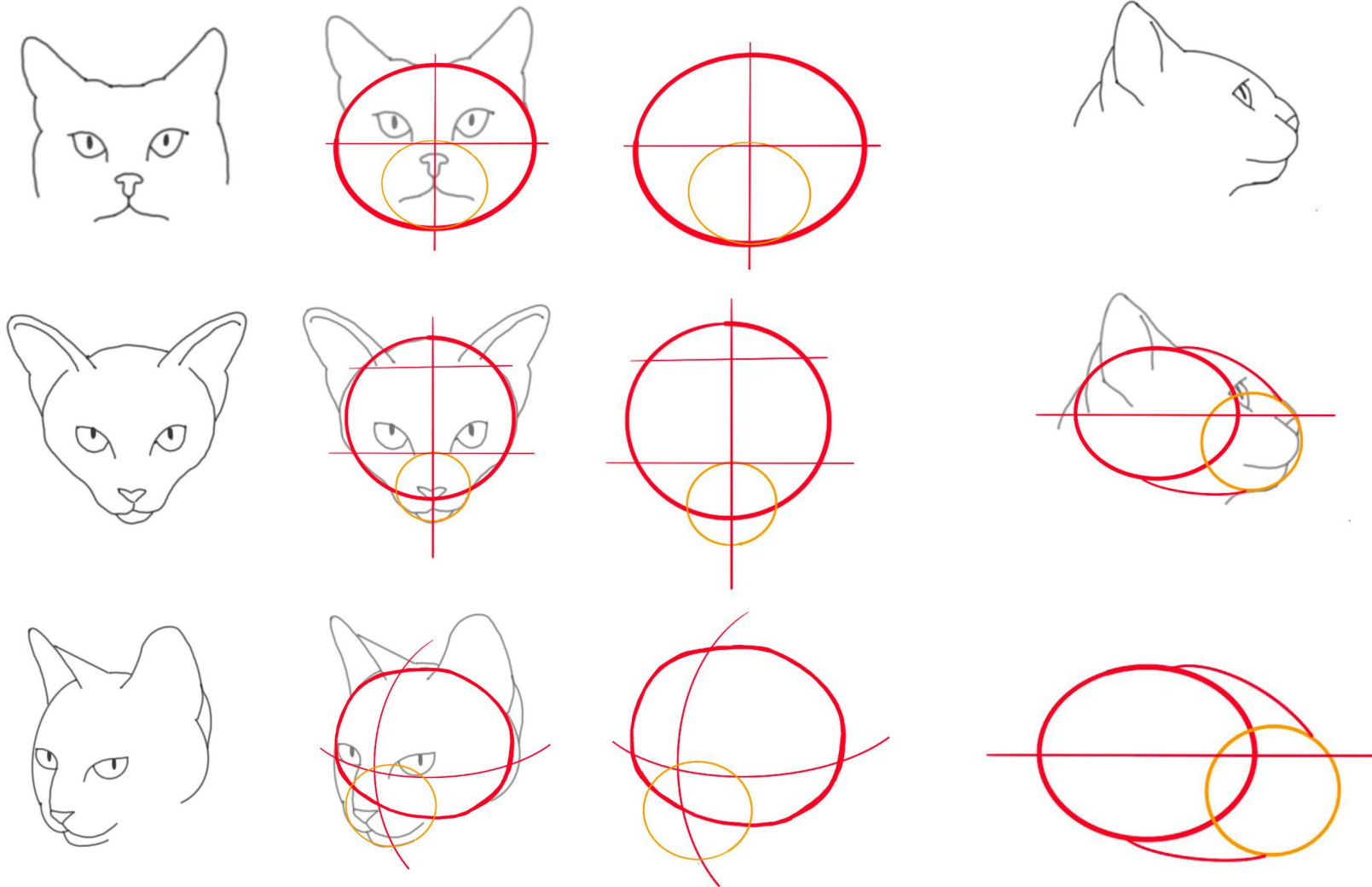
**if you try to pet it before it
feels ready, it will go back
inside its box**



