# EXPODY

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# Content

# INTRODUCTION

# Background

To begin with, I always find it thrilling to work in the children's design area. I believe working for them brings joy and fun to the design process. In recent years I have been observing that children's lifestyles changed enormously due to technological advancements. Additionally, during the thesis project timeline, there has been a pandemic situation existed. That is why I heavily influenced by changes in our lives. I found a possible design space to work in this area especially with the effect of the pandemic situation. My aim at every beginning of design projects is to bring innovative design approach for people's lives to make them their life more comfortable. In this manner, in my thesis, I considered psychological aspects highly due to the negative impacts of Covid-19 and harmful outcomes of technological advancements on children's psychology.

It was pretty exciting to understand children and exploring their world. They have great creativity levels, different mindsets, and have great possibilities to be discovered for them. With the development of high usage of social platforms, the addictiveness of video gaming, I realized that today's kids have a more different childhood and compare to my generation. It has been a curious topic for me to understand their relationship with digital screens. I have noticed many children in any age range are using their mobile devices in public places, restaurants, in family gatherings. Which makes me question their social abilities or cognitive/motor abilities. I had a concern about their silent behaviors by only sitting in front of a digital screen.

U.S.A. secondary
research

Sweden observations, interviews

Turkey
interviews, cultural experience

# CHAPTER 1
## INITIAL RESEARCH

The research conducted in different geographic areas. Because of that I accomplished my research in English, secondary sources which are statistics, articles, and news based on mainly from the U.S.A. With the reason of my cultural background, I conducted online interviews with children in Turkey and made empathy with my childhood. As I lived in Sweden during the thesis project, my observations and other surveys took place in Malmö, Sweden.

# First possible areas to discover

First of all, there have been enormous technological investments that entered our lives in the 21st century. With the crisis of Covid-19, globally people affected by the pandemic situation and started to spent most of their time in their homes. The rise of usage of smart devices encountered rapid change and had a big part in our daily lives. My questions to choose a brief for thesis topic revolved around our relationship with our new era, digitalized lifestyles. My priority to develop design projects to help human lives in a sustainable way. It is crucial to understand the pain points while we experiencing these new technology investments and new lifestyles. The big question for me to discover was "How digitalization shaped our lives?". Although my interest was mainly on children, I also tried to understand impact on adult lives. Understanding the effects of digitalization on our own lives was important to be able to make an empathize with children. I have tried to separate digital and real-life actions and cycles between them.

RESEARCH

## For adults

| Digital input | Tangible outcome |
|---|---|
| Looking at screen too much | → Dry eyes / Migraine/headache / Posture problems |
| Watching, reading recipies | → Cooking at the same time |
| Using Tik Tok, Instagram | → Dancing, taking photos |
| Shopping | → Getting orders in real life, packages |
| Looking for home, car or investments advertisements | → Getting these things in real life |
| Learning new hobbies, getting inspirations | → Doing them in real life |
| Spending so much time on digital devices | → Decrease in social life, loosing emotional connections |

## For children

| Digital input | Tangible outcome |
|---|---|
| Looking at screen too much | → Dry eyes / Nearsightedness / Loss of focusing |
| Playing a lot games on mobile devices | → Less interaction with family and less development physically, emotionally |
| Learning through apps | → Boost of their creativity |
| Interaction accidents | → Spending money accidentally |
| Using social media | → Being vulnerable to abused |

These are first and basic input/output relations. At the same time, for me to be able to make empathy with children, finding similarities is crucial to look from their world. Common uncomfortable areas are having fewer social interactions and having mostly temporary health problems because of the digital medium usage. These areas will be searched more deeply in the further part of the research.

# Initial research

In the conditions of Covid-19, globally there have been many extensive changes occurred. Children are inevitably experienced great changes in their lives such as having online classes, having quarantine times with their family households, not able to see their friends, or going outside. Even for adults, there were great psychological challenges and I realized the effects on children can be negative impacts. This part of my research how they affected by Covid-19 with less social interaction with their friends and the rise of screen time.

During the Covid-19 there are 1.6 billion children globally affected by Covid situation. Families who have tight budget had problems about covering day-care services, lunch meals which were free during normal school times and electronic devices which are the need for having an education in online school. From the news, it declared that emergency rooms with related mental health services experience a **24% rise between ages of 5-11**. There some different occasions children can go through divorce, death, or loss if there is anyone who supports them. It is beneficial to distinguish stress levels for children. Positive stress is challenging and pushing childrens to go out of their comfort zones. These challenges make children grow and make them to able to cope in unfamiliar situations. For tolerable stress, children able to cope with external support when there is rough events happen. Toxic stress means severe level of stress, repeats itself during a time period and support from relatives can not be sufficient. This type of stress damage their development and lead having trauma for further their lives. Additionally, children who have higher quarantine time can have higher greater level of post-traumatic-stress level. This stress level has an association with being toxic and dangerous for them. **Post-traumatic stress expected as having 4 times higher** compared to adults. Meanwhile, their experience in the outdoors and physical activities, decreased enormously which has an outcome for having harmful stress for them.

To apprehend stress level of children by Covid-19, article research conducted. According to Araújo, L. A., Veloso, C. F., Souza, M. C., Azevedo, J., & Tarro, G. (2020) claims that " In an environment with social restrictions — where play and leisure activities are only possible within the home environment; where people wear masks and the learning of facial expressions, communication, and language is restricted; and where demonstrating affection is discouraged by many — there is a tendency towards limitations in the formation of certain areas of the brain, including the social brain, with consequent impairment in the acquisition of cognitive, behavioral, social, and communication skills.". Furthermore, education has been started to conducted online which has taken most of their daily life. The rise of screen time is inevitable for children and not only limited to education also because of becoming addictive to video gaming and popularity of social platforms. The concerns of the families have grown about this issue and they have still major concerns.

## Concerns from Family Members

•"Kim Mauch, parent to a 9-year-old my **biggest concern for our daughter is how to keep her engaged with her friends** in ways that are safe. It is so important for her social and emotional health to maintain relationships in the era of social distancing."

•"Quhaar, 16, who's **shown signs of depression** as he's holed up in his room in Sumner, Washington, unable to play football or see his friends and teammates. "I just don't want that talent to go to waste and I **don't know how to motivate him during this pandemic**," Ferreria said."

•""It's different if you can't get access to a WiFi hotspot. It's different if you have six kids or **three kids or two kids who are fighting over one tablet and a parent who needs it as well**," Fisher said."

From the quotes of parents, it interpreted that they have major concerns regarding what is missing compare to back in their normal life before Covid-19. Besides, pandemic situation makes things worse for digital dependency and made it more clear for family members but it has been existed gradually changes in children lifestyles. There is a clear relationship between their increased time on digital screens and decrease in spending time outdoors or for physical activities. Physical activites related in any age group of children with physical conditioning, emotional well-being, and growth - development. Spending time for physical activities is indispensable experience for children for both their mental and physical development. Additionally not for only children but also for adults, keeping mental health at better level and able to cope with mental diseases, psychology department always recommend and urge people to going outside and having social interactions. For this reason, increase in screen time puts children in more difficult place, especially for their mental health development.

On the other hand, digital investments not always harmful for children. According to UNICEF, "Concerns have also been raised about the time children spend using digital technology and its effect on their physical activity and mental health. Evidence suggests moderate use of digital technology can be beneficial to children's mental wellbeing, whereas excessive use can be detrimental." Additionally, according to Chassiakos Y., Radesky Y., Christakis D., Moreno M., Cross C., claims that "Parents should recognize and understand their own roles in modeling appropriate media use and balance between media time and other activities." The same information was found in several articles. That is why I believed there should be a balance between using digital media (video gaming, Tv, social platforms) and physical activities.

# Psychology of Children

To define target group, and better understanding of children's behaviors, briefly research conducted about different age group's psychology of children. Possible age group was between 4-12, because for toddlers and teenagers scenarios are completely different from the other age group. Toddlers are completely dependent on their family members, and they are new beginner learners about their surroundings. Teenagers did not include from the beginning of research because major concern aimed group has been children from the beginning of the project.

Between ages of 7-12 logic thinking appeared as form and classifications, there has understood of time and number and a greater application, understanding of hierarchical relationships.

| 4-6 | 6-9 | 9-12 |
|---|---|---|
| Practising simple movements and requiring balance | Practising more complex movements and have need for balance and agility | Practising sequence of complex movements |
| Practising step-by-step instructions with the help of their family members | Following a sequence of instructions to complete task on their own | Able to follow complex of instructions and they involve decision making when it requires |
| Able to solve simplified tasks by provided a care giver | Practising understanding, evaulating and solving problems with the in the case of requirement of support if necessary | Independently able to solve, understand and evaluate for managing problems |
| Able to coping with strong emotions | Managing strong emotions during group activities | Able to cope strong emotions in complex situations |
| Interpretin their own feelinds and starting to notice of other people's feelings | Starting make sense of non-verbal or complex emotional cues | Practising making decisions based on their emotions while accounting for the emotions for others |
| Start to play in cooperation that involves sharing | Start to practising two-way communication and building trust activities | Building practising loyalty, intimacy, and taking other's need into account |

https://childrensdesignguide.org/dsd-cards-developmental-stages-of-5-6-7-9-10-12-y-o/

# DIGITAL AND PHYSICAL RELATION FOR CHILDREN

| Platform | Digital Input | Physical Output | Digital Output |
|---|---|---|---|
| Social Platforms, Pinterest, Blogs | Having inspiration for their hobbies, such as music, art, dance, singing | Performing these hobbies in their real life | - |
| Nintendo switch, Wii, Xbox | Playing exercising activities | Finding their interest, exercising in their real life | - |
| Insta X, mobile phones | Taking photos on Insta X or phones | Having printed, tangible photos | Publishing their Insta-x photos in social platforms |
| VR (Virtual reality) | Using VR headsets to experience virtual worlds | Playing physical games, exercises | - |
| Social Platforms, Pinterest, Blogs | Finding DIY projects online | Creating DIY projects in physical life | Publishing online and sharing their projects |
| Spotify, Youtube, Other Platforms | Using music applications | Listening music in real life, with CD's to have more analogue feeling | - |
| Youtube | Watching videos online | Dancing and singing with videos | - |

**Table 1**

  To understand more deeply digital experiences for children, it was important to look the relation between digital and physical experiences and the cycle between them. The questions that I examined was what are the digital inputs, the outcomes in physical life, and their experiences. After these questions, there are some digital inputs found related to physical and digital outputs. These informations based on search from Youtube, blogs, and book named" "Young Creative, Digital Technologies Empowering Children in Everyday Life" by Elea I., Mikos L. From the book, there are several articles related with digital experiences and observations for children. In the section of Pockets of Freedom but Mostly Constraints pg. 159-170 explain details about DIY projects, how children access these digital platforms, what they do, and gains after they publish these DIY projects. According to this chapter, the social abilities among the children who have more shy attributes showed great development and feedback was mainly positive. DIY platforms led children to create a positive social community so they can comment on their project and share what they found online. This point has taken into the consideration to use in further processes in the project. The reason was understanding how to shape children's communication into positive way. Additionally, from the digital-physical relations an interesting point found. From mobile devices, many photos can be taken. However, selecting from these many photos to print is more reluctant experience compare to having instant outcomes from Insta-X.

| Platform | Physical Output | Digital Output | Digital Output |
|---|---|---|---|
| I-movie | Re editing- re designing their toys | Creating story movie by I-movie, Ipad | Publishing online |
| Tik-tok | Dancing, singing, acting with their friends | Publishing online | Gaining followers, gaining likes, presenting themselves |
| Youtube | Talking or explaining something with prepared / unprepared background | Publishing online | Following new trends, gaining popularity, likes money, earning money |
| Youtube | Challenges (making un common behaviors) | Publishing online | To attrack others, gaining followers |
| Youtube | Vlog, what they do their in daily lives | Publishing online | Gaining followers, gaining likes, presenting themselves |
| Diverse internet sites | Making DIY projects, interested in maker projects | Publishing online | Sharing their spesific interest, creating portfolios, communicating with people who have similar interest |
| Diverse internet sites | Doing physical activities, artworks on three dimensional | Publishing online | Gaining popularity, expressing their feelings |

**Table 2**

The same methods as in table 1 were used in table 2 to understand the relationship between physical and digital experiences. In this table, re-editing and redesigning parts have been taken into the consideration for further usage in the project. This experience is found in the chapter called "Bringing Maker Literacies to Early Childhood Education of Young&Creative, Digital Technologies Empowering Children in Everyday Life" by Elea I., Mikos L. The experiment was done by university students to understand play about commercial toys. University students encouraged children to re-make new toys out of the toys they had and to create stories. Children merged different parts of toys into unrelated other parts of toys and created I-movie stories. Children didn't consider gendered toys and had fun with these experiments. Providing creative spaces to children has significant point in this experiment. The other physical inputs-digital outputs relation found that publish of they dancing or making some challenges in digital medium explained how they would like to be seen by their peers and how much they are eager to follow recent popular trends. Following these trends can create negative impacts on their physiology because of the social media pressure they have from others (moreover they can have social bullying). On the other hand, playing as a team rather than acting as a single individual about creating a movie or project can boost their relation in a positive way. For this reason, their acting as a team has been taken into consideration in order to channel their interest in social platforms in a more positive way in the project.

| Platform | Physical Output | Platform | Digital Output |
|---|---|---|---|
| School | They are playing together with their friends, creating some enjoyable small games in each other | Minecraft | They are solving problems together as being team, getting help from each other. Minecraft enables collaboration and peer learning together with their friends |
| Book | Reading physical books, although the statistics shows that number of readers in child decreasing tremendously | | |
| Outdoor places | Hiding and seeking, catching each other, running, racing, jumping, cycling | Youtube | Youtube act as them to inspire them to find their profession. Female children mostly more active on Youtube and potential to promote consumer culture |
| Indoor places | Dancing, singing, cooking, playing toys, daily basic routines | | |

**Table 4**

**Table 3**

In Tables 3 and 4 same methods were used in Tables 1 and 2. The aim of these tables to understand just the one-way relation of their actions in their daily lives and positive or negative experiences they have. These relations created to understand activities and differentiate between them.
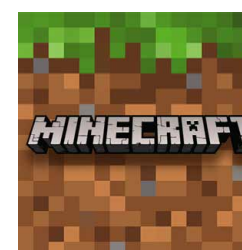
The relation of Minecraft grabbed my attention because Minecraft has been a trending creative game for many years. Additionally, in the book of Young&Creative in chapter 14, Peer Teaching and Learning pg. 175-184, the authors described an experience about two children who play together to create a world in Minecraft, individually in their homes. In this experiment, the authors explained that children used their Ipads to have video chat for communication and computers to play Minecraft. The article shows the power of peer learning and teaching with mutual respect in a creative space in the video gaming experience. Each one directed another one to help to accomplish tasks and solve them together. The result showed that playing together in a team in a creative space rather than action- war-based games boost the peer learning - teaching relation in a team game. This point has taken into consideration for further process to creating children team-based actions in a creative environment to develop their communication.

# DESIGN BRIEF

From the secondary research, there are several points found valuable to merge in brief statement. Being addicted to video gaming and social media usage contributes to harmful outcomes for children's lives. From a psychological perspective, the big question is how to reduce the stress levels for children to preventing having anxiety, depression, or mental health problems in further their lives. It has been found that going outside and doing physical activities has significant beneficial relation with dealing with and preventing mental health problems. Moreover, another point found that boosting social skills and communication is another beneficial way to keep mental health at a good level. For this reason, I specified my brief as promotion of physical activities at outdoor and enabling communication with their friends. As result of the research conducted to understand the psychology of different age groups, the most convenient age group is determined as 9-12 to include into brief. They are able to cope with more complex tasks, started to orient their friends rather than their parents, following what their peers are occupied with, and have less control of mobile devices by their parents.

In the end, with the main 3 parts, **I conducted my brief as "How to promote physical activities with friends in order to reduce stress and anxiety between age 9-12?"**. The next steps of the design process will be focused on the three major parts of the brief which are going outside, promoting physical activities, and communicating with friends.

# Observations in Malmö

Observations made by looking to the schools garden and at the public spaces. The main aim was to understand children's behavior and their interest. According to school observation, there were two different age groups determined from their heights. One group was playing field hockey as a gender-mixed group. The other group which was younger was playing football ate the most of their free time. They also created their imaginary games such as sliding from the hill especially during the winter.

From the other observations which were mainly in the park, gender-mix groups were playing games with balls, chasing them each other, or walking with their family members. Girls were dancing and making aerobic movements.

# OBSERVATIONS

# Observations - Youtube

In this part of the research, I conducted my observations from Youtube. The keywords were what is on my Ipad, 10 year old son, 11 year old girl vlog, etc. I had knowledge that Ipad is most popular device among this age group. The main aim was to understand their behaviour, digital relationship and how they explain their favorite activities. I searched in English, Turkish and Swedish.



**9 year old girl**
Video about Ipad and what is in it
Explains everything in detailly have patience
Have knowledge about what is IOS and knows that can't update
Favourite game is Checker is because it is easy to beat others
Have colour and pattern similarity in background of Ipad and of her room



**8 year old girl**
Video about Iphone 6s and Ipad Small size
Explains again case in the beginning
Explains background and picture reason
Poptropica (app game) Exploration of world an customized character (she likes it)
Ant smasher- so disgusting ant smashing game, she says but keeps playing
Have Snapchat and uses it
Plays more game on Ipad because like it bigger screen
Apps
Episode- Pretty Little Liars (Role playing game)
Petshop- Says little for her
My angela- need to take care about her character
Karaoke app- Sign with lyrics for child edition
Bible Joseph – religious app
Dance Cash- have gang girls and dancing
Personal note- heavy influence as popular trends of makeup and colorful hairstyle



**12 year old a famous youtuber**
lilliana ketchman
Almost like adult with her behaviours
Explains her morning routine
She like skin routine, creams
Make up routine all concealer, light makeup concealer, blush and makeup
Prepares her breakfast
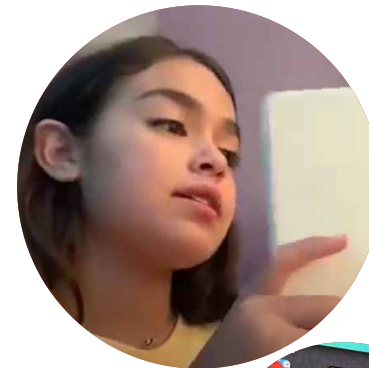


**11 year old girl**
Video about Ipad Small size
Explains again case in the beginning, likes the Ipad Color
Explains background and and picture reason
Explains basic apps in detailed way
Most used: Youtube, Tiktok
Games: Roblox and have avatar on there
Color switch is declared as best game
She do not like from Fortnite so much
Youtube spends so much time
Kahoo for school
Marble cover for Ipad
Marble background
Don't like gaming so much
Like Ipad itself



**Age - Unknown**
Two Swedish boy explains their favorite games on Ipad.
Explains what is look like Ipad cover.
Explains why they choose that background.
Favorite application declared as Roblox, Minecraft



**Age - Unknown**
Her parents do not allow their daughter to see how much she had views from Youtube. They also do not allow for her to use real name. They help her to make videos upon their daughters repeating request.
She is making outfits from online sources to test herself and explains them



**Age - Unknown**
Vlog video about how she spends her one day during pandemic
Only 15 min permission for going to park
No permission to use phone and Ipad during the weekdays
Does multiple jobs while she listens her lectures (like me)
Living standars are higher compare to society
She awares about hygiene and have tendency to wash her hands
Distracted while she doing her exam online ( reason can be recording herself)
Explains everything in steps, detailly like the other age group videos

Results showed that mostly they explain everything detailly. For example, they start the cover of the Ipad, background wallpaper and why they choose that. It helped me to understand better their behaviours and also showed me they can do task step by step more easily.
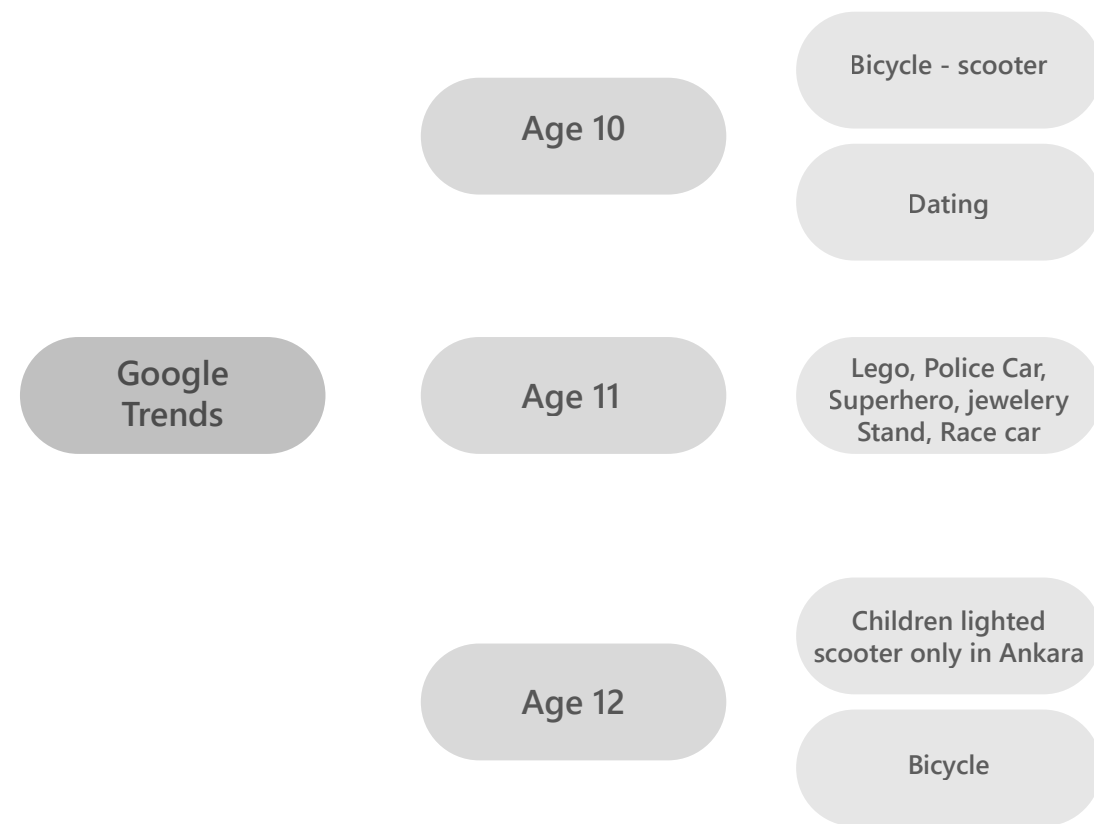
Tik-Tok

Sunchries, Bag, Shorts, Hydroflask, Oversize Shirts

E/boy
VSCO girls

Black paint, Chains, Two t-shirts

Trends of 2021
for kids

Mine Craft

Gaming

Roblox

Fortnite

# Trend Research
# for Children

Trends were an important topic to take into consideration. The popularity of video games already understood from the secondary research. Especially, Minecraft, Fortnite, and Roblox are the most popular games. It also stated according to trend reports they will keep the popularity in the 2021st year. Additionally, there are new trends that emerged in the U.S. about e-boys and Vsco girls. The young generation tends to keep these characteristic features of these concepts. There have been always trends like current ones between the young generation. However, even though video games emerged recently, they have been keeping their popularity without any decrease. VSCO and E-Boy trends did not take into consideration because they have been popular in the only U.S. Besides Tik-Tok, Minecraft, Fortnite, and Roblox are globally social platforms and have influences in many countries.

