A New Way
TO Change the water
Consumption Culture

contents

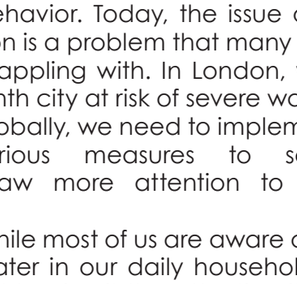
Let the Children Guide Us

As someone who has spent a significant amount of time as a swimmer, water holds a special value in my life. Seeing people carelessly waste it can be deeply frustrating for me. However, now, as a designer, I have the opportunity to influence and change this behavior. Today, the issue of water consumption is a problem that many countries are grappling with. In London, which