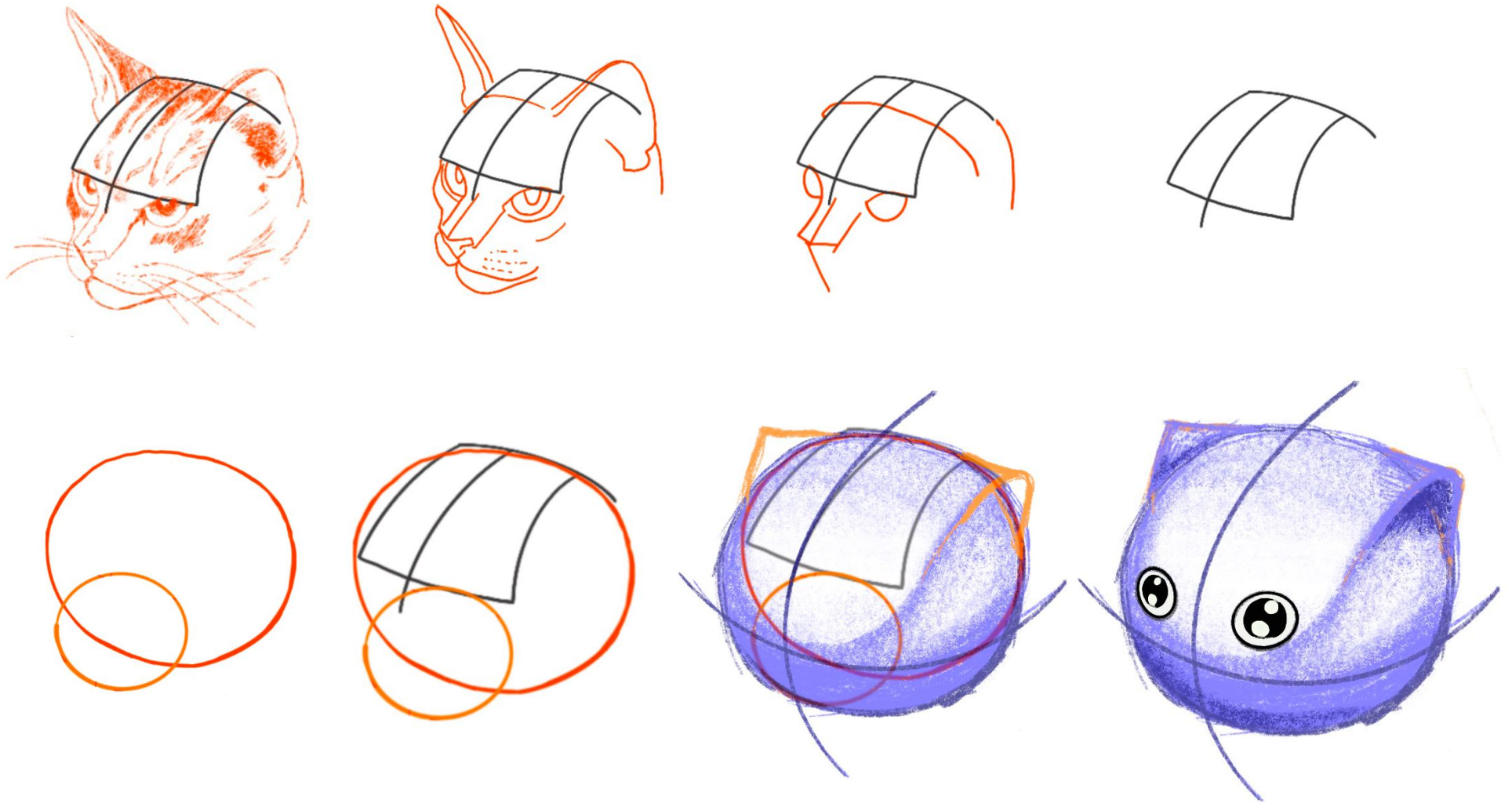
**in this case, the process
will restart.**

Form Extraction

5.2



5.2. Form Extraction



Final Form

5.3

Grey fur

Ginger fur

6-10mm fur



Chapter 06:

Product Development

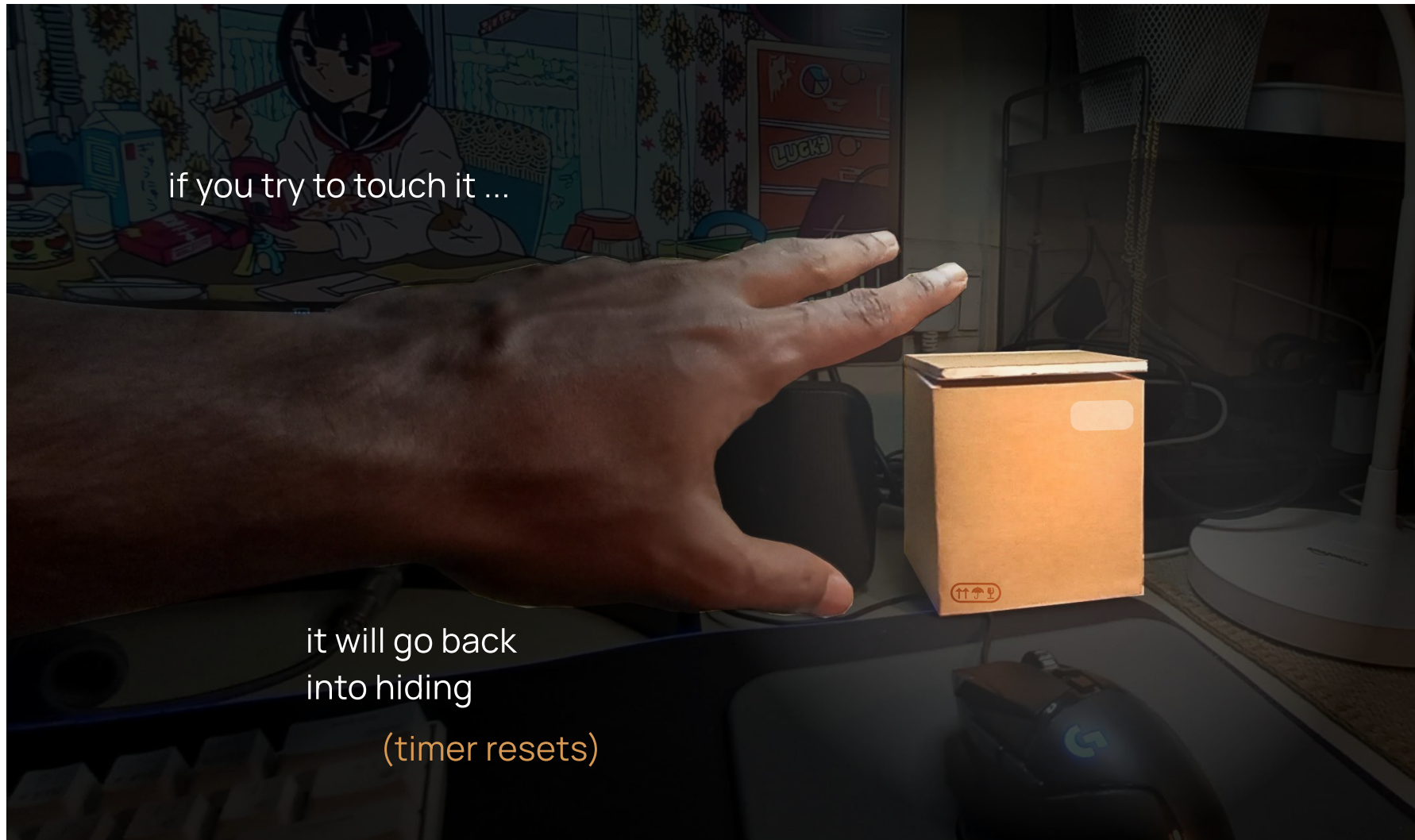
Prototype

6.1

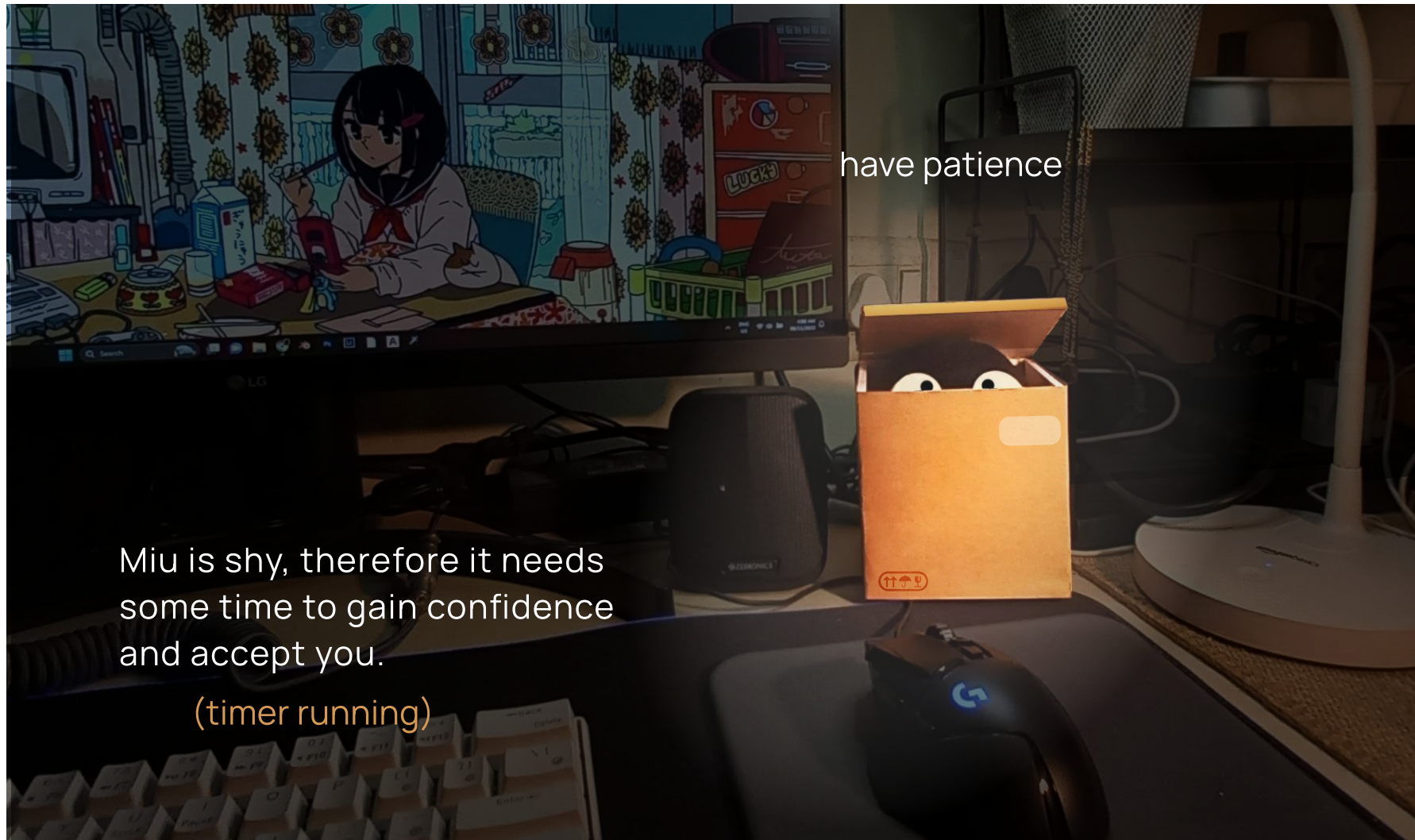


As you sit at your
workspace, Miu
notices you and peeks
to see
(timer starts)