# Google trends

Google Trends

Age 10
— Bicycle - scooter
— Dating

Age 11
— Lego, Police Car, Superhero, jewelery Stand, Race car

Age 12
— Children lighted scooter only in Ankara
— Bicycle

There is a search tool in Google to explore trends. My aim was to understand the most popular keywords for the age group between 9-12. I started looking with stating words as "gifts for age 11, 10, 12". There are synonym words that came into the database directly. This part of the research conducted in Turkish and English. In Turkish search, the most popular words were where to buy bicycles and scooters in Ankara. The rest of the outcome based on English and the most popular words for gift ideas were Lego and race cars. The popularity of Lego took into consideration for the further design process. The reputation of Lego is applicable worldwide. Design notes for Lego have taken into consideration. Because of the modularity and basic design, it gives freedom to children and improve their creativity.

This market search conducted from Amazon and looked for user comments, to understand experiences by children. Especially National Geographic product was related to the thesis topic, for this reason, I looked at them more carefully to get inspiration from them. They were providing exploration products by science and with curiosity. However, children tend to give up after a short lifetime of usage. Creating more addictive user experience ideas contributed to further design processes.

# MARKET RESEARCH



The exploration concept grabs my attention most favorably to gain children's attention in this stage of the research process. There were some keywords I considered and look into more detailly. The keywords were; detective concepts, searching, exploration, treasure hunt, and AI - app-enabled games. Existing exploring kits include magnifiers, binoculars, compass, and collector containers. The most interested age group found as between 4-7 which understood by the comments from parents, and I found the potential to maintain the exploration concept for the further age group.  For this reason design style and user experience of this concept considered as an inspiration source to develop more at the further design process.

Market research conducted in Lekia Markets in Sweden. From the existing toys, it tried to define app-enabled or technology-involved toys. They were mainly robotic toys that have similar design language.



To get more inspiration, I looked at classical physical toys for their mechanisms and their design style.

# Market research - Lekia



Because that exploration concept has relation to detective concepts it was important for me to look more detailly. Games were mainly board games or tools such as microscope, magnifiers, fingerprint tracking. The classical game style was the same for detective concept which has been existed for long years.



From the trends, popular products, and TikTok it has been understood that singing-dancing for girls age between 9-12 is a popular concept. They were the range of Karaoke Microphones existed in the market. Additionally, Lego introduced a new product line that is integrated with AI, singing, music, and more targeted as gender-neutral.

# IDEATION

During the initial idea generation process, several ideas were attempted to be generated. There were many inspiration sources looked at in this process, such as Lego, Lego Magazines, and the toy market. I grouped ideas according to their functions or uses. The aim was always to provide physical experiences while entertaining children.

## Ideation of Physical Games Concept
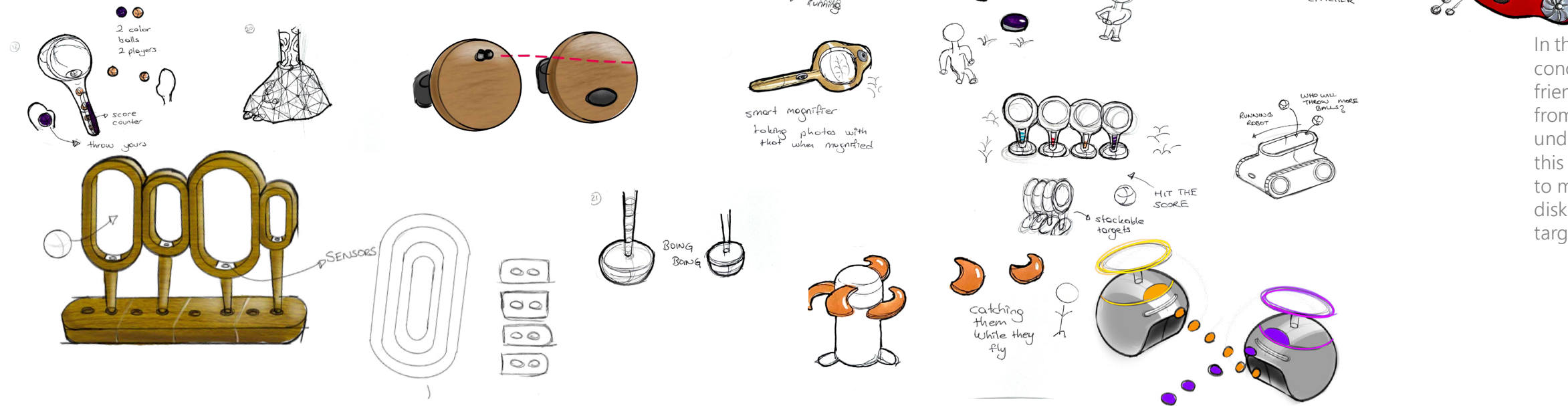


In the concepts of the physical game, the multiplayer concept considered. Children could play with their friend groups or family members. Additionally from observations catching a ball and throwing is understood as the most basic and fun activity. For this reason, technology and this basic activity tried to merge. Concepts included catching and throwing disks, counting by sensors, using laser as playing target.

## Ideation of App-Based Games Concept
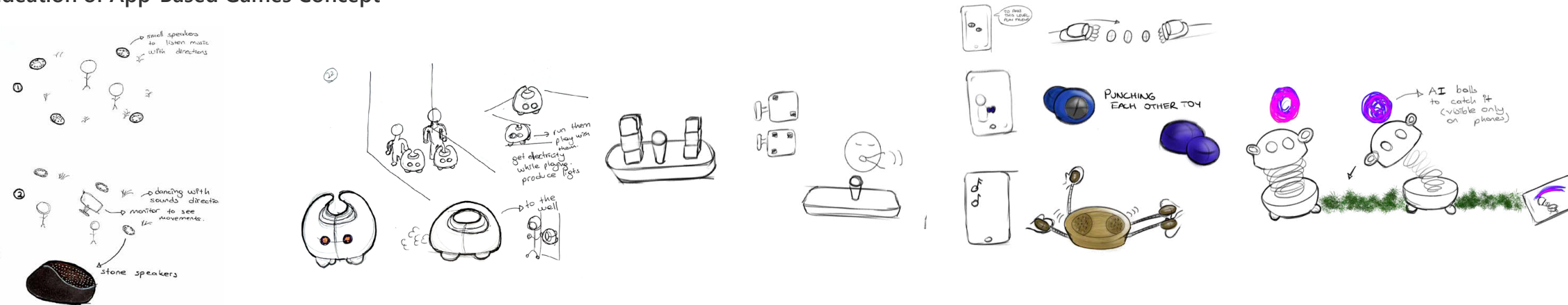


In the concepts of app-based games, children's interests in video gaming have been taken into consideration. There is a clear dependency on mobile games. That's why characters in these concepts sketched as characters from apps can be used as toys or AR technology can be used in the toys. Additionally, the trend of Tiktok usage can be merged with AR technology. However, in the last concept, there was not any positive impact on physical games from my point of view. For this reason, the TikTok concept did not take into consideration further.

## Ideation of Extra Concepts
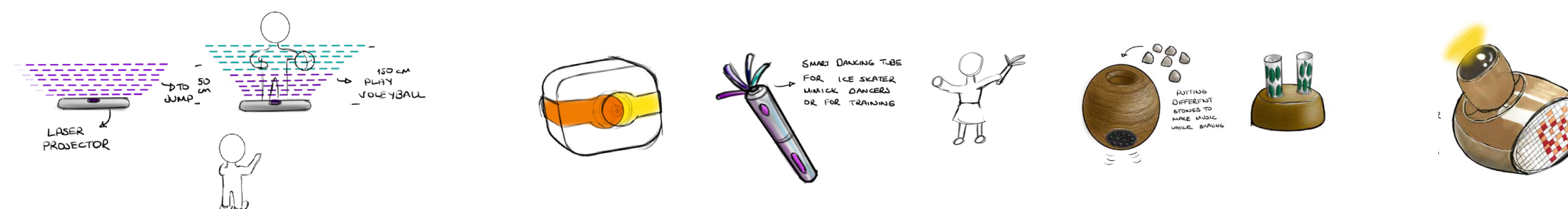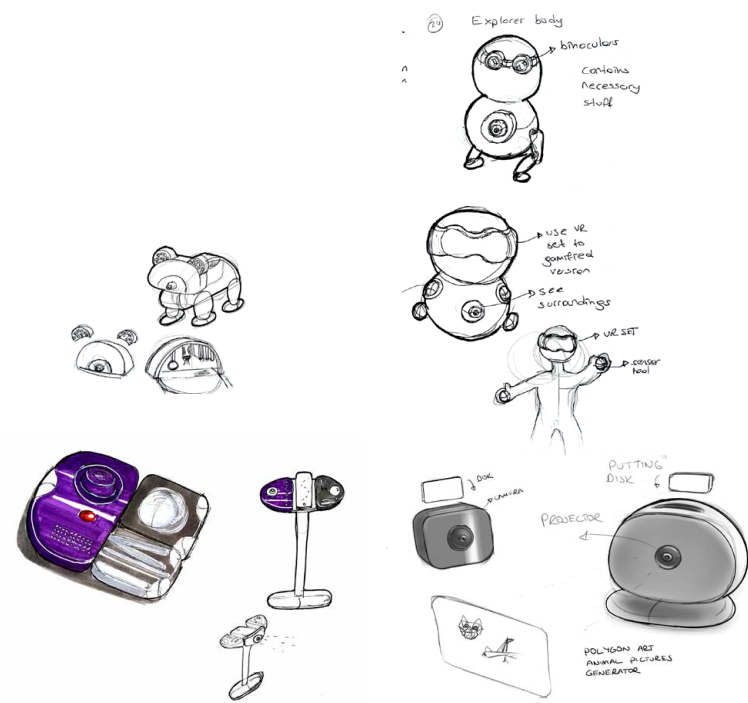
The concept of exploration was based on treasure hunting games or detective games. The main aim was to boost the curiosity feeling of children while encouraging them to go outside. There are similar concepts exist such as Pokemon Go which was a popular trend a few years ago. To have a successful outcome in this process it was crucial to understanding why it faded as time passes. With a small research, the findings were about Pokemon Go was not have a high level of addictivity to keep users playing engagingly.
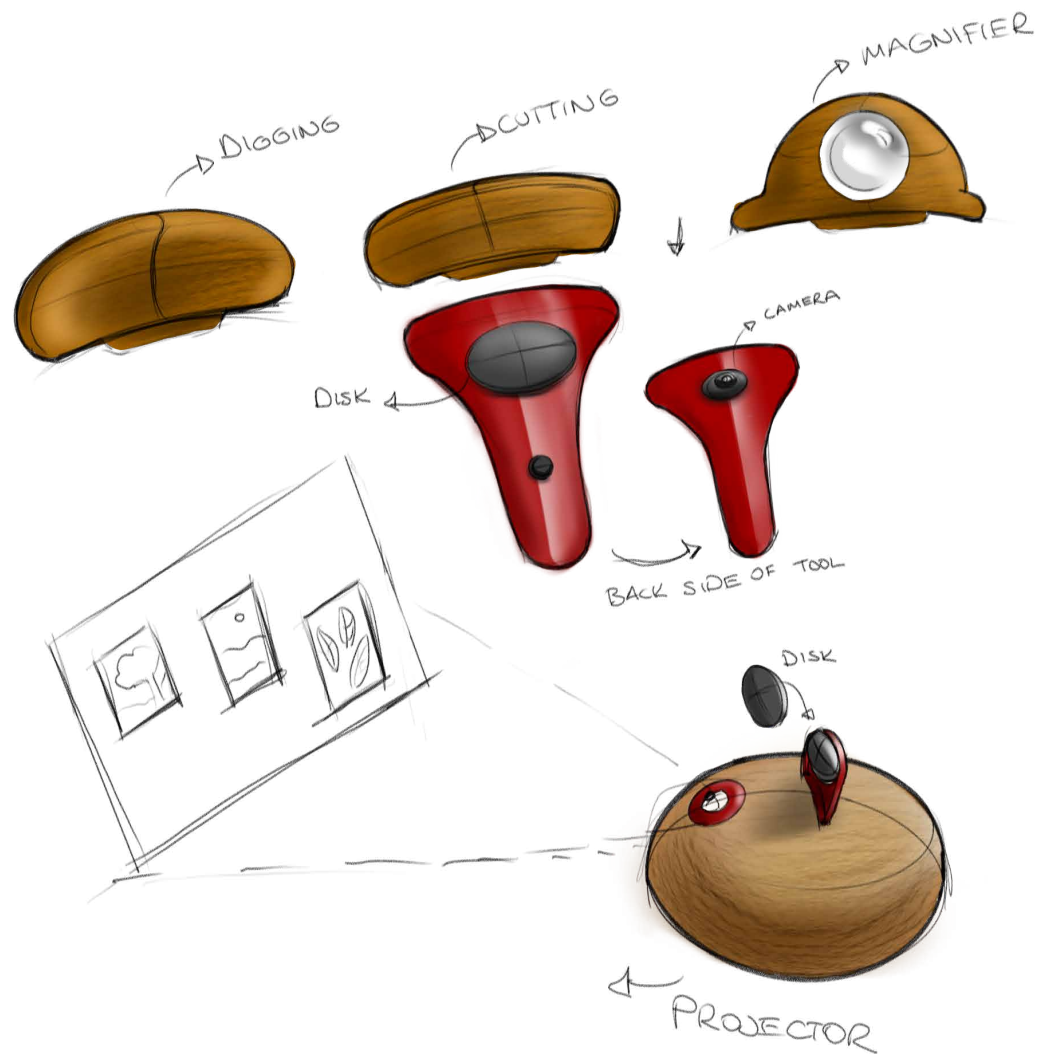
# IDEAS SELECTION ACCORDING TO BRIEF

### Going outside

•

### Promoting physical activities

•

### Communication with friends

•

To make it more clear and understand key points of the project, brief separated into three different main parts. Previous ideas eliminated according to these three main concepts and aimed to develop to match according to these three main points.

**To reduce stress and anxiety level in order to prevent depression**
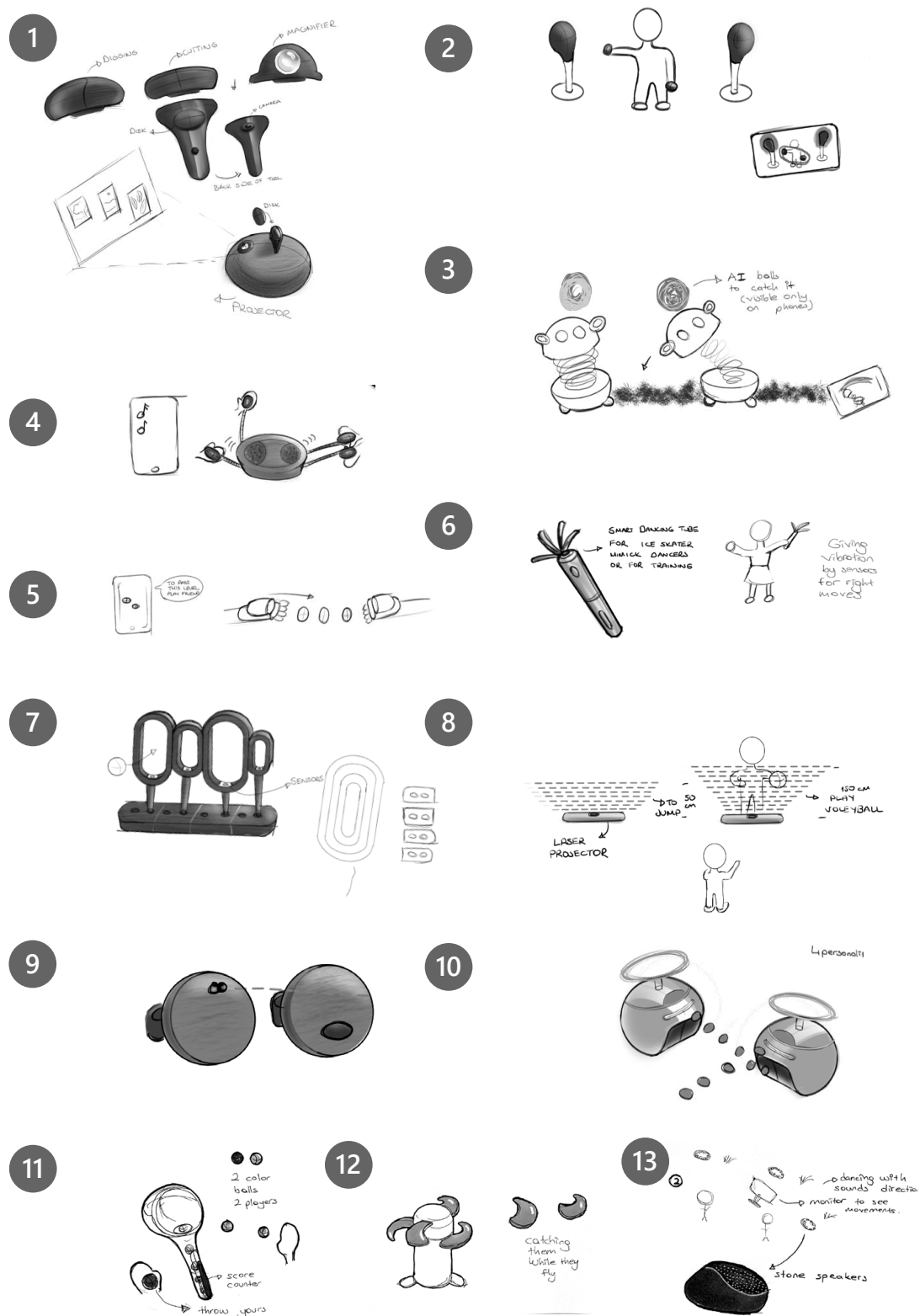
These concepts are grouped according to whether or not they match according to three characteristics. After these groupings, the ones with the most repetition and the ones included in all three categories were selected.

Going Outside

| 1 | 3 | 7 |
| 10 | 11 | 12 |

Promoting Physical Activities

| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | 9 |
| 11 | 12 | 13 |

Communication with Friends

| 2 | 4 | 5 |
| 7 | 8 | 9 |
| 10 | 11 | |

From these concepts 1,5,7,10,11,12 selected as concepts to contunie for further process of design process.



In order to reduce ideas, 7,10,11,12 concepts believed to can be combined together. These three ideas needed to develop according to three main points in the brief. The missing parts of these ideas will be included as necessary in the further part of the design phase.

# Sketch Concept 01



Defending pad

Disks to throw

Turning Pads (similar to defending ones)

# Sketch Concept 02



Fast turning head to throw disks

Catching it

throwing back

Shortened version to carry easily
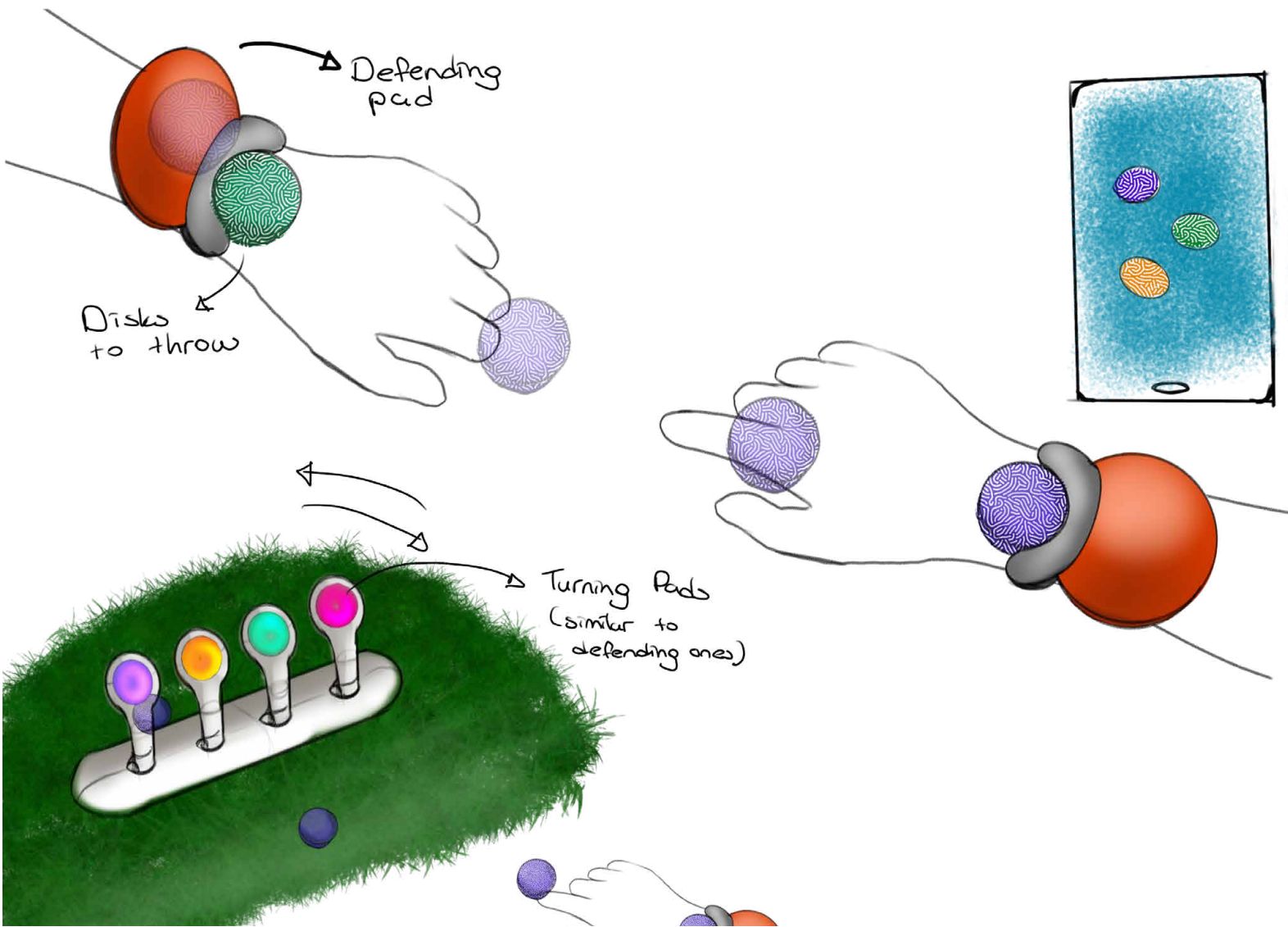
App-enabled concepts developed into further steps to able to compare with other concepts. The concept is about having specific items in both real lives and the mobile app. It is designed as if children want to keep playing the game from a mobile application, children should play with tangible products first. An extra option is outdoor play for hitting the targets with the same tangible product. The lacking point for this concept is still encouraging children to play mobile application games which was not my aim and not having the addictive features to keep long-lasting.
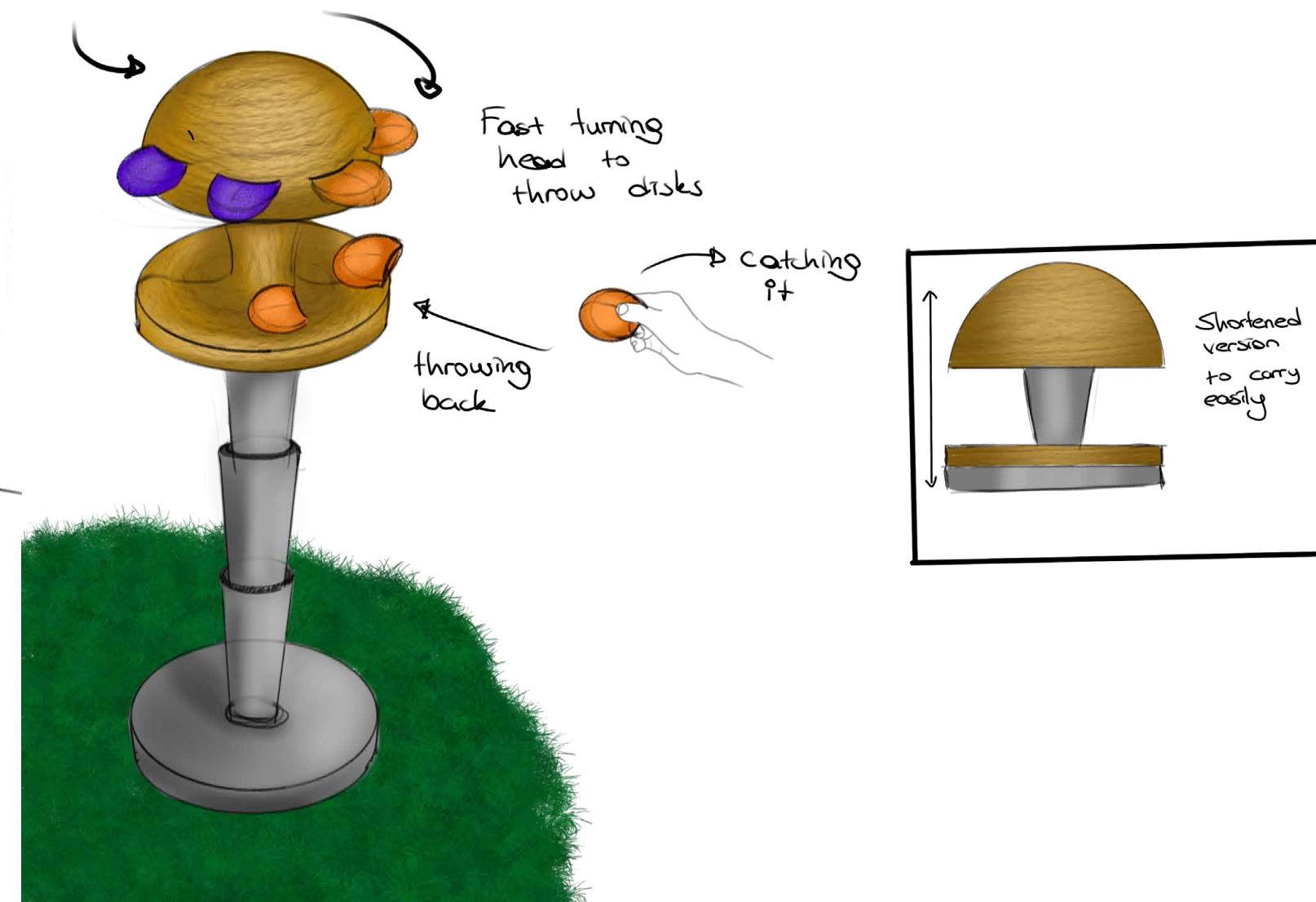
An outdoor game concept was developed to further step for test usability of the idea. The game is based on the basic concept of catching and throwing ball action. In this game instead of the ball, soft disks were sketched as a play tool. The device throws disks while it's spinning and children need to catch them. They change the color of the disks, the device can track and the person who throws more wins the game. These three ideas were shared with classmates, the supervisor, and the examiner, with the teacher of middle school to get their opinion.

# Sketch Concept 03



After the sketch development phase and brief analysis, ideas combined to create an exploration concept. Projector and sticker printer added to concept to create attractiveness for extra ideas. Earth playing tools were designed as digging, cutting, and raking. Additionally, for the user scenario, it aimed as always mobile applications or computer medium considered to give tasks. To the main body (grip), camera and location parts are designed to merge independently. The main aim for designing as modular was to keep modularity to engage children and give freedom. Changeable top parts for soil playing tools were designed for the same purpose. Moreover, changeable heads will decrease space to carry more easily for children at outdoor places. Camera and location parts can be attached without the main wood body which can provide the function on separate use during playing with soil.

# CHAPTER 2

**EXPLORATION CONCEPT**

# RESEARCH FOR NATURE

# Nature relation

Since children are not able to go outside or not willing to go, their relationship with nature they have decreased enormously compare to older generations. For me, this is a major concern, because if young people can not create a relationship with nature, their ability to make empathy can decrease gradually for protecting the world, in terms of sustainability and relationship with other living kinds. The following research was conducted specifically for this issue to search for experiments and information.

According to a survey conducted in the UK by National Trust, children spent half of their time outdoor compare to their parents did. Besides %96 of parents claimed that creating a relation with nature is important for their child. Even more, there is a term called for lack of nature relationship which is nature-deficit disorder. Although it is not a medical condition, nature-definition describes "the growing gap between nature and child" according to Louv (2009), which can lead to less physical fitness and vitamin D deficiency.

The only problem for nature deficiency for children is not only Covid-19 or dependency on-screen. The other major point is for them over-scheduling. Today's generation kids have more homework, more courses to attend. Over scheduling problems can vary in different cultures, in different countries. However, from my personal experience in Turkey, I witnessed most of the families creating diverse after-school activities recently (not including Covid-19 period) for their children such as attending swimming class, sports class and they have extra studying hours in their school for their homework.

Henley describes in his article that, nature is a tool to get children to experience not just the wider world, but themselves. That's why climbing a tree is about learning how to take responsibility for themselves, and how carefully they need to consider the risk for themselves. Falling out of a tree is a very good lesson in the terms of taking risks and getting rewards. He also continues his words as "when kids stop going out into the natural world to play, it can affect not just their development as individuals, but society as a whole" **which I strongly agree with and took into consideration for my thesis project. It is crucial to create nature relationships for children to their physical, mental health development and also society.**

# How to create this relation

When I started to research "how to create relation with nature for children", "outdoor activities for children" or with similar words, I found many blogs created by mothers and have recommendations of activities. Some of them explained very well in detail and had brought great inspiration for me to create activities for children. Some of the activities mentioned in the blog of mumlyfe.com were **creating geocodes and leading children to have experience as treasure hunting, creating craft-art projects by collecting items from nature and science experiences that can be done only outdoors because of the dirtiness.** These activities will be included in the further part of the project.

Not only activity lists but also learning their emotions and experiences are crucial to understanding their world. For this reason, I continued my research by looking for some articles and news. The article that I found help me to understand more deeply about nature experiences which is a thesis about explaining and comparing nature schools, having interviews with teachers, observing students at these nature school in the U.S.A. .  In these schools, they are conducting nature-based projects, education and have specific time periods to spend time at outdoor. According to the interviews which Powley conducted with teachers, some of the students were experiencing more difficulties rather than the rest of the students such as complaining about not able to draw, having fears to see bugs outside. Interestingly, nature journaling helped many students to overcome these issues which commented on by teachers. According to Powley (pg.28), claims that "Nature journaling is an excellent tool to be used in an art classroom. Through journaling, students become more attuned to the happenings and minute details around them". " Since the focus of nature journaling is on observation skills, as opposed to drawing skills, students are freed from the pressure to produce a finished work of art and are encouraged to center their attention on recording their findings..., nature journaling is a wonderful way to encourage all students to grow in both their drawing and observational skills." Furthermore, not only observation but also sharing could overcome difficulties they have. According to Elea I., and Mikos L, (pg. 145-158), explains the experiences of three young people who are makers about sharing their online with other young people. One of the young people is Evan and he joined maker space hoping to overcome his shyness and learning to work with others easily. Moreover, Elea I. and Mikos L. explained that " Using the portfolio to reflect on social engagements and capture strategies for successfully working with peers seemed to motivate Evan to continue sharing his work." Another comment is by Alma (another maker), "I think [my portfolio] helps to make. (...) It helps when you're well on your way, you can always go back and remember what you did and what you may not remember in the present. " Checking the previous projects could help them to see their progress. **From this research, observation, taking notes, and sharing projects were included as functions in the project to help children to overcome the difficulties they have for their projects and boosting teamwork. Additionally, it could channel the communication they would like to have with their friends positively.**

# Observations - GeoCaching

During the thesis research, to attribute more of exploration concept, the treasure hunt was a useful concept to combine with. While searching for the treasure hunt, from many blogs, I found Geocaching mobile application. There have been many catches placed in Malmö, and I found it quite fun to explore catching experience as an exploration. During these explorations, I realized that be able to **see visually streets is quite important to coordinate as a person.** Before that, I was considering using sound feedback to locate specific points. Moreover, I used catching with friends of mine, and one of them commented as "Is this about only writing my name on a paper at the end? I expected something bigger". From this insight, I realized that there is valuable importance to creating a rewarding system to attract and keeping users exploring more.



# CONCEPT DEVELOPMENT PHASE 01

Creating reward system

Engaging them

**Treausure Hunting**

**Nature Journaling**

By observation boost their drawing, craftsmanship skills*

By observation overcome fears of bugs, etc.*

**Exploration**

Overcome for shyness *

Boosting social skills

**Sharing with others**

**Experimental Projects**

Using natural elements, identifying living beings

Attrack for educational projects
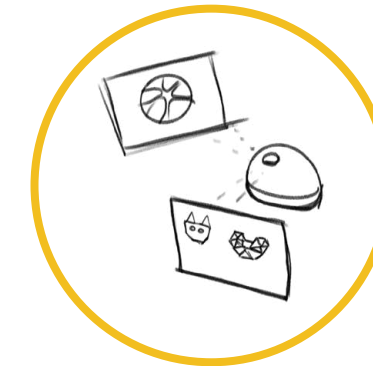
**Inspiration Projector**
-Kaleidoscope affect
-Polygon animal generator
-Mediation affect, sounds & visuals
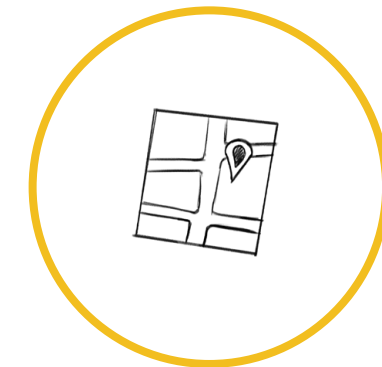
**Location Map**
-Task for encoring to going spesific location
-Find and get Ai reward
-To get awards jump 10 times tasks

**Nature Craft Projects**
-Collecting items from nature
-Making art by nature items
-Painting by leaves, rocks
-Collecting feathers
-Maker dream catcher
-Making terrarium
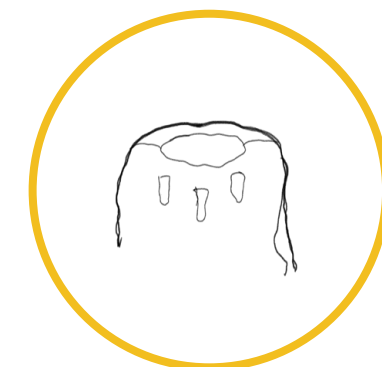
**Nature Science Experiments**
-Using natural elements to create scientific experiments
-Need of an external material
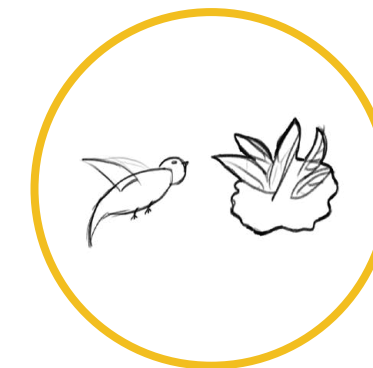
**Identifier for Animals, Plants**
-Searching for local aninmals, plants to identifying, learning their names, animal types
-Encoruging to further research
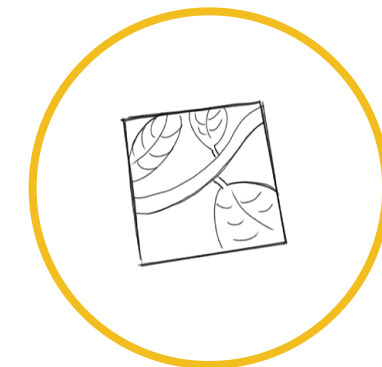
**Searching Zoomed Pictures**
-Task for looking randomly taken zoomed pictures
-Friend can upload zoomed pictures and player can search for them
-Getting rewards at the end

**Color Identifier and Sticker Painter**
-Looking for spesific colors
-Finding relevant colors
-Having stickers and using as staionary
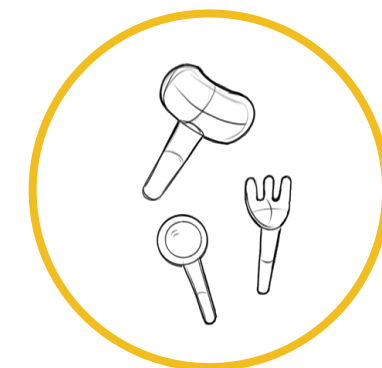
**Earth Playing Tools**
-Playing with earth
-Undefined creativity
-Defined tasks
-Creating Shapes/ Objects

# Generation of ideas
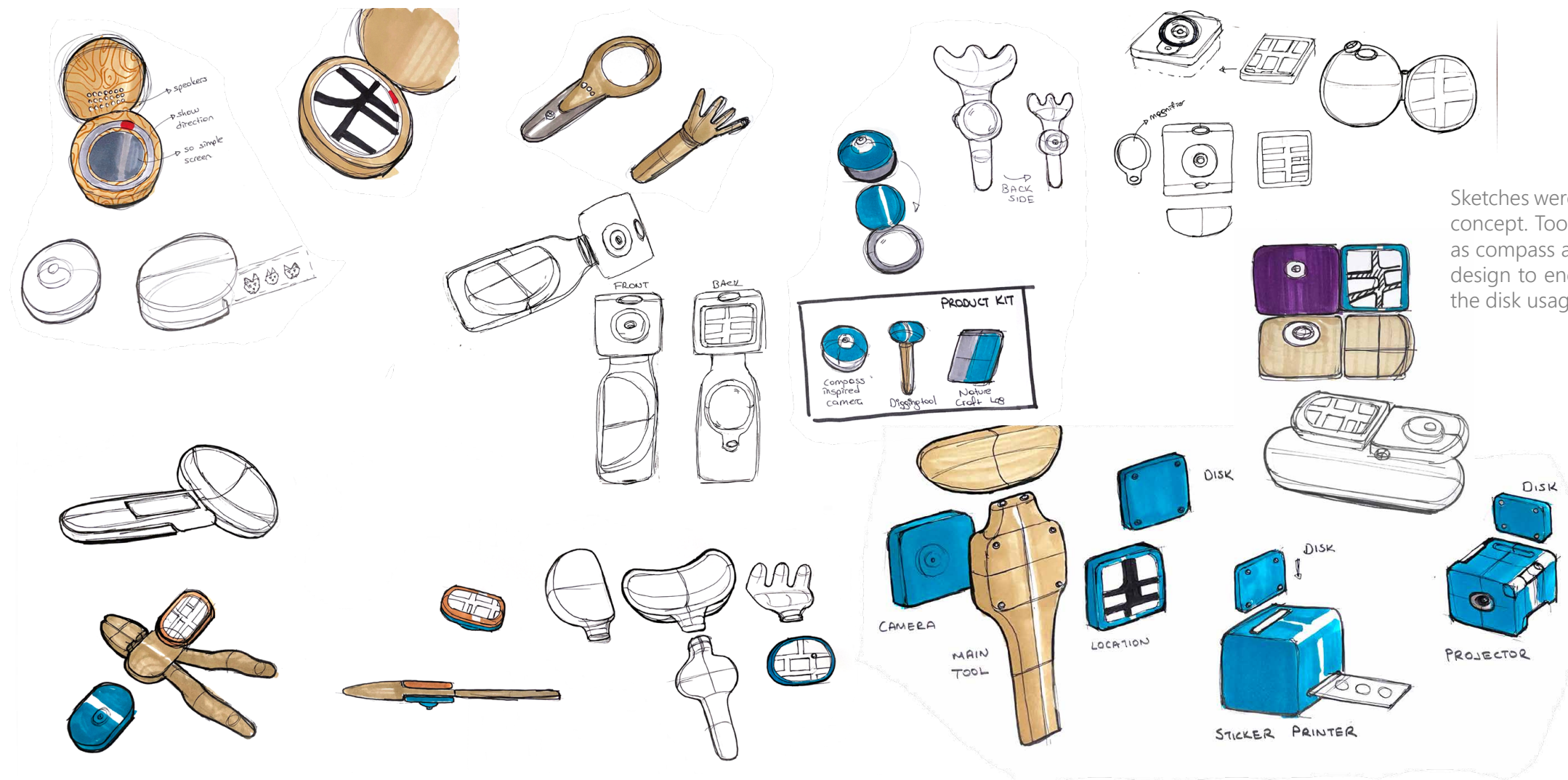


Sketches were made according to the development of the exploration concept. Tools for exploration were used as inspiration sources such as compass and magnifier. Modularity was kept as a main part of the design to engage children and give freedom of usage. Additionally, the disk usage was included in the design to create entertainment as detail in some sketches.

**Ideation of App-Based Games Concept - Outdoor Concept**
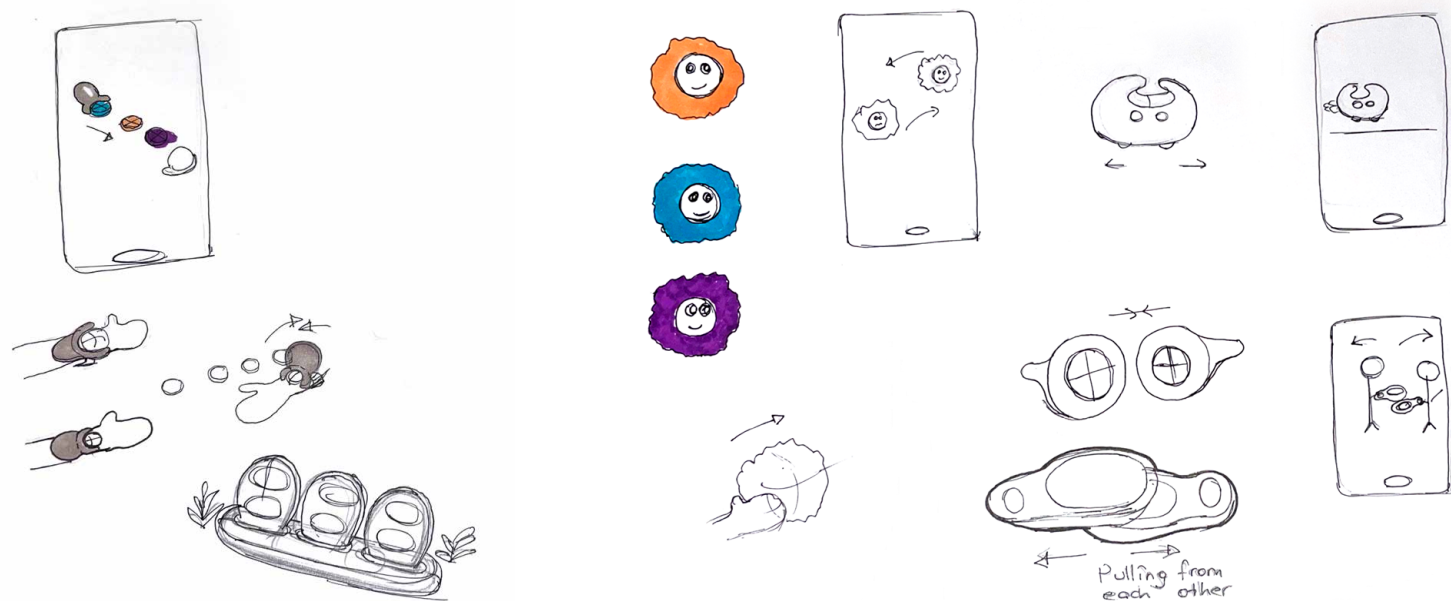


Additional sketches were made according to create extra concepts as an app-enabled game and outdoor gaming which was a result of the analysis brief statement. For app-enabled games, creatures from an application or physical outcome for game considered as engaging physical activity. For outdoor concept modularity and keeping less space taken into consideration for the concept.