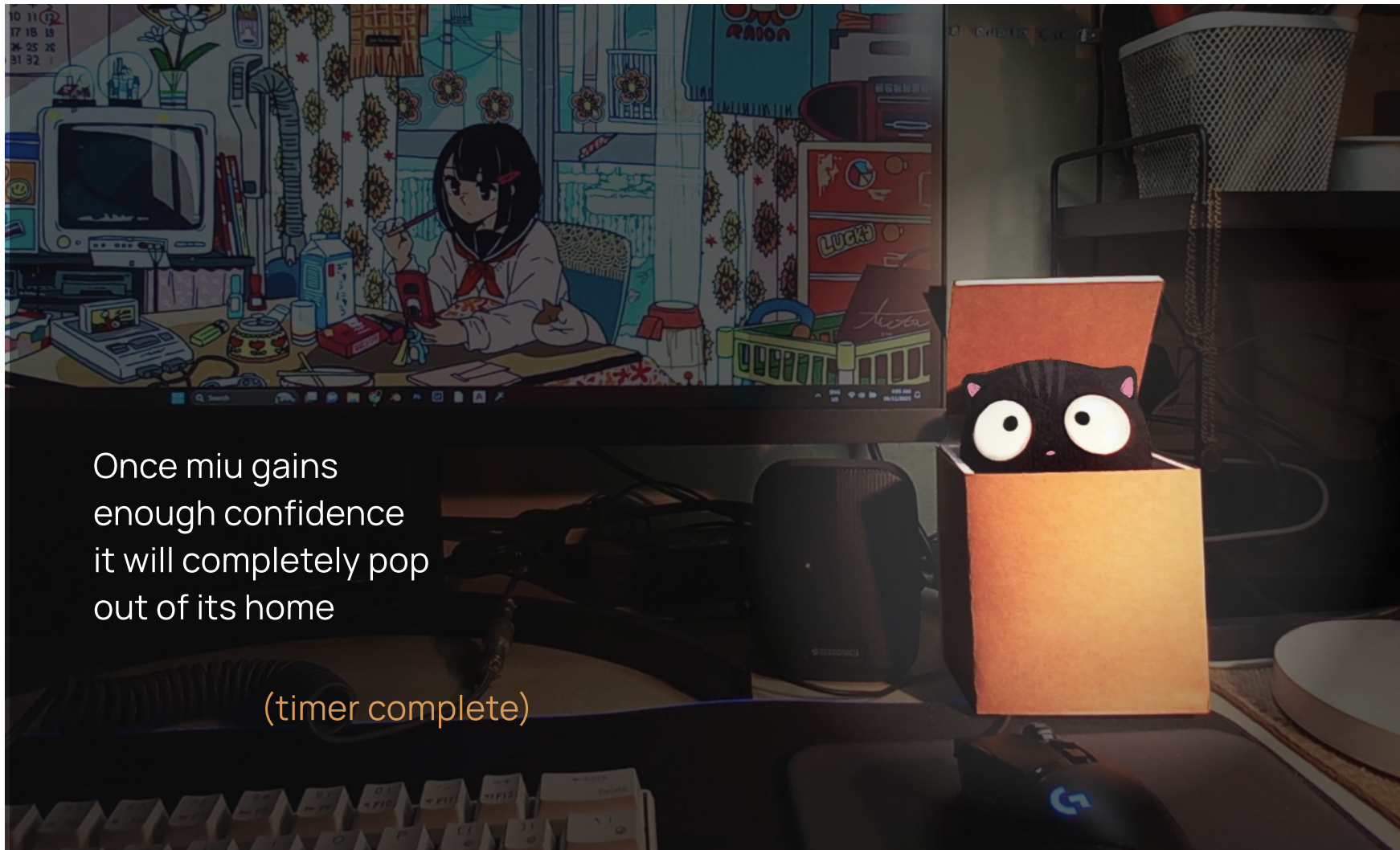
6.1. Prototype



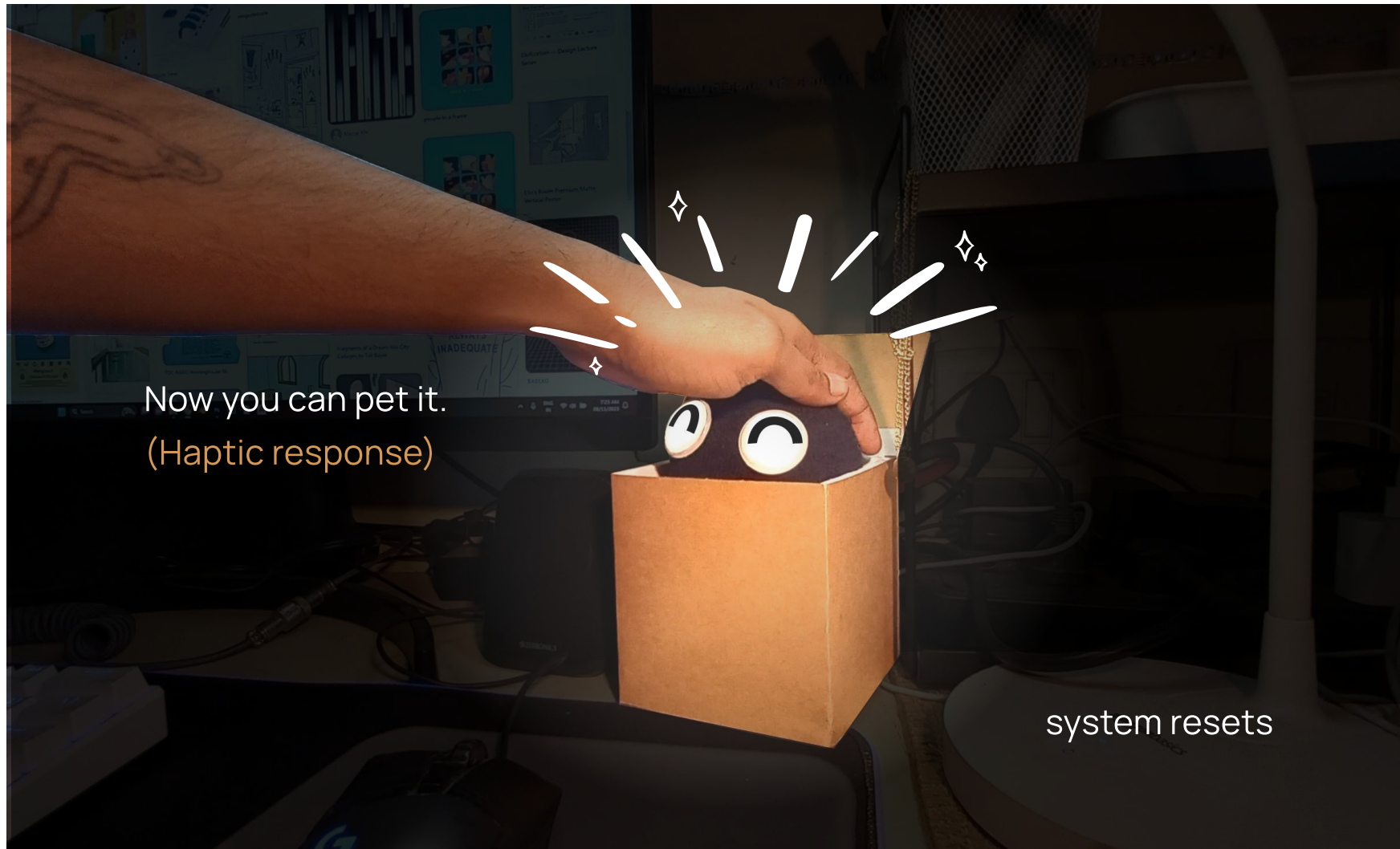
6.1.Prototype



6.1.Prototype

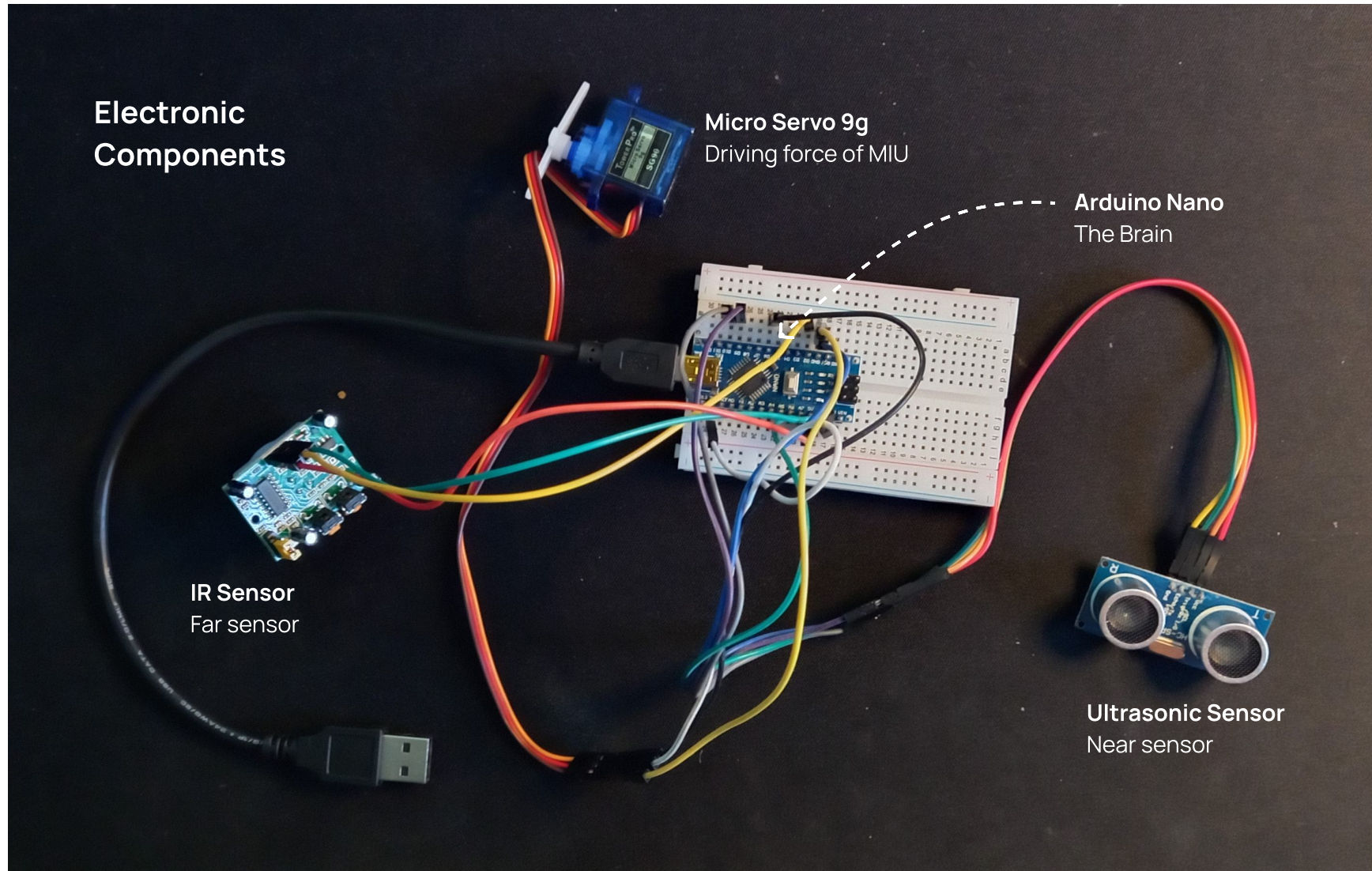


6.1. Prototype



Hardware

6.2



Chapter 07:

Challenges & Learnings

Challenges

7.1

1. **Balancing Shyness with Interaction:** Creating a shy deskpet while ensuring it remains engaging and interactive can be challenging. Maintaining the cat's shy demeanor while allowing users to interact and form a connection without overwhelming its personality might require careful design and nuanced interactions.
2. **Sensitivity in Haptic Feedback:** Implementing haptic vibration as feedback when petting the deskpet requires finding the right balance. Ensuring the feedback is subtle and not intrusive, yet noticeable enough to remind users of screen time, demands precise calibration and testing.