# Concept 01
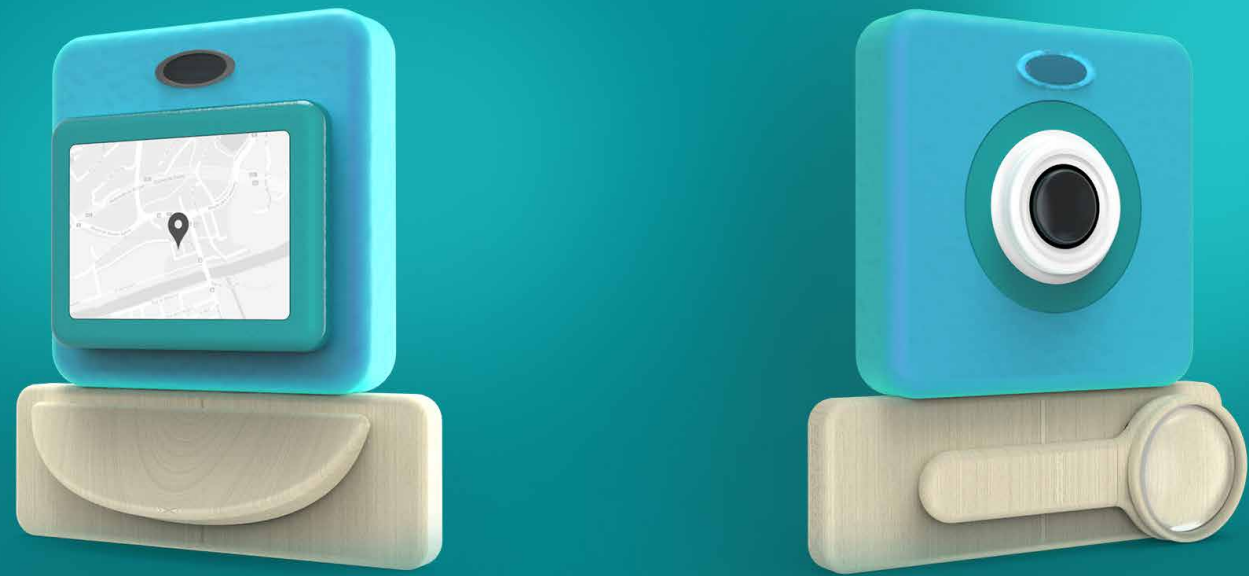




From the previous sketches, the parts of products were specified as camera, location finder, magnifier, and tool for playing in with earth or plants. With powerful small magnets, parts could attract together in different ways which made the system modular. Tools were simplified to create a more joyful and simple experience for children. Tool for playing earth and magnifier was separated from camera to differentiate user experience. Additionally, the head of the magnifier, the glass part, was designed to combine with the camera.

An extra option was a projector to create art-inspired outcomes from the pictures has taken. Projector designed to be sold separately. Users could send the photos taken by a camera from nature and send data to the projector. The aim was to create a relaxing ambiance with the help of pictures that will be projected.

# Concept 01 - UI

User interface designed according to earlier specified functions of animal identifier, nature craft-art projects, nature science projects. Functions were simplified and united according to their purposes. Additionally, to make it more attractive, the avatar-character option was added to the design in the interface. Notebook part added into design because it has been found from research that recording projects help children for observation nature, boost their drawing skills and overcome their fears of nature.
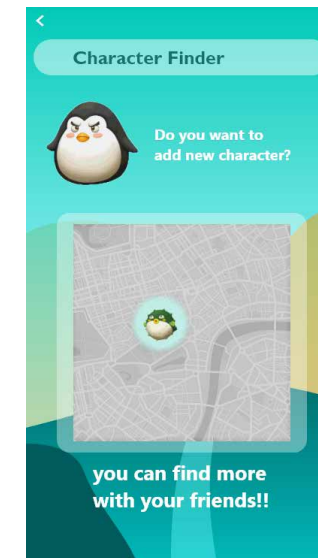
Characters can developed more by looking in different locations

Inspiration for the projector took from Kaleidoscope devices and the logic behind them. Kaleidoscope reflects surroundings in analog mechanism to create artistic and colorful patterns. The results are unusual images and have vibrant effects. The same principle aimed to use in the projector to create abstract images for children to lead them to get inspiration for creating nature-art projects.

**Character Finder**

Do you want to add new character?

you can find more with your friends!!

**Be Ready to Start Exploration**

Login

Sign-in

**Choose your avatar!**

**Hello Demir! Hello Toprak!**

Art Projects

Craft Projects

Animal Identifier

Science Projects

**Science Projects**

Air Turbine

Ice Volcano

**Art Projects**

Warrior Stone

Leaves by Portrait

**Warrior Stone**

You made this on this location you gain 15 points!

**Notebook Log**

Add your photo into your log!

**Animal Identifier**

Do you want to develop more for me?

## Interview with Anthony Roschini, Bladins International School of Malmö

Anthony Roschini, is a teacher at Bladins International School of Malmö. He is a lecturer subject of product design and responsible as a counselor at the school. The interview was conducted face to face and the general aim was to understand the psychology and activities of children age between 9-12. He was highly interested in dependency to screen in the young generation. He shared with me his experiences in the school of his students. Teachers were trying to eliminate the usage of phones by applying rules or trying to create more attractive activities. The results were mainly positive from students and declared that they had new friends. However, he declared few students have a high level of dependency on phones and a tendency to check more frequently. This instinct of their behavior made these students more stressed compare to others. As a counselor, he claimed that many students have faced insulting, hate speeches on social media. The students had problems with social bullying and facing a decline in their moods.

**He liked the idea of exploration and especially the main parts about earth digging tools and the projector.**

Anthony commented that treasure hunting can attract their attention and would be engaging for them. He said that maybe there will not be a need for a sticker printer and projector.
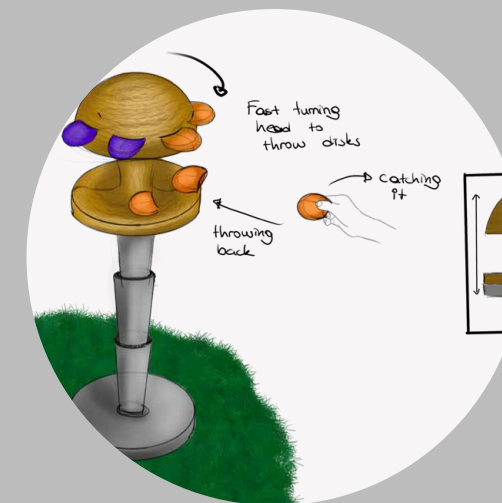




He liked the idea of outdoor gaming design. However, he preferred the exploration concept because the outdoor playing of this concept could be boring after a short time of usage.

The least favorite idea selected as app-based game by Anthony. Because he did not like the idea of permanent usage of mobile devices while playing the game.



INTERVIEW WITH ANTHON, DEMIR AND TOPRAK
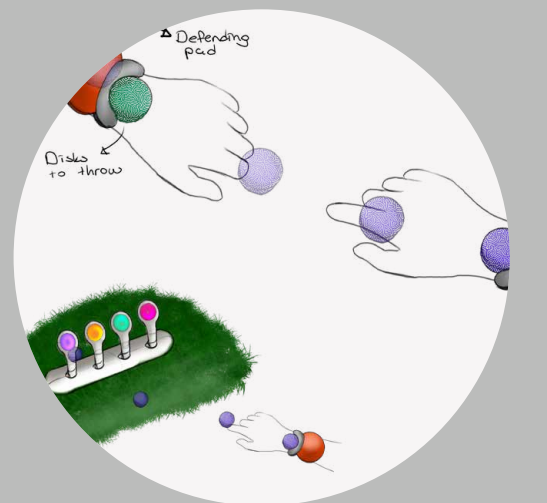
# Interview with Demir (age of 12) and Toprak (age of 11)

An online interview conducted with Demir and Toprak. They are brothers and interviewed at the same time. The initial design of the renders, concept and Ui design presented to them.

Questions were about asking their opinion on the design itself and the concept. The main concept was to inquire which part of the design attracts them most from product design and UI design.

From UI segments, they liked the idea of the craft, animal, and avatar part.

**Demir and Toprak suggested to me include a mobile app to location disk, and explained the reason as children who can not access phones with restrictions from parents can play use product. Moreover, they told that it can be more convenient for parents who do not want to encourage mobile phone usage.**

They advised me to include competition between friends segments in UI, which can increase engagement. Additionally, they added as it would be nice to characterize avatars and have a shopping place to buy accessories. At last, they mentioned the reward system which could be good for the UI to use in the shopping part further.



They liked the camera concept more than the earth playing-oriented concept (previous sketches presented to them).

They advised that the camera can be connected to the projector via Bluetooth.



They were very excited about the projector and kaleidoscope concept and liked the idea of the kaleidoscope to get inspiration for painting.



**CHAPTER 3**
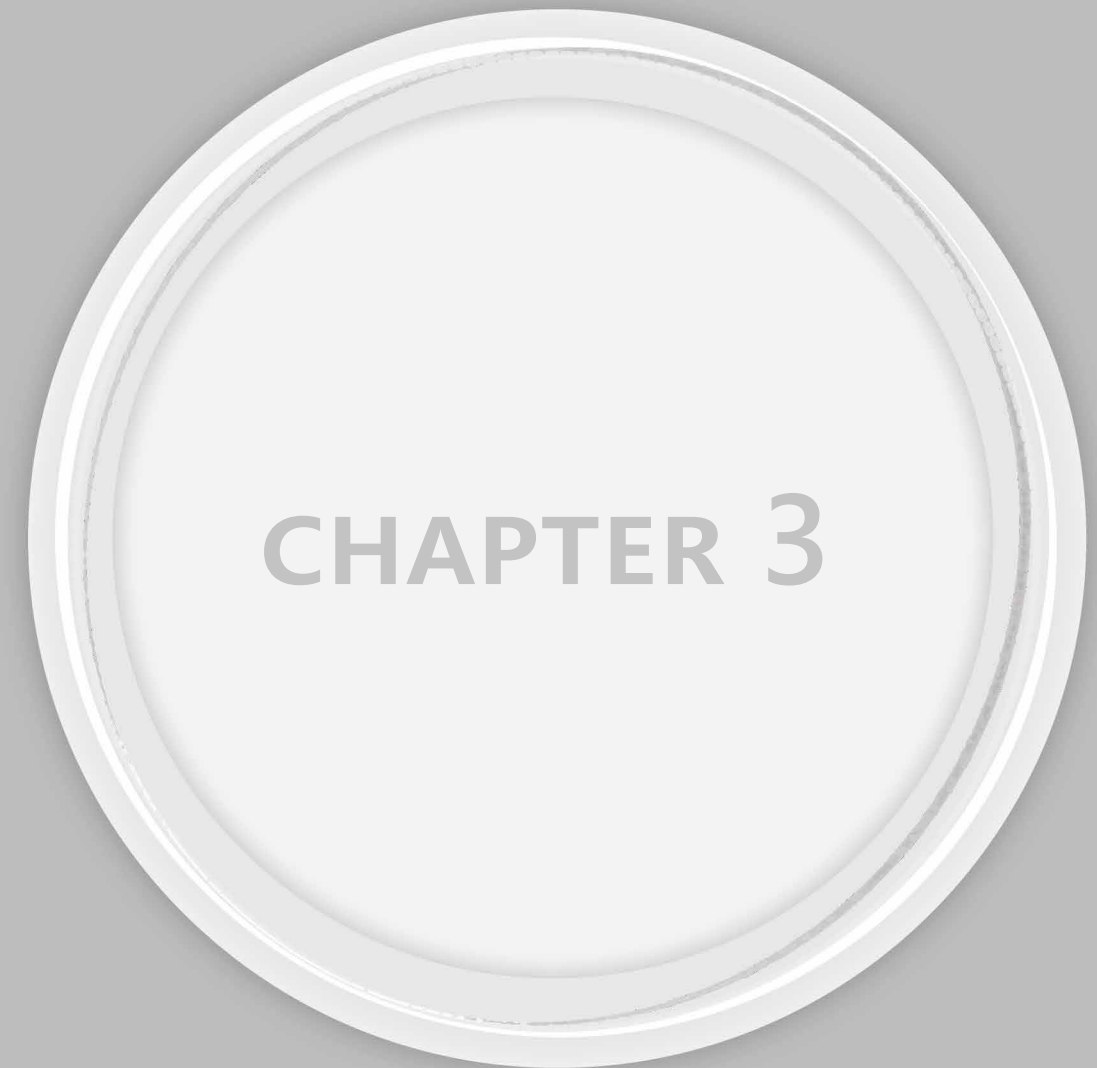
# MOOD BOARD

Hiking, scouting product language

Grainy texture

Modularity

Bold forms for gripping

Color palette

# CONCEPT DEVELOPMENT PHASE 02



In these sketches, alternative way of carrying tools and different color styles were visualized. One of the alternatives was sketched as hung to the body and an extra container added from the backside. For the second sketch which would be an option for hanging to the body, the material was considered leather. For attaching option, straps and magnets were considered.
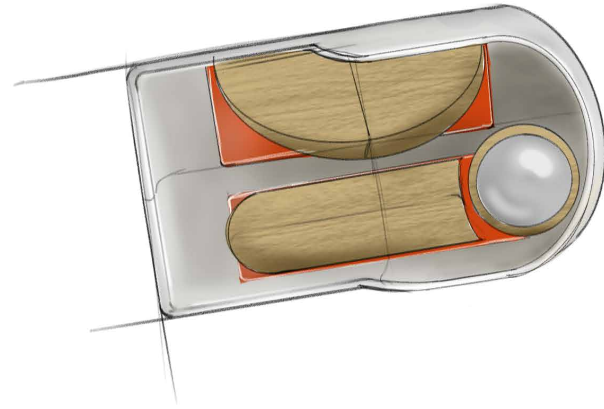
In this sketch, another way of attachment of tools and camera designed. Tools were simplified from previous sketches  Tools attachment is sketched as hidden magnets to stick to the container. The back container is attached
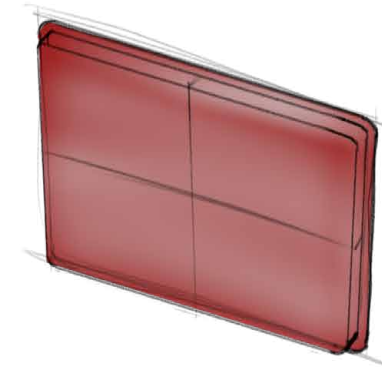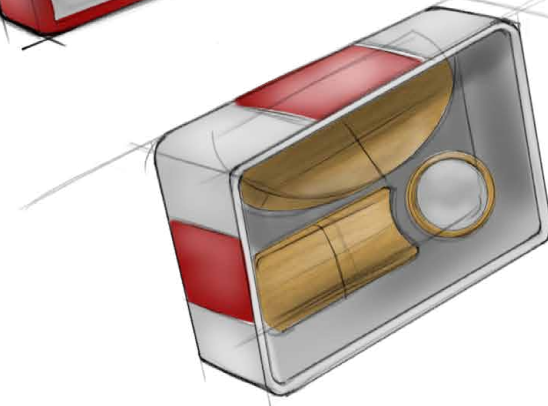
In this option, the CMF alternative was focused on a design. Plastic could include different textures and colors to attract children's attention. Again container was designed to attach from the backside to the camera. Designing containers as a separate way was aimed to enable users to wash tools when they will be interacted with the earth tool.
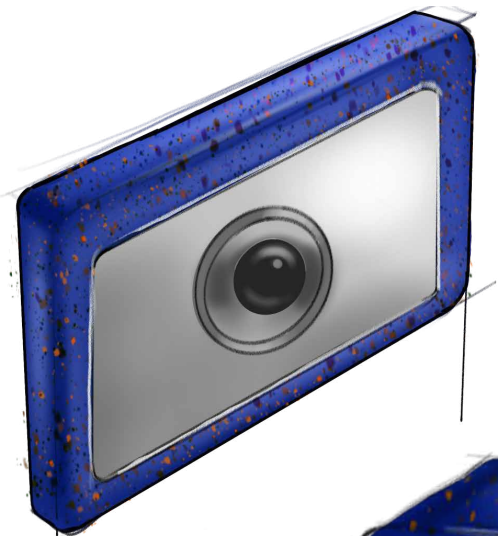
In these sketches, another option of CMF is considered. Plastic material could be used as transparent material to show inside. The aim was to gain a tech design style to attract children age group between 9-12.

Camera

Container for Tools
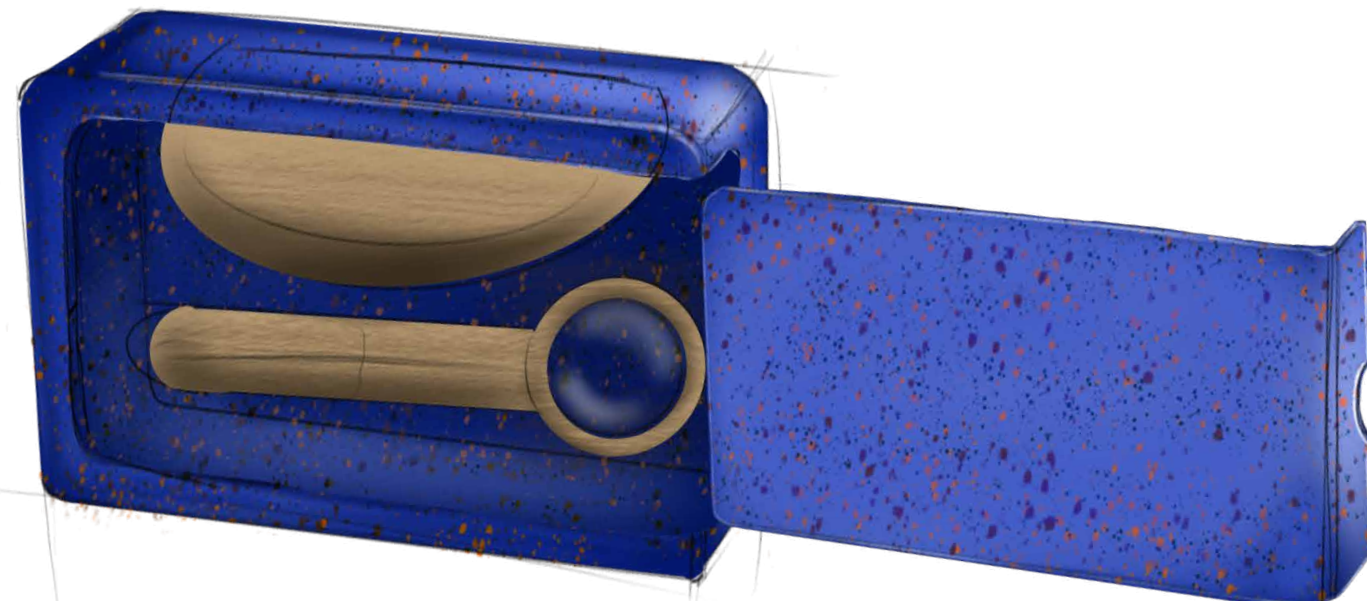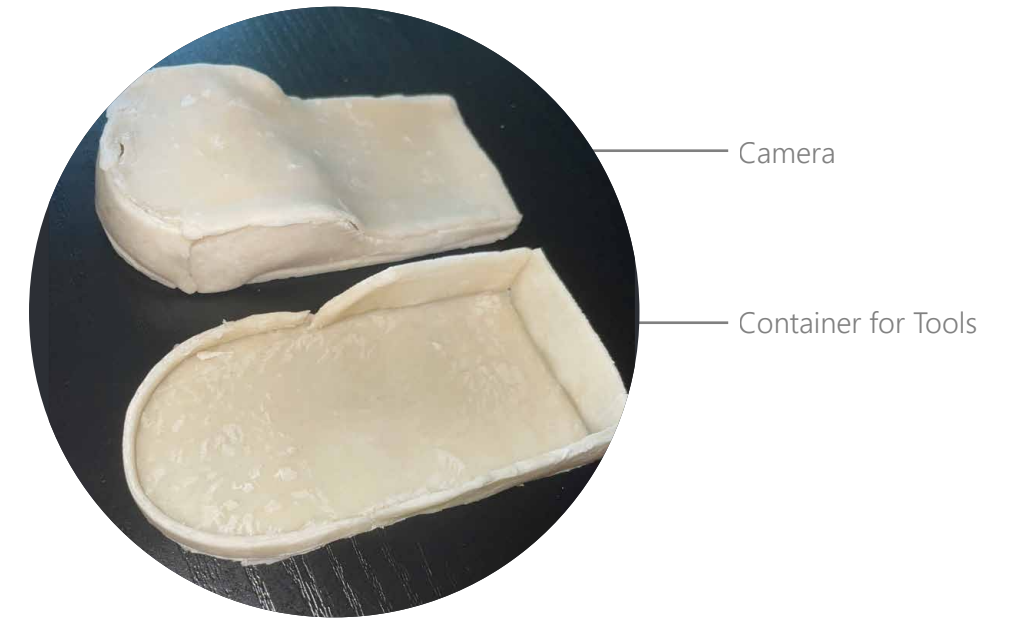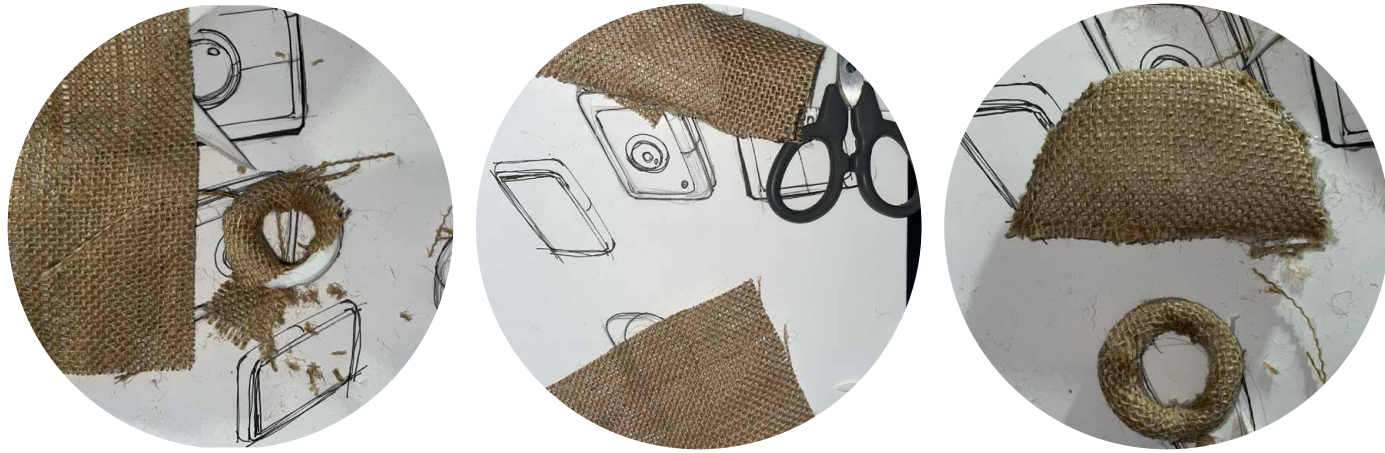




With the conditions of the pandemic, I tried to find an alternative way to do mock-ups. I used Eva and covered the fabric which resembles a wood pattern. The mock-ups purpose was to understand the dimensions of tools, play with the dimensions of the camera. With the reason of attachment option always considered as magnets, superpower magnets tested in different mock-ups for usability and functionality.

This mock-up made from ceramic dough. I used white glue, flour, and corn starch to create dough. I tried to test the idea of a sliding container and camera. However, after conduction this mock-up I realized, users won't be able to see the location screen if they attach it together. If they would like to separate the container and use the screen, another problem occurred about how to carry and where to put containers for tools.
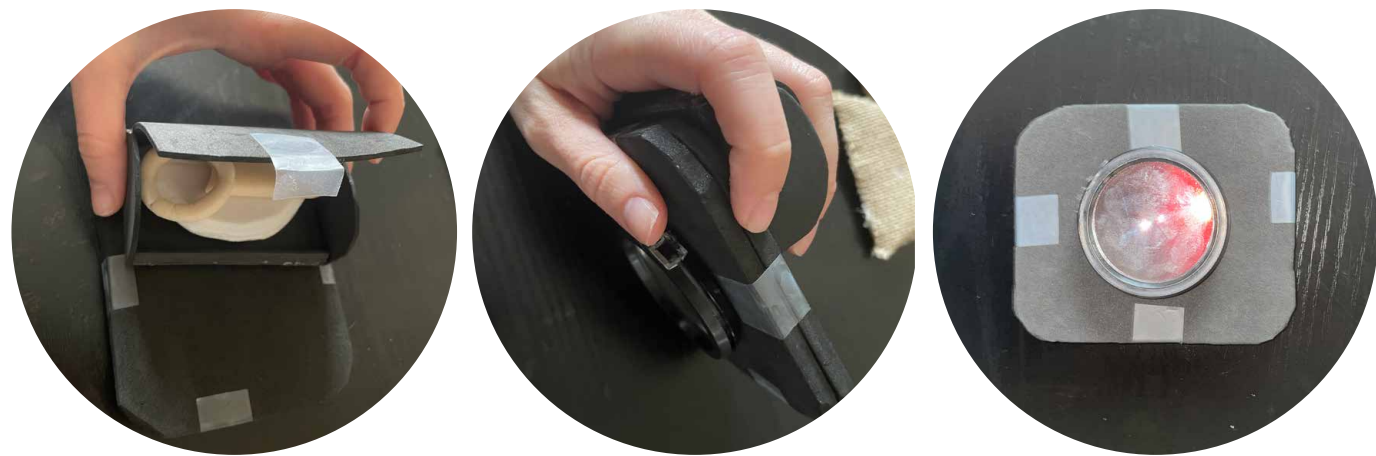
After the ceramic mock-up container, I had an idea to store tools on top of each other. The idea was to double the height of the container and make half of the width of the dimension to see the screen while carrying it to the container. In this way, a similarity to the protrusion part of the old-style analog cameras would be created and a storage area for tools would be created. At the same time, it has created an ergonomic usage area for the hand. Mock-up was conducted with Eva and a magnifier.

# Concept 02
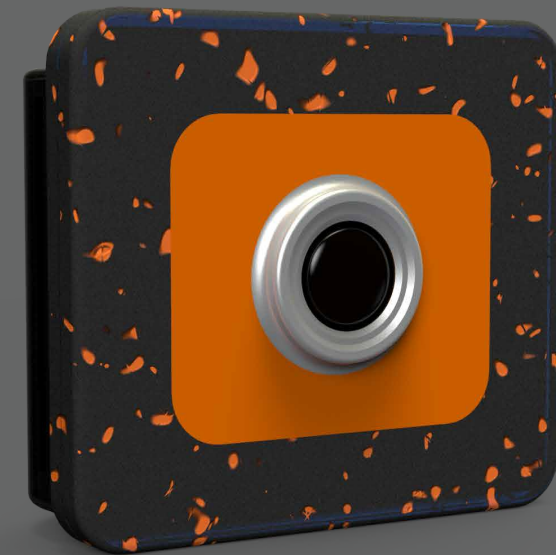


For the design of concept 02, a texture alternative was implemented on the material. Small patterns added to the texture of the plastic material. The aim was to gave a different CMF option. At the backside of the design container and screen were added to the design. Two different alternatives were designed to see modularity and test usability of left and right-handed users.

The container was designed to be separated from the body to give functionality for cleaning. The container included a tool for earth playing tool and magnifier. For the attachment, option magnets were added as detail into the design. After the feedbacks that I had, I decided to embed the screen to the body in the further design process. Magnifier was designed to be separated between the grip and glass parts. The glass part was designed to be used as a magnifying lens for the camera. At the end of concept 02, storing tools inside of the container seemed not convenient for functionality.



**PANTONE®**
13-0647 TCX
Illuminating

**PANTONE®**
17-5104 TCX
Ultimate Gray

Alternative render was made according to the color of the year. Color options took from Pantone's website, which was color of the year to test in camera design.

# Concept 03



Concept 03 modeled and rendered to test the sliding option of the container. The container part attached to the main camera by magnets to give modularity and cleaning features. However, the container which was designed to be a grip part did not give affordance of holding.



Alternative sketches were made according to visualize carrying camera and tools on the body of children. Different pockets on the accessory included a magnifier and an earth digging tool. Camera sketched to be carried as in the middle to take photos more easily. However, this concept will be considered as an extra accessory for the further design process. The main design will be focused on the modular design of the camera and earth digging tool compare to accessories design with the reason I found less attractive as design style.

In the later design development process, different design alternatives were tested for usability and design style. Existing kid cameras include a bold design style for grip parts. I realized softer material can help children to hold more carefully and softer material used for the frame can make it more durable in the case of dropping the product.



In this mock-up, Concept 03 was tested for holding usability and dimensions. The container for the tool part was tried to designed as a sliding alternative. The aim was to combine the grip part with the container. However, the dimensions for the camera did not match and align with the container of tools.

## Concept 04



In the concept 04, different color and attachment style was modeled and rendered. Additionally, gripping parts were made thicker for giving the functionality of holding more easily. The tool part was designed as similar to concept 01 to give modularity options for every edge. However, the attachment of the tool part in the left and right parts did not seem ergonomic.

## Interview with Almira (age of 10)

There was an online interview conducted with Almira and her mother. The design of the renders, concept, and Ui design were presented to them. I asked the questions about understanding their opinion of the product design itself and the concept. The main concept of the interview was to understand which part of the product design attracts them most and UI design.

To determine design language I also asked about favorite objects. Her favorite objects are computer, mobile phone (old phone from her mother), and her skates.

From UI segments, she liked the idea of science, animal, and avatar part.

Generally, she liked the concept so much and was excited to use it. Her mother advised me to include daily or monthly tasks to attract their attention to Ui design. Additionally, she advised me to change tasks sometimes to times so they could have engaged more. Another piece of advice was to riddles and treasure hunts that could be included in the UI.

I asked color options to test which one will become more attractive. She liked the orange color.



# INTERVIEWS WITH EFE, ALMIRA AND KLOSTERGÅRDSSKOLAN
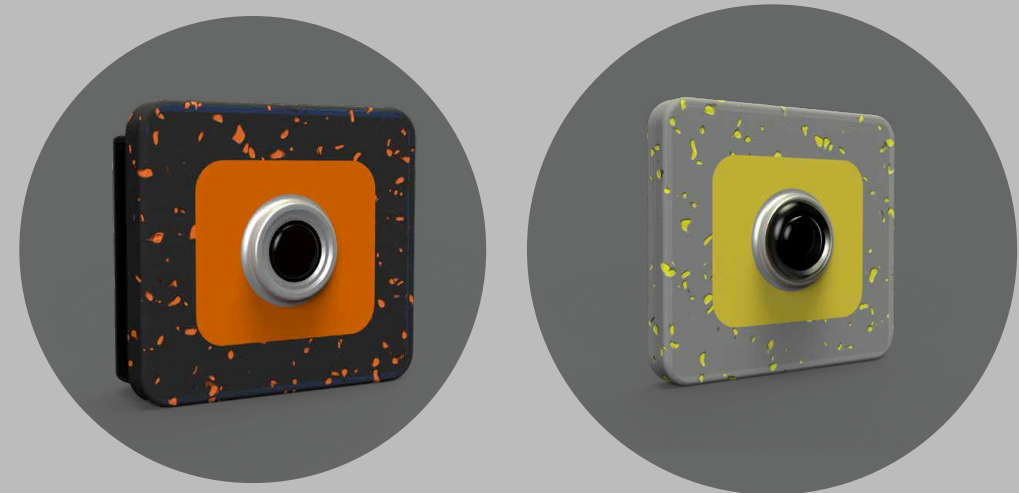
# Interview with from Efe (age of 9)

There was an online interview conducted with Efe and to his mother. The design of the renders, concept, and Ui design were presented to them. I asked the questions about understanding their opinion of the product design itself and the concept. The main concept of the interview was to understand which part of the product design attracts them most and UI design.

His favorite objects was his green sword which he made by himself.

From UI segments, he liked the idea of animal and craft part.

He liked the idea concept so enthusiastically and was excited to use it.



I asked color options to test which one will become more attractive. He liked the yellow and grey option because his favorite color is yellow.
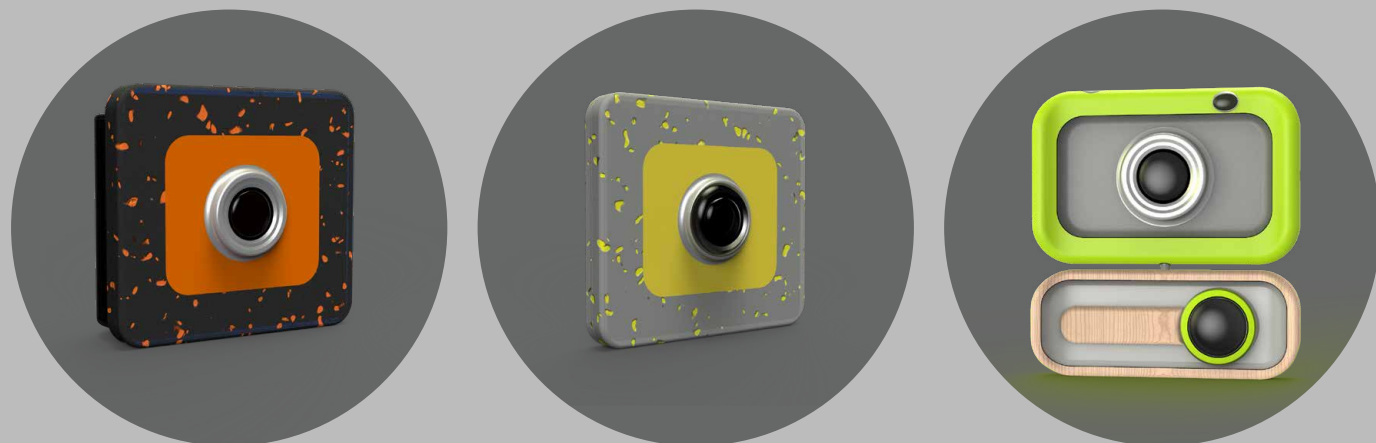


# Comments from Klostergårdsskolan age between 10-11

The interview was conducted by Tove at Klostergårdsskolan in Lund. Tove is a teacher at Klostergårdsskolan in Lund by age of 10-11 students. I prepared a questionnaire for asking children and added visuals of product renders. The aim was to understand the most attractive UI tasks and have their opinion for keeping the diary part. She told me that they like ideas remarkably and would like to have them in real life to use in the school. Tove interviewed 26 children on my behalf.
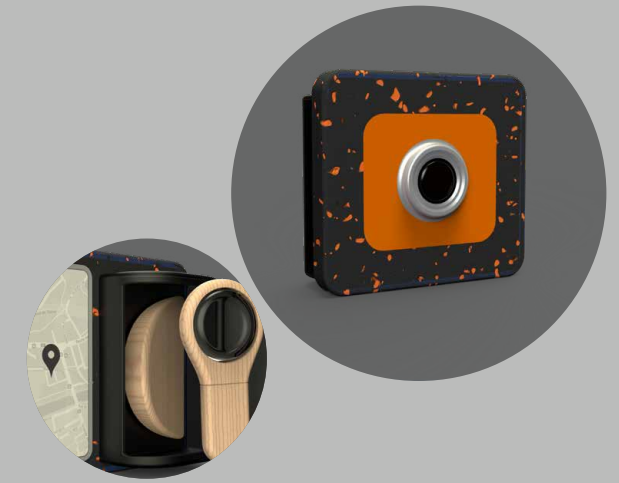


Which kind of activities can attract your attention ?

- -Animal Identifying (looking By location)
- -Plant Identifying (looking for different plants by location)
- -Craft Projects (dream catchers, making terrarium)
- -Art Projects (portrait by leaves, landscape painting)
- -Science Projects (volcano explosion experiment, air turbine experiment)
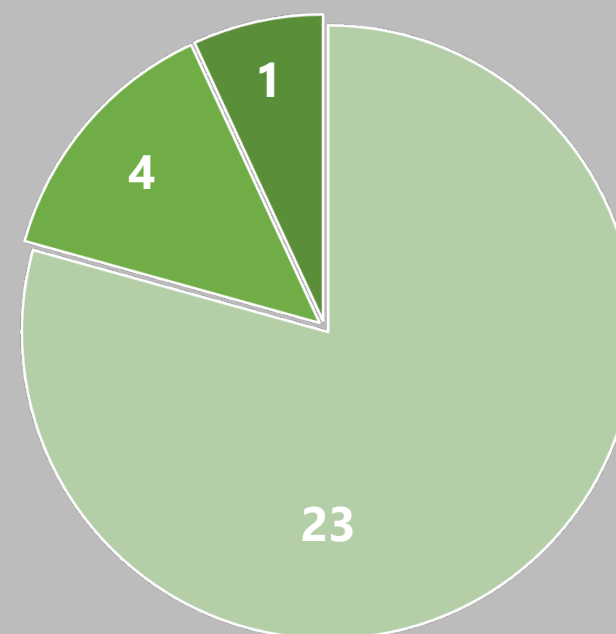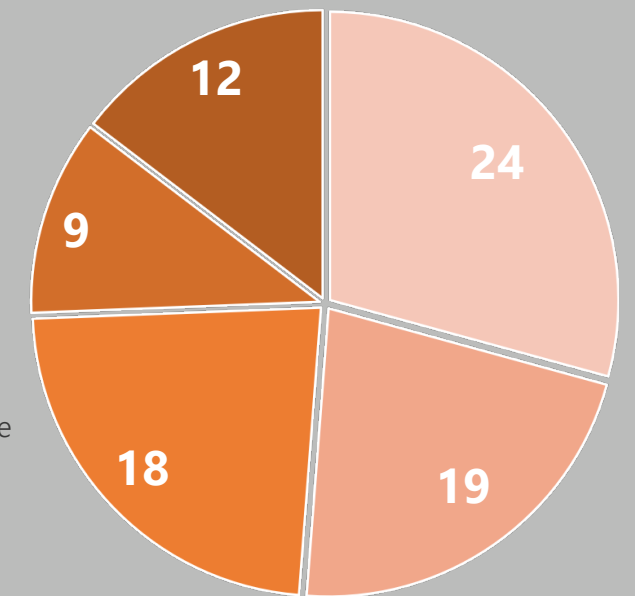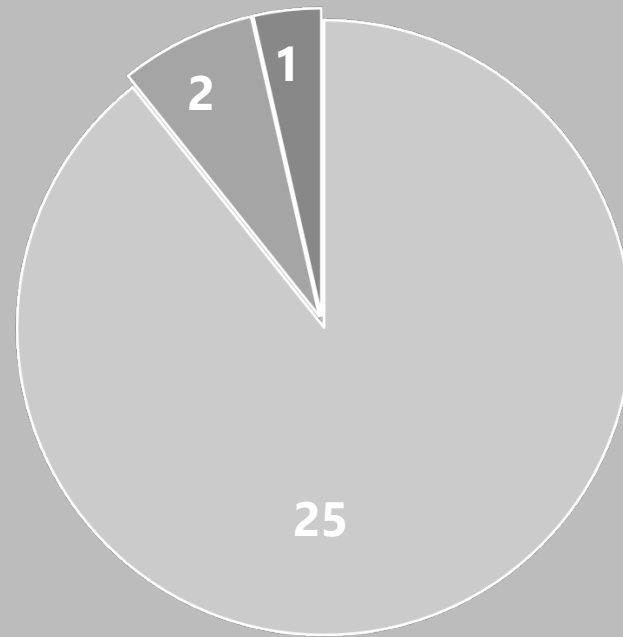


After you accomplish these activities, would you be interested to saving your projects in the application?

- -Yes
- -Maybe
- -No

If your answer is yes or maybe, would you be interested in sharing it with your friends?

⬤-Yes

⬤-Maybe

⬤-No



For application (user interface), you can choose an avatar. Customizing these avatars will be another function. What would you like to do else with your friends with these avatars?

The same species of avatar can form a squad.
Trading avatars.
Sharing and designing together with friends.
Designing your own clothes, hats, beards, maybe a wheelchair and stilts.
Using the animals that you found to design your avatar, like maybe if you found a deer you can use antlers for your avatar.
Having a job or assignment in the app and design a home for the avatars. Co-designing challenge. Best avatar wins.

To test for taking photos with a magnifier two different methods were used. Photos placed on the left side were taken by magnifier. (For children usage purpose)

# Testing Magnifier as Zoom Lens

Additionally, to compare results for tools, a normal photo was taken by a mobile phone camera without any extra tool. There was an expected result about the photos were taken with the help of the magnifier have zoomed effect compare to the normal one.





For the zoom lens, I used an external lens accessory for a mobile phone. The result looked more detailed compare to a magnifier. Moreover, with the help of zoom lens, close texture can be seen as detailly with bare eyes. That's why it understood that the magnifier could be used both for looking closely and also for the camera as a zoom lens.

# UI Design Development
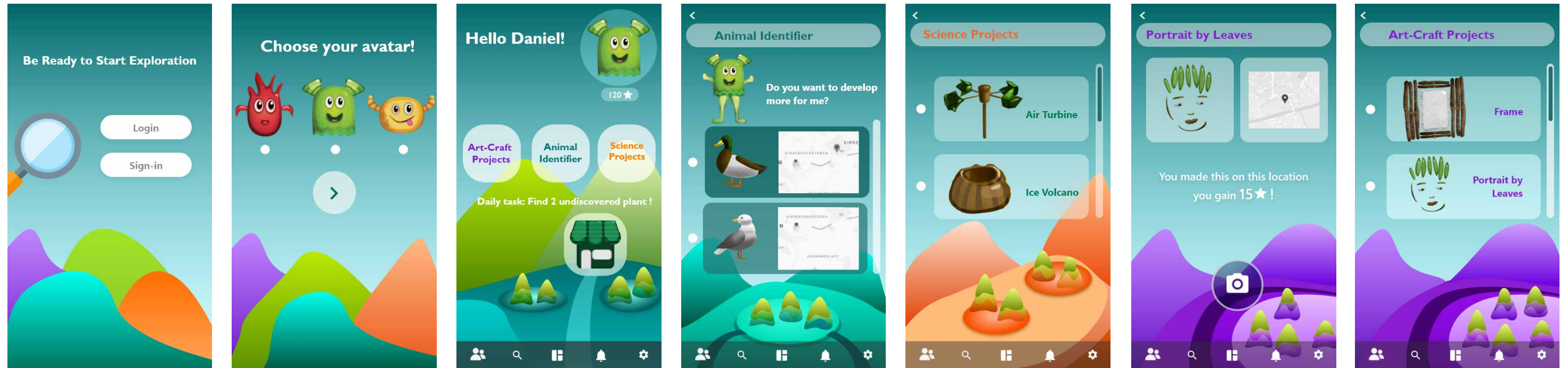
Ui part starts with choosing their avatar to feel more belong to the concept. It divided into three main segments which are animal identifier, science projects and art-craft projects. Children can choose the projects according to their most favorite interest. They can customize their characters, look for additional characters by looking from map.

After they accomplish the tasks, they will gain stars - points to use them into shop segment. They can record what they did in their projects.
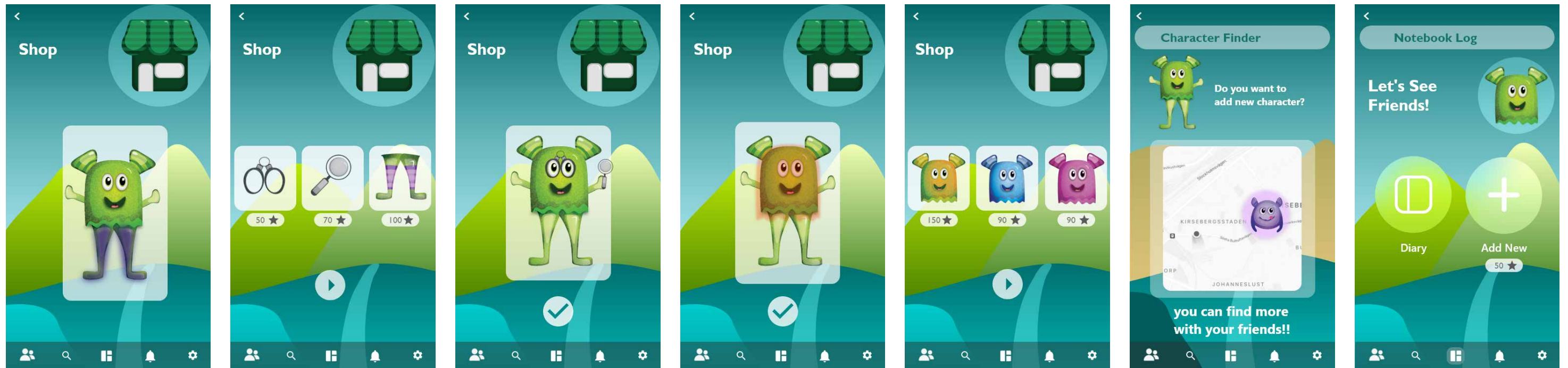
Additional pages designed for creating interaction for children to engage them with their friends, keeping diary for projects. Making activities with friends has higher points and they can use these points to customize their avatars from shop segment.

The leaderboard section was aimed at creating gamification for attracting children to use constantly the application. They can compete with each other by seeing others' points (this was a common suggestion from children and their mothers). Additionally, observing and taking notes in the diary was an important point has taken into consideration from the research. Moreover, the interview made by Tove indicates that they will be willing to use this feature and share with their friends what they made.
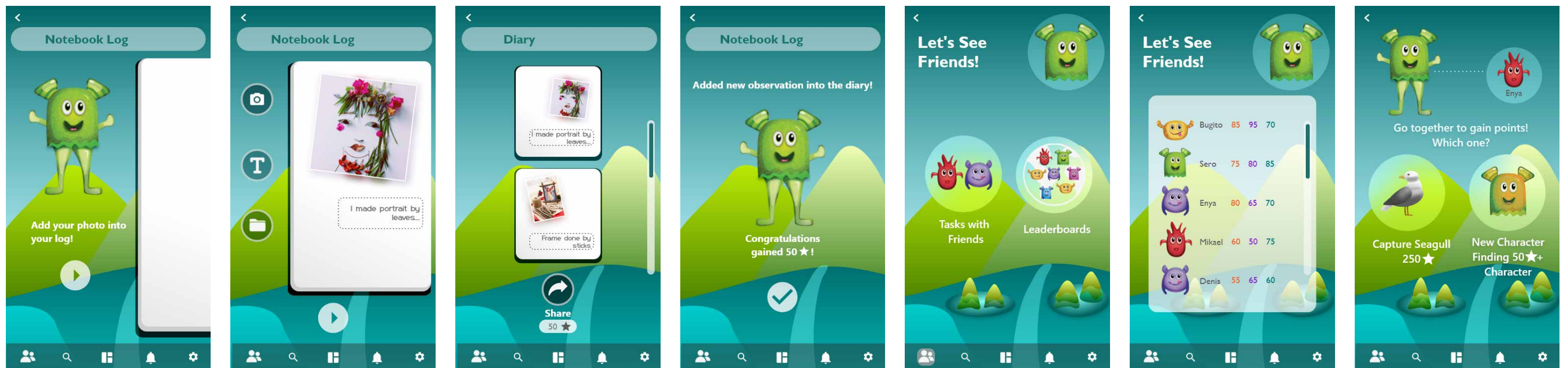
I made a visualization about mobile app usage. However, due to the interviews I made with Demir and Toprak, I decided to keep the UI part in the device itself rather than in the mobile application.

# CONCEPT
# DEVELOPMENT
# FINALIZATION
# PHASE 03

In concept 05 I tried to give affordance to gripping parts for holding. The modularity concept was tried to keep same as with previous ones to give children the freedom to use according to their wants. Dimensions of every edge were kept in the same size to enable merging tool parts in every edge.

Concept 05, 3-D printed to test usability and dimensions. I realized that dimensions were too small for ergonomic purposes,and for the screen. The gripping part of Concept 05 could be bolder and bigger for holding.

## Finalization Concept 06



After Concept 05, gripping parts were made wider to enabling holding easily. Besides, I gave more curvature forms to create soft-looking designs. However, I realized that giving space between the tool part and the main body tells the user that they are completely different parts. Additional parts added in magnet parts to give details in design language and also telling the user about the usage location of where to merge.

The result of the 3-D print of the Concept 06 had more ergonomic dimensions for holding compare to Concept 05. However, the tool part had higher width for holding together with the camera unit. Moreover, as mentioned earlier, curvature form tells users that they are completely different parts, which I didn't intend to design in this design language.

# Finalization Concept 07



To finalize the concept, the earth unit was designed to merge into two edges. The reason is placing buttons and charging place in other two edges. However, the earth digging tool and magnifier design needed more clear references for further finalization.
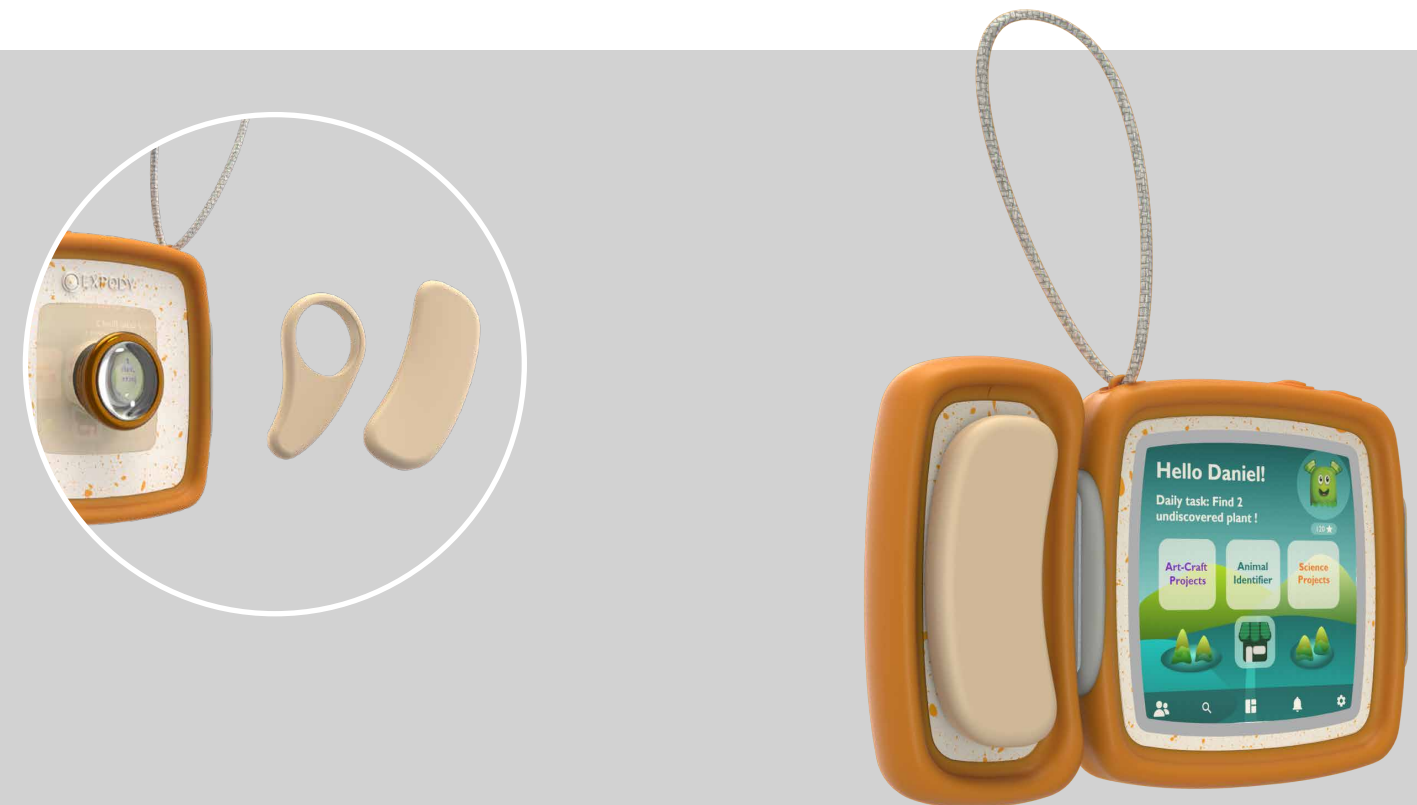
# COLOR SELECTION
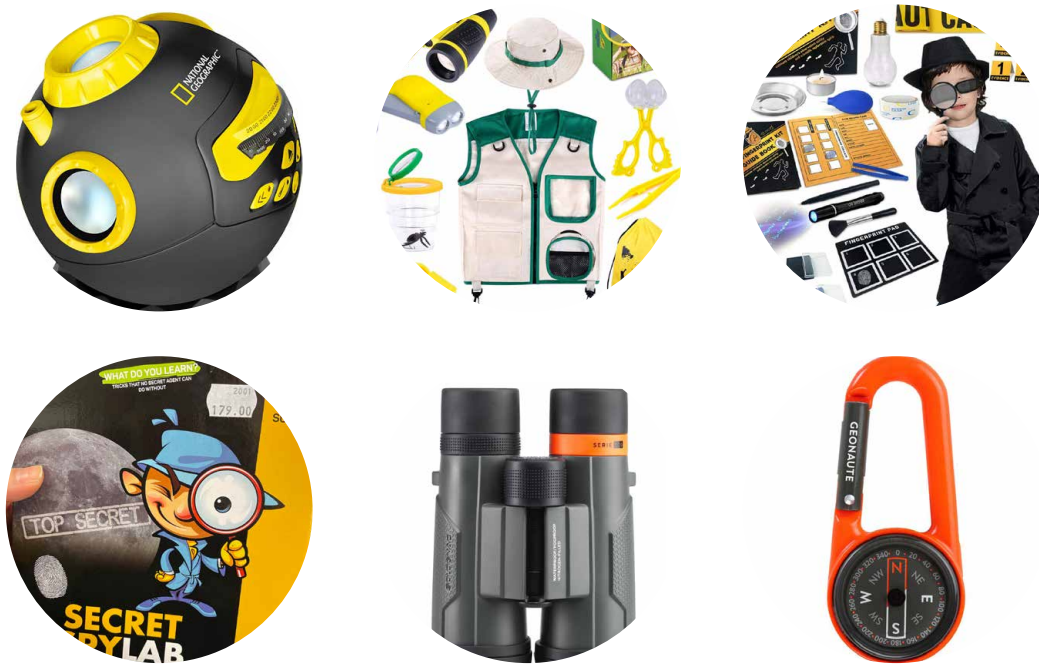
For color selection, I aimed to design a genderless design. I looked at different color alternatives to fit the target age group. Since the main inspiration source was exploration products, I took references from exploration kits for children, exploration products, and detective concepts. The main color usage is a combination of yellow, green, orange, and black. I used Adobe color wheel to create a palette from the references. I chose dark green to give a reference for nature and yellow color to make it distinctive.
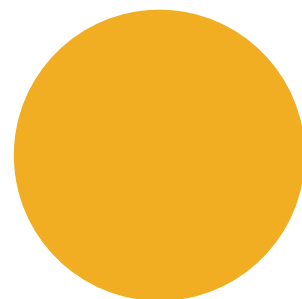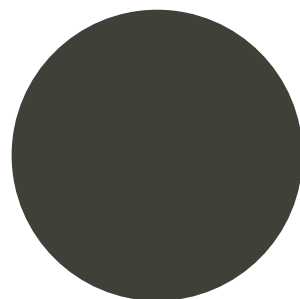


| PANTONE | 123 UP | 447 CP |

# CHARACTER DESIGN FOR UI

In the first part of UI design, the design of characters tried to created in abstract forms of animals and shapes. I used patterns to make it more attractive.

Secondly, I sketched fastly the characters to test 3-D looking by shades and lights.
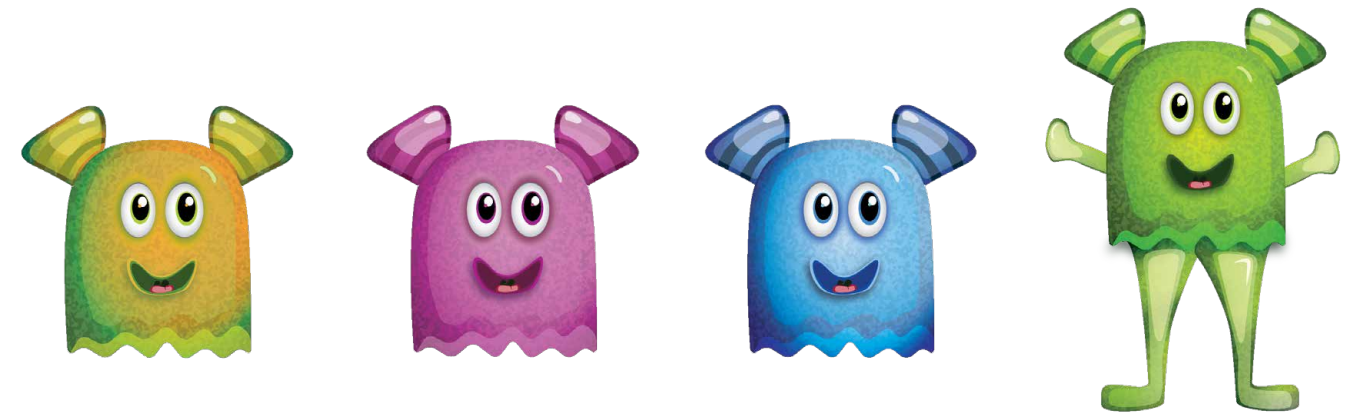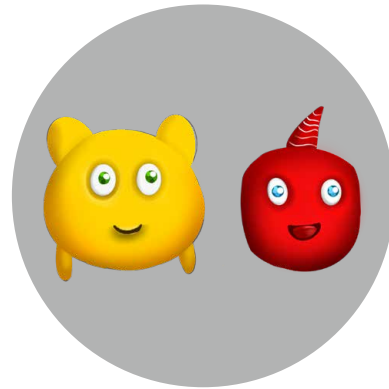
In the end, different layers were implemented to make it give a feeling of 3-D looking. I used grained artistic effects to catch last trends for character design and attract attention for children. Furthermore, grained gave more shade effect on characters. With the same technique, animal and other elements designed.

# FINAL DESIGN

# UI

# Product
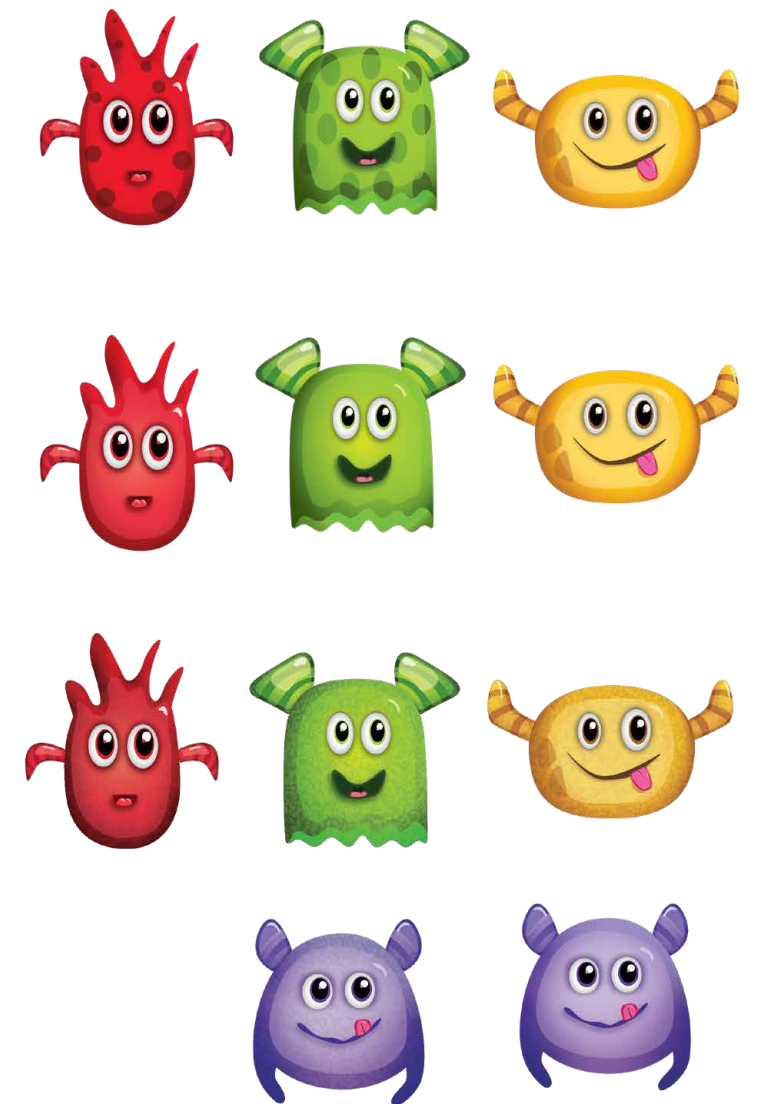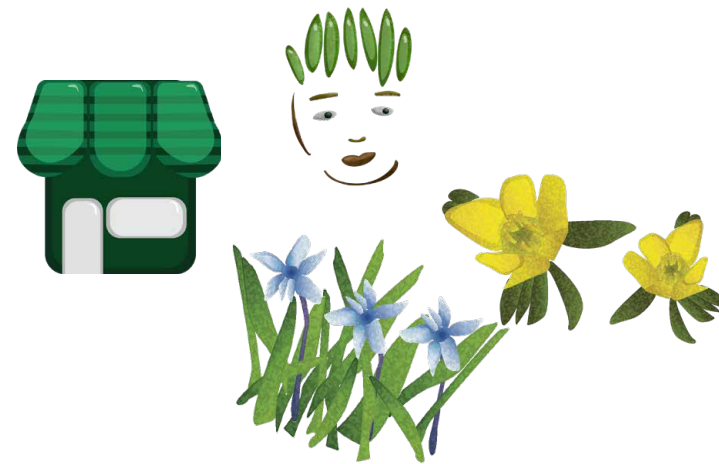
### Animal - Plan Identifier

Looking different species at outdoor and getting know them

### Art - Craft Projects

Doing projects with the elements collected from nature in home environment

### Science Projects

Doing projects at outdoor with natural elements to experience science

### Task with Friends

Children can do tasks with their friends or look new avatars at outdoor

### Shop

After accomplishing the task they gain points to spend at the shop for customization their avatars

### Camera
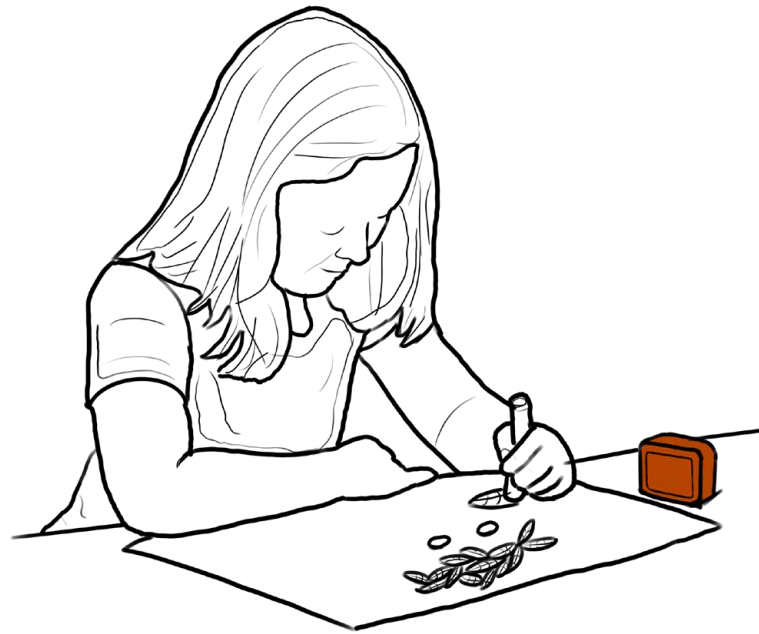
Taking photos of nature and their projects for sharing

### Magnifier

Clooser look to plants with magnifier as function of zoom lens

### Earth Digging Tool

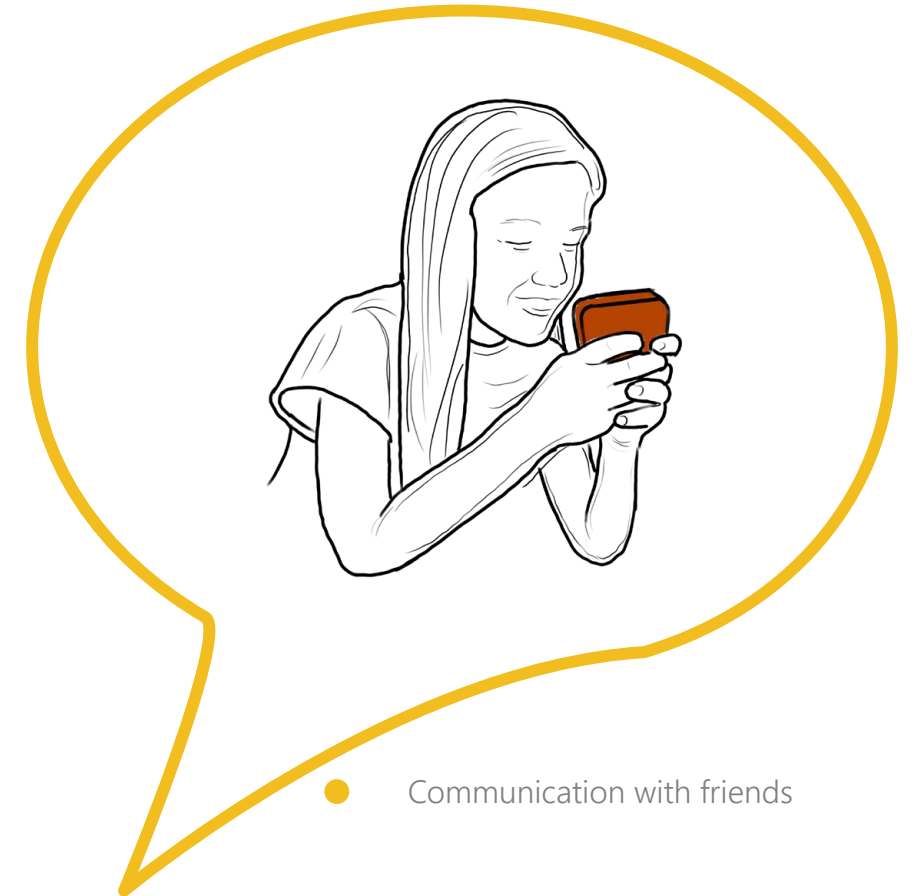Helps to accomplish task given by UI

Making art projects at home

Taking pictures of the projects and sharing with friends
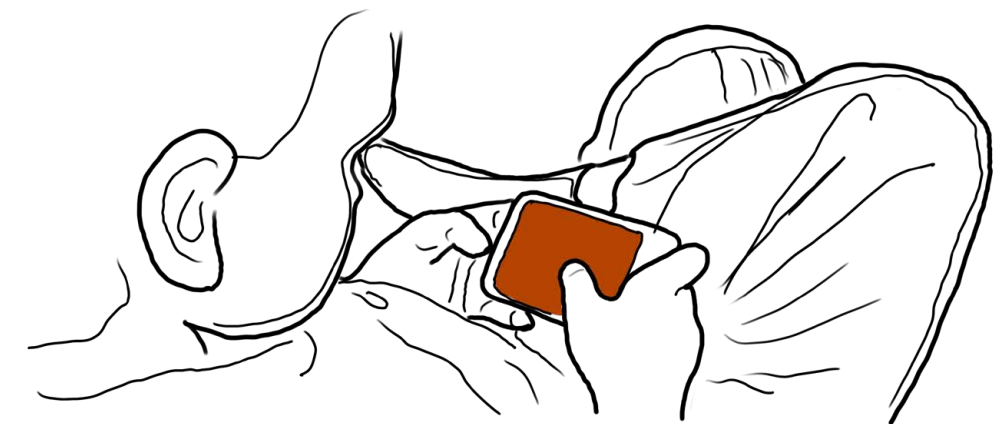
Communication with friends

Taking photos from nature
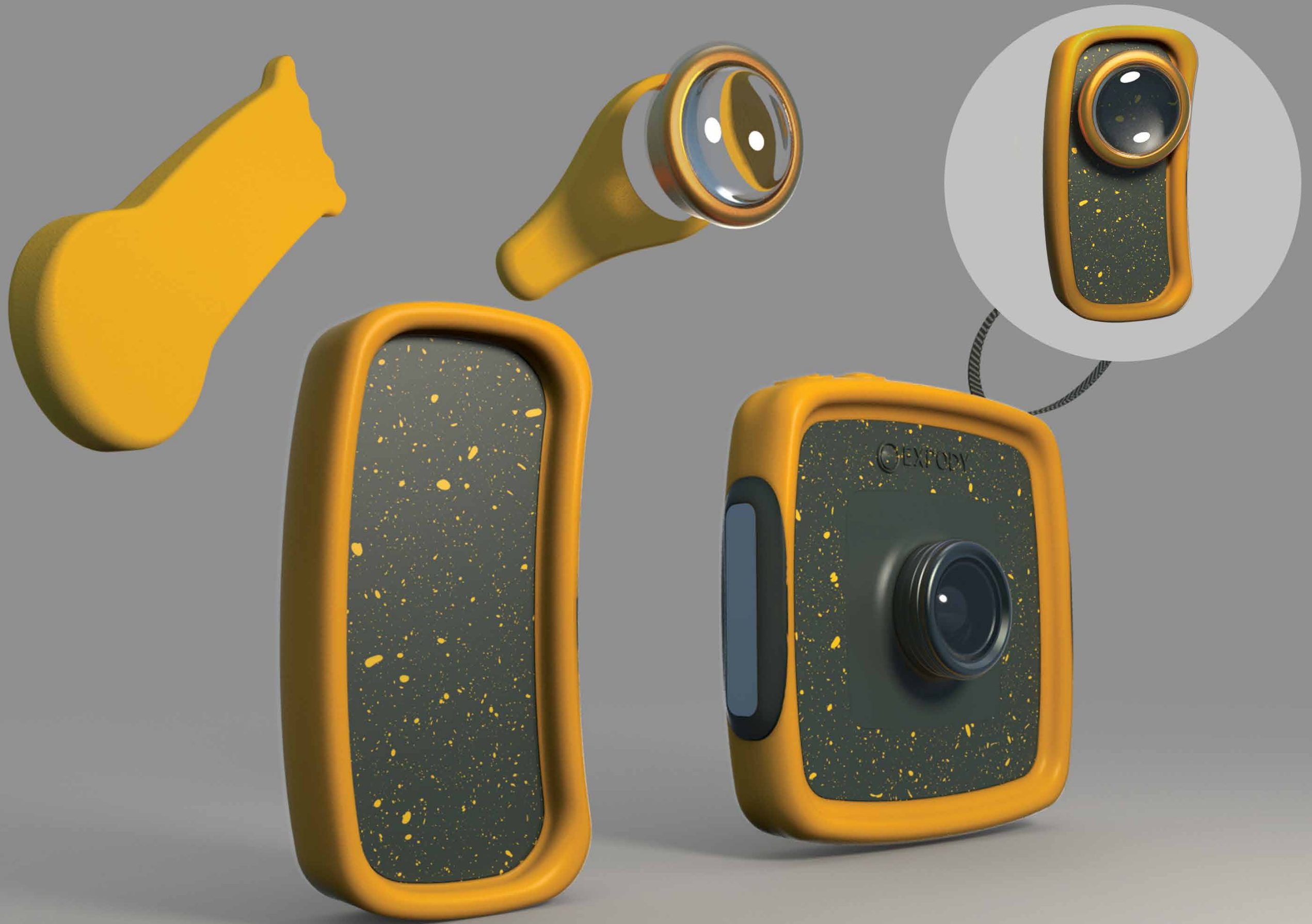
Looking closer to plants

Checking notifications from device

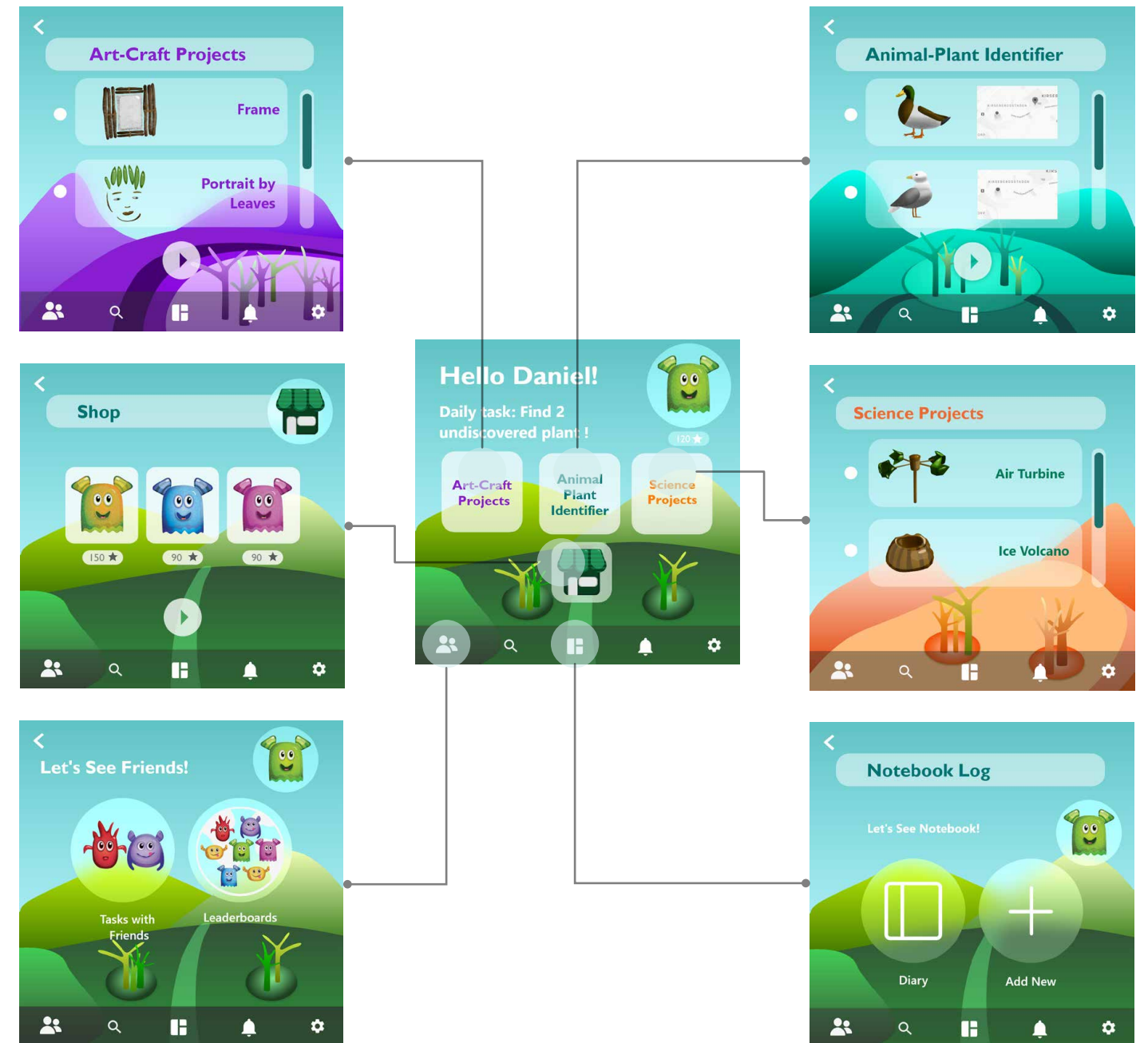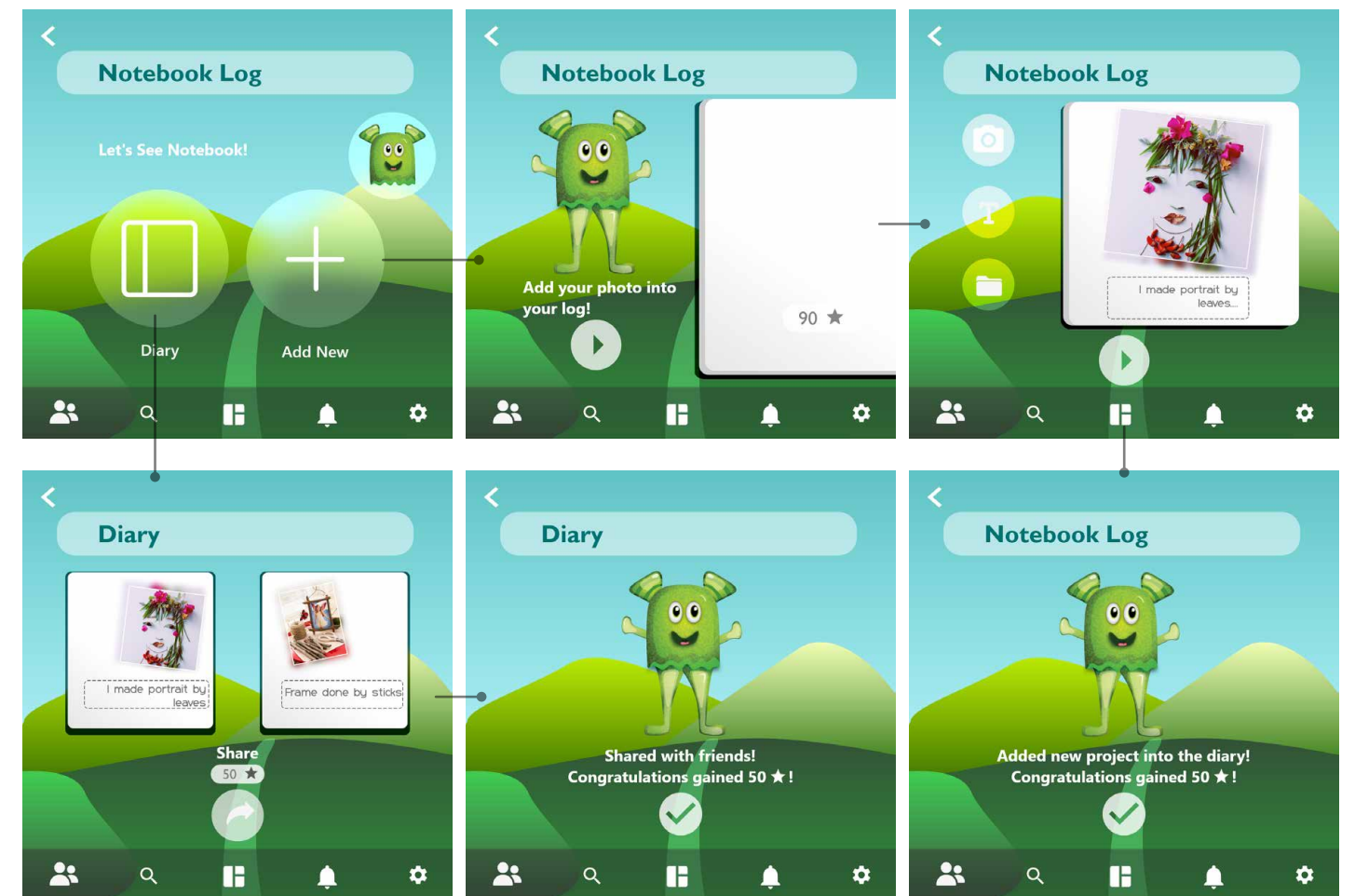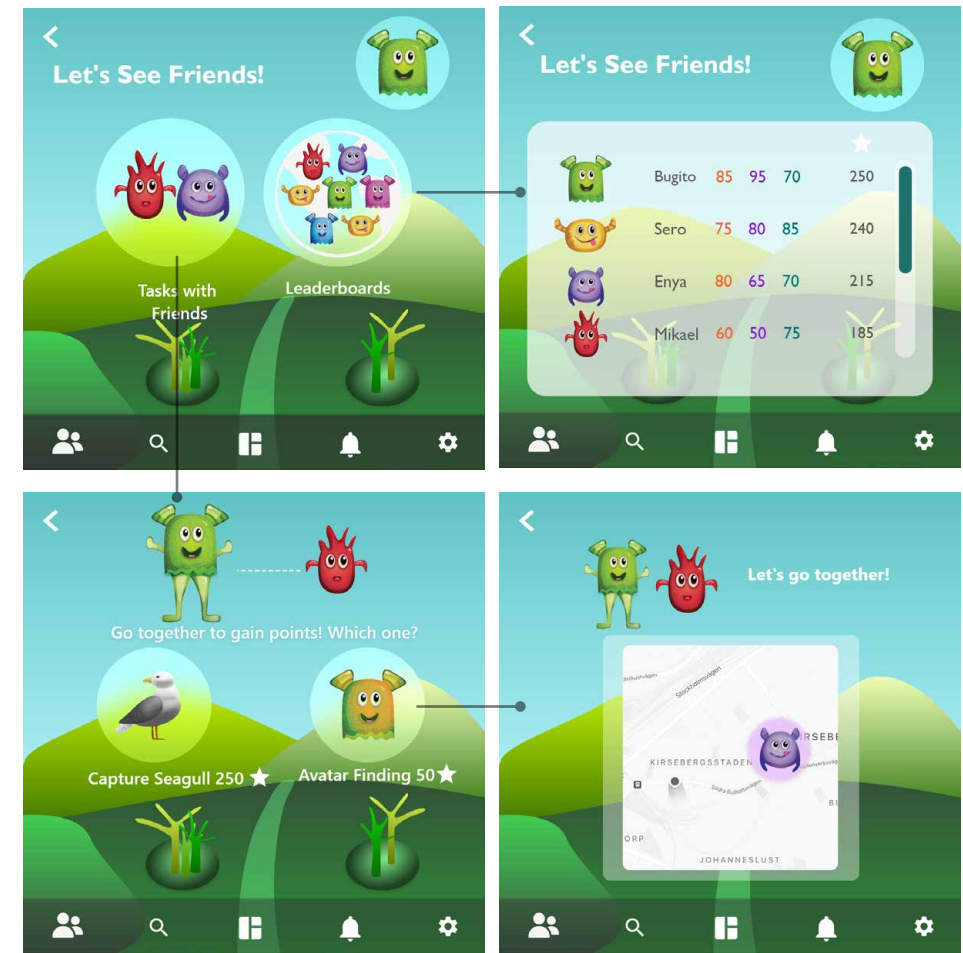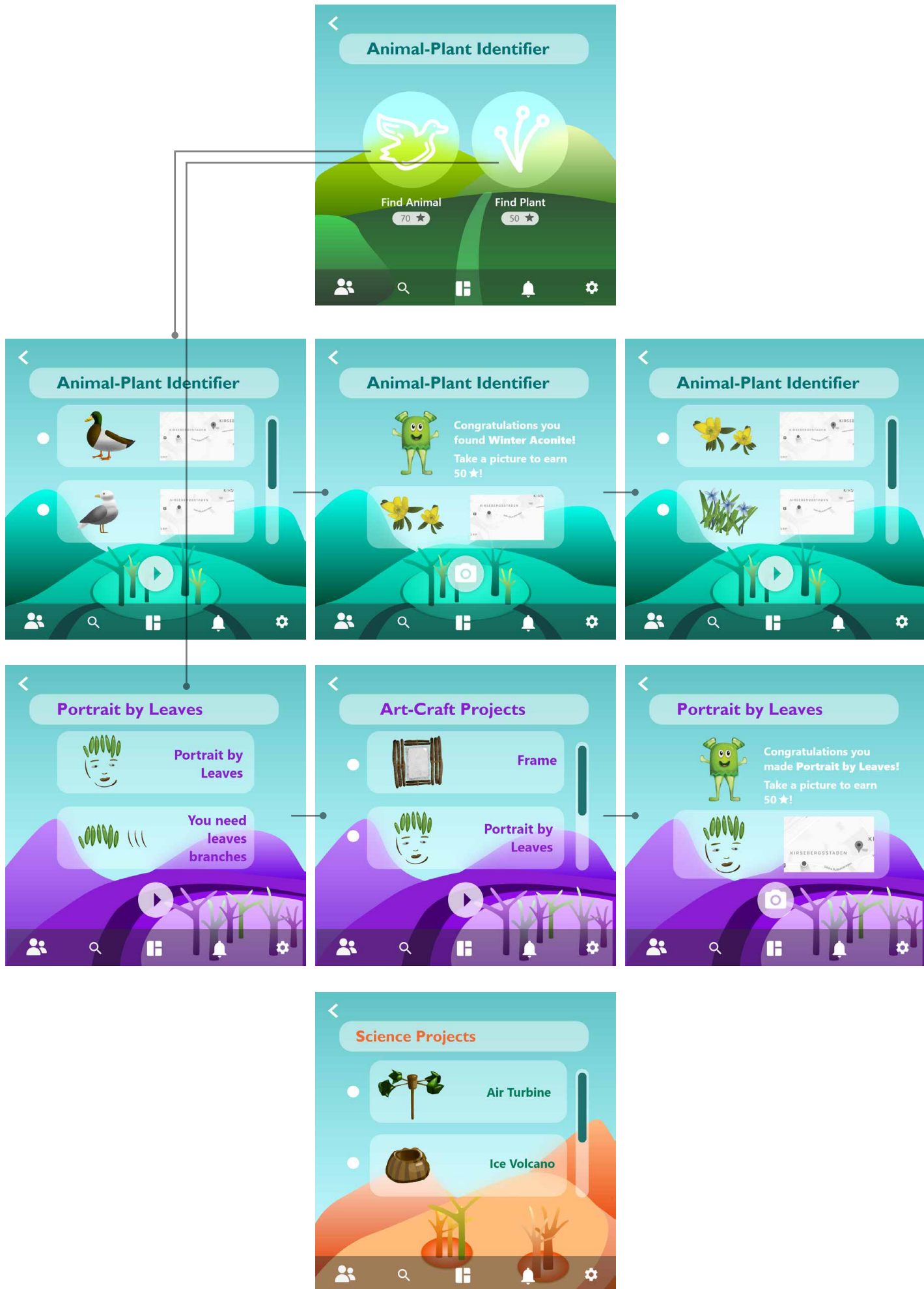Connection of camera to computer aims to transfer of photos

The earth digging tool top part has a serrated form to help users to cut. Because the design target group is children, sharper edges were designed in a softer form. The bottom part has a wider-soft edge to scrape.

# FINAL UI DESIGN

## Animal-Plant Identifier

Find Animal 70 ★

Find Plant 50 ★

## Animal-Plant Identifier

## Animal-Plant Identifier
Congratulations you found **Winter Aconite!** Take a picture to earn 50 ★!

## Animal-Plant Identifier

## Portrait by Leaves
Portrait by Leaves

You need leaves branches

## Art-Craft Projects
Frame

Portrait by Leaves

## Portrait by Leaves
Congratulations you made **Portrait by Leaves!** Take a picture to earn 50 ★!

## Science Projects
Air Turbine

Ice Volcano

## Let's See Friends!
Tasks with Friends

Leaderboards

## Let's See Friends!

| | | | | | |
|---|---|---|---|---|---|
| Bugito | 85 | 95 | 70 | | 250 |
| Sero | 75 | 80 | 85 | | 240 |
| Enya | 80 | 65 | 70 | | 215 |
| Mikael | 60 | 50 | 75 | | 185 |

Go together to gain points! Which one?

Capture Seagull 250 ★

Avatar Finding 50 ★

Let's go together!

## Notebook Log
Let's See Notebook!

Diary

Add New

## Notebook Log
Add your photo into your log!

90 ★

## Notebook Log
I made portrait by leaves..

## Diary
I made portrait by leaves.

Frame done by sticks.

Share 50 ★

## Diary
Shared with friends! Congratulations gained 50 ★!

## Notebook Log
Added new project into the diary! Congratulations gained 50 ★!

# MATERIAL
# SELECTION

## 01 - Natural rubber

For gripping parts, it needs to be elastomer in order to give soft material. According to Johnson K. and Ashby M.F., natural rubber is an excellent, cheap, and general-purpose elastomer. It also has great potential for recyclability.

## 02 - 05 - Abs

For the main part, it needs to be a high resistance impact due to preventing damages for drops. According to Johnson K. and Ashby M.F., ABS has the highest impact resistance of all polymers. Additionally in typical notes, it declares that ABS uses in Legos and toys which makes it suitable for my project.

## 03 - 04 - Aluminum Alloys

For the lens and magnifier frame, I looked into the metals. Aluminum alloys are lightweight, strong, and easy to worked material. When I checked the Kodak product material choices I found mostly Aluminum Alloys. To have comparison magnesium alloys corrodes in salty water even from sweat according to Johnson K. and Ashby M.F. which did not fit for functionality aspect. Additionally, as a second option titanium alloys more expensive than aluminum alloys.

## 06 - Magnet

I had reflections, about why there is a screen on the device and the target age group.

I aimed to create a design that will have a contribution of already existed physical toys with merging technological advancements. There is obvious concern from parents that their children spend considerable time at home, playing video games and on social platforms. I had same concerns at the beginning of the project which lead me to choose my thesis brief. However, from the research, for the new generation technological investments **not always harmful but there should be a balance** to keep them healthy mentally and physically. Which also contributed to my idea of merging physical toys experience with technological investments.

In my design process, I used the method of co-designing experience with children. It was crucial to involve their opinions, designing according to their feedbacks. It was a requirement to take their opinions since their world is unique in every age. Because of that when I accomplished my first concept, I had an interview with Demir and Toprak. In this concept, I aimed to have a screen showing only the location. Because **I had an experience from GeoChaching I decided only I can only add the location feature. I designed that UI Part will be on the phone and they will only use in the home. However, they told me that why I am not adding the UI part to the device itself.** They told me that some of their friends still do not have any mobile devices because of the concerns they had from their parents. Additionally, they advised me that adding UI part to the device can be more beneficial to say to parents that it does not require a mobile phone. For this reason according to **children's advice, I decided to add the UI part to a device.** With this journey, the design of the exploration product system has a screen at the and. Additionally, from my point of view, from the beginning of this project, I aimed to limit video gaming and social platform usage, which is not the same as looking at tasks outdoor.

# REFLECTIONS

Since the 9-12 age group is transaction group for mobile phone usage and starting less controlled by their parents compare to earlier age group, I had decided to choose this age group. However, I believe concept can more applicable for age between 8-11 rather than 9-12. With this reason, **I decided to change the target group between 8-11.** I believe the concept fits with 8 years old although my research did not include their age group.

However, for design language, I took new renders with a new design style of earth digging tool and magnifier. I implemented the same color with the body. Textures were implemented for the gripping part. The top part of the earth digging tool have a relatively sharper edge, the bottom part has a wide-soft edge for scrapping. The bottom part has also a curvature form to give affordance to users.

The same design language of the earth digging tool was implemented in the magnifier holding part.

# TECHNICAL DETAILS

**Camera**

Front View

Side View

96

R10

R7

R10 +

R18

77

18

7

40

51

Back View

4

R10

R5

41

51

95

65

77

**Magnifier**

Front View  Side View

R18
R14
R2
80
37
44
R8
R2
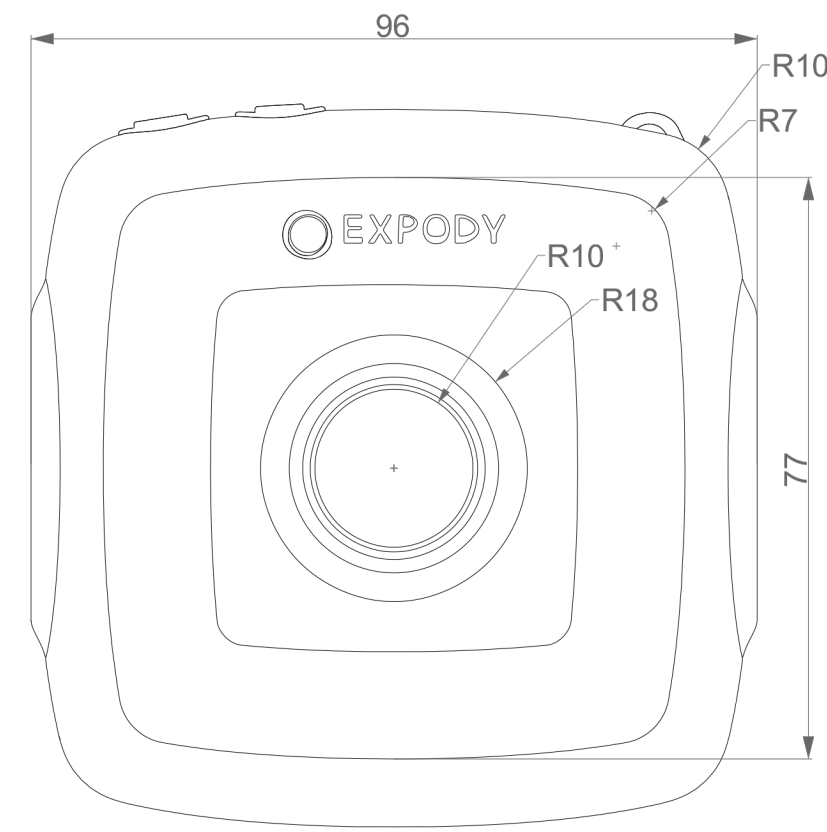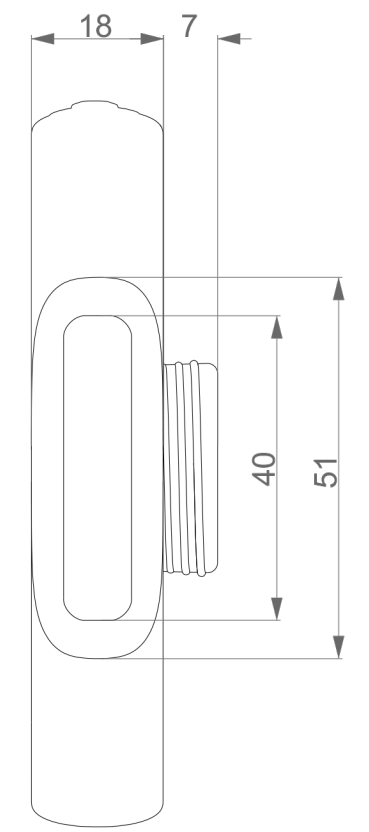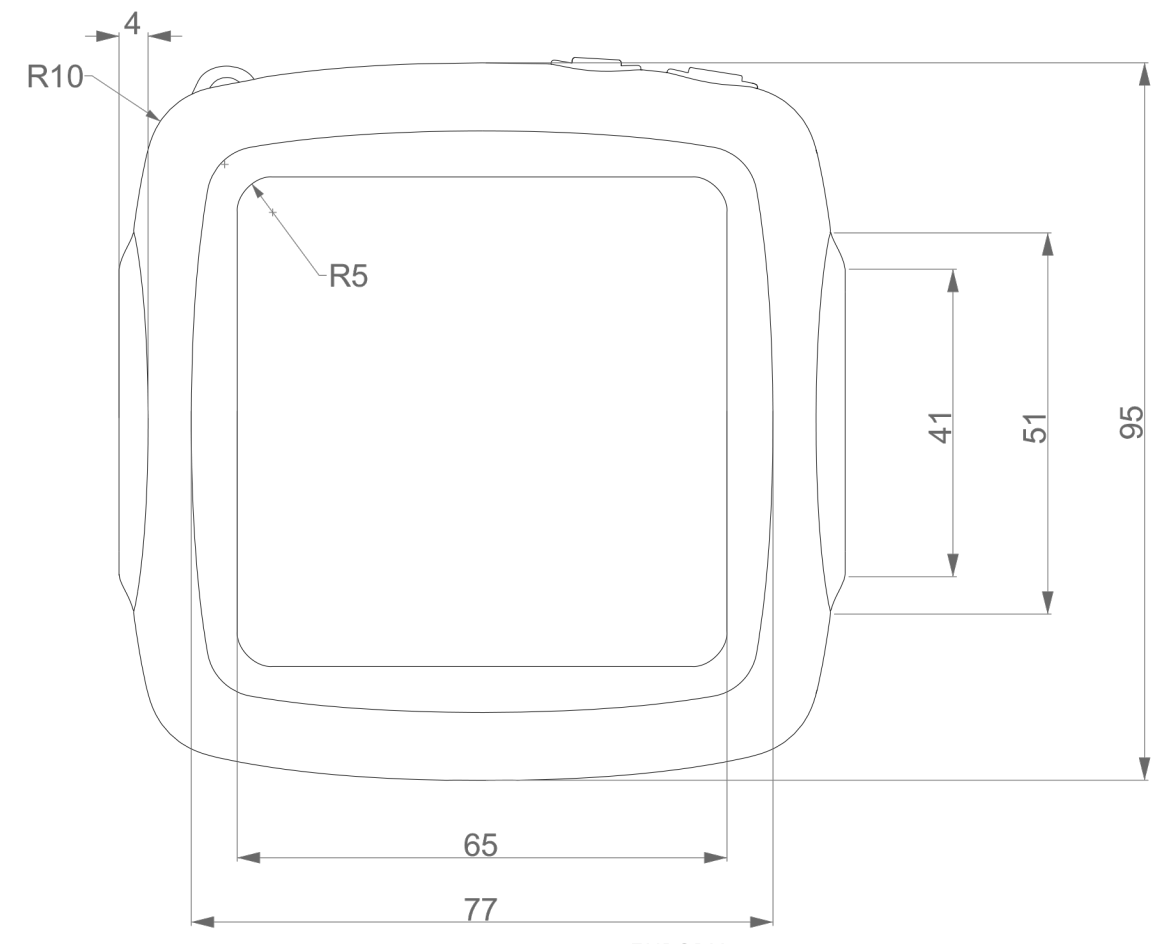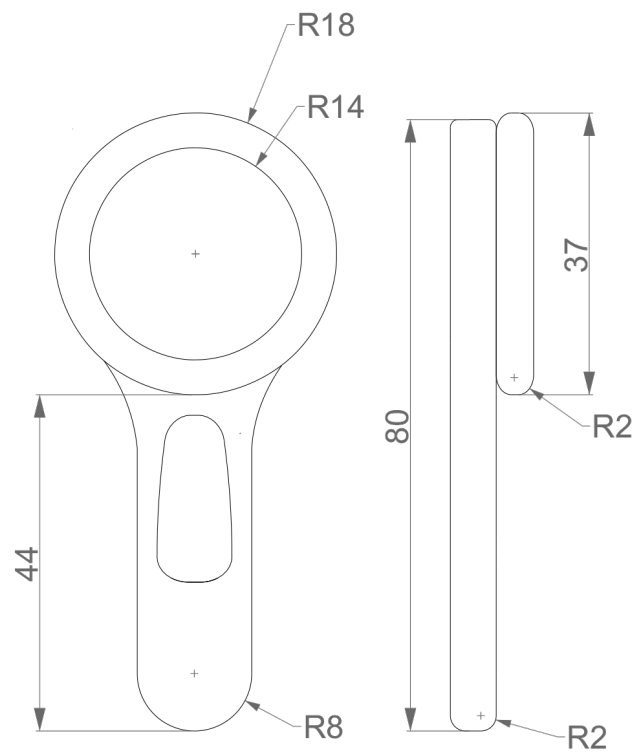
**Earth Digging Tool**

Front View  Side View

28
14
6
2
76
34
2
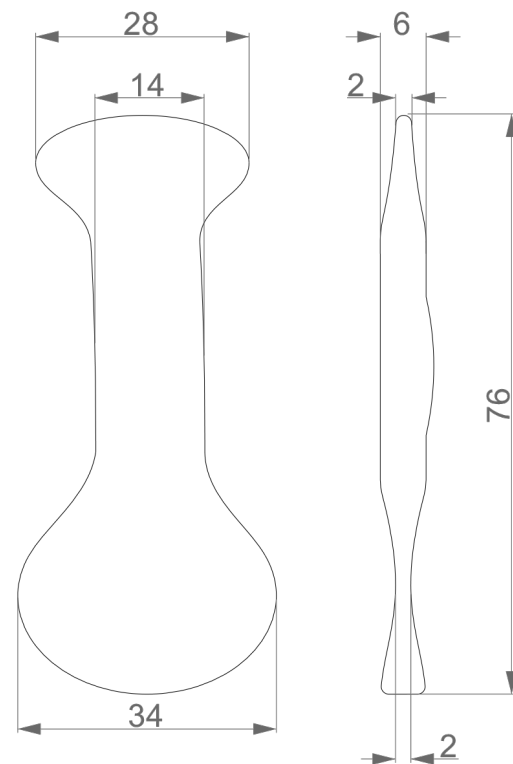
# REFERENCES

**Side Unit**

Front View  Side View

R10
9
R7
R3
40
48
95
95
85
R9
R10
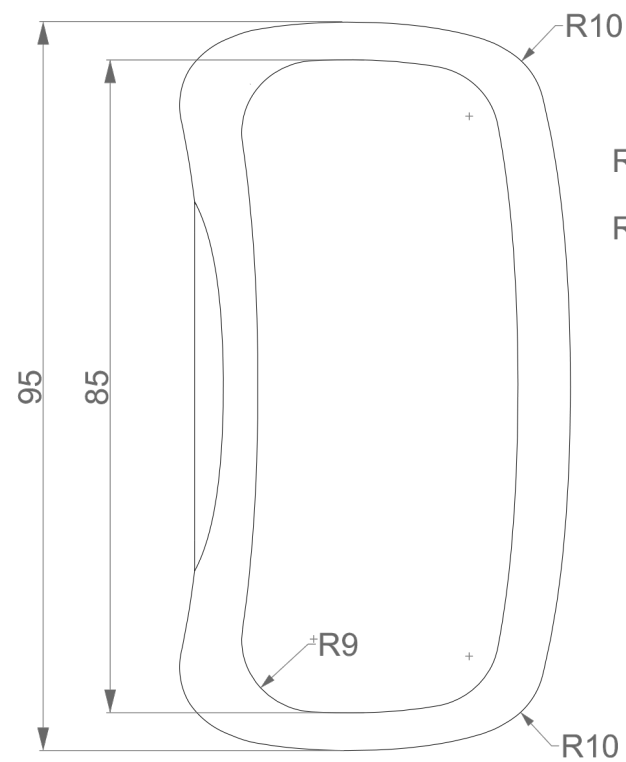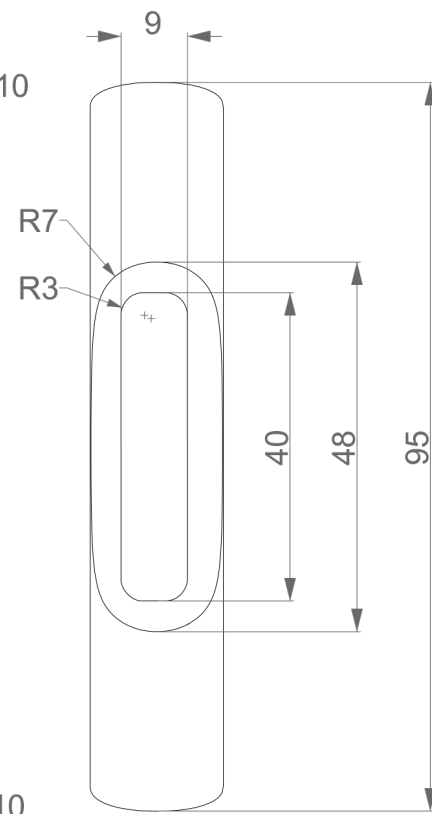
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*What's on my iPad!!,* https://www.youtube.com/watch?v=3pVbPwSccUY&ab_channel=It%E2%80%99smeKate

*What's On My Iphone 6s & Ipad Mini,* https://www.youtube.com/watch?v=Ek_Ds5C8SME&ab_channel=NiyahRenae

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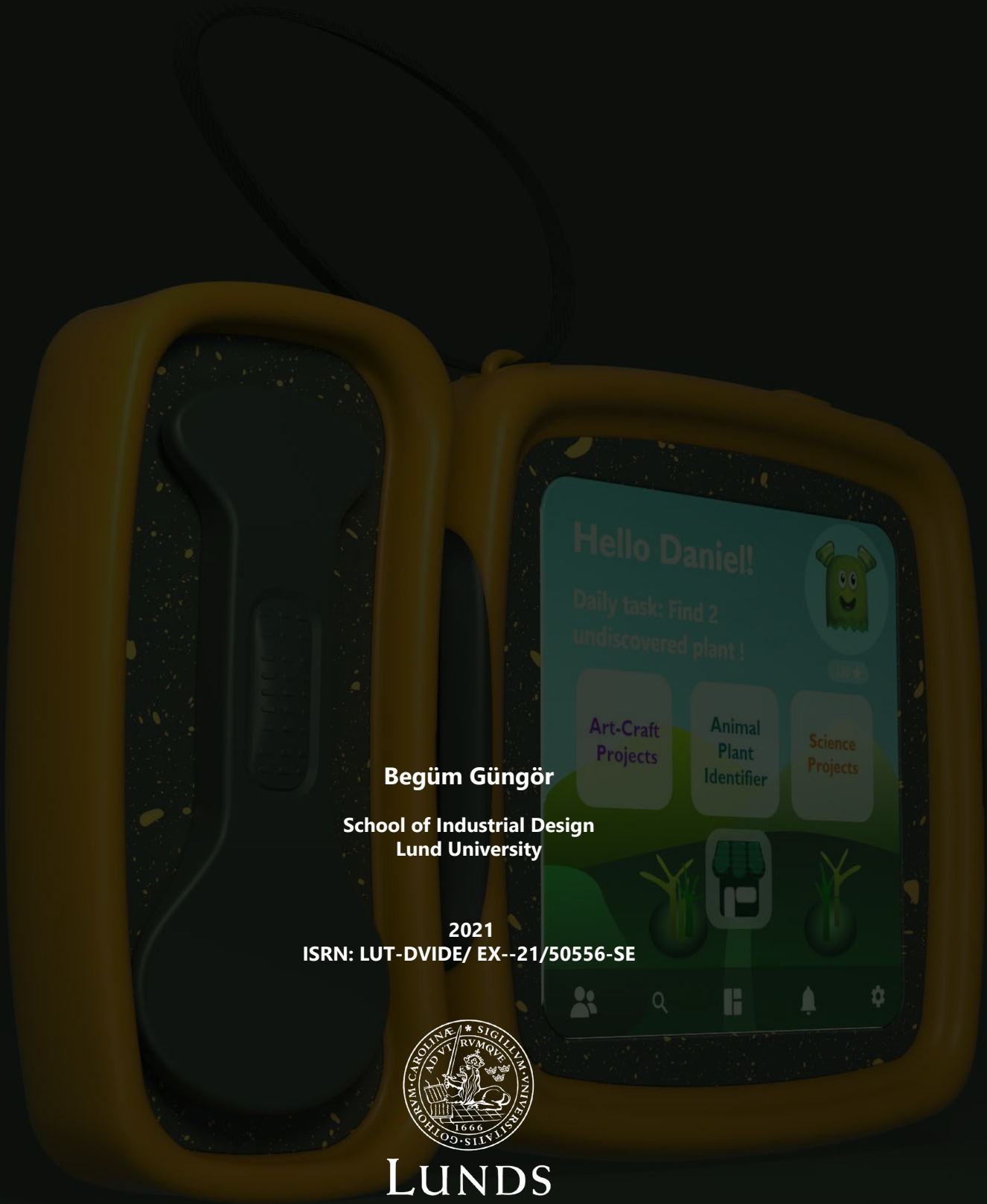
**Begüm Güngör**

**School of Industrial Design**
**Lund University**

**2021**

**LUNDS UNIVERSITET**