3. **User Engagement and Reminder Functionality:** Making sure that the reminder about screen time isn't intrusive or irritating is essential. Finding the right intervals or triggers for the reminder and ensuring it adds value without disrupting the user's workflow can be a challenge.
4. **Ensuring Emotional Connection:** Creating a shy deskpet that fosters an emotional connection with users despite its reserved nature can be a challenge. Finding ways to evoke empathy and attachment through subtle gestures or expressions will be important in making users feel connected to the deskpet.

Learnings

7.2

1. **Understanding User Behavior:** Designing a deskpet that reminds users about screen time offers insights into user behavior. Understanding how people respond to such reminders and how they interact with the deskpet in response can provide valuable insights for user engagement and behavior modification.
2. **Balancing Interaction and Restraint:** Learning how to balance a shy personality with interactive elements teaches the importance of subtlety in design. It shows how to convey a personality trait while providing meaningful interactions without overpowering the character's essence.
3. **Fine-tuning Feedback Mechanisms:** Implementing haptic feedback for petting the deskpet teaches about refining tactile interactions. Understanding the nuances of haptic feedback and its impact on user engagement and attention can improve future designs.
4. **Adapting to User Preferences:** Learning how users respond to the reminder about screen time and the haptic feedback can provide insights into individual preferences. Adapting the deskpet's behavior or reminder frequency based on user interactions can showcase the importance of personalization in design and user experience.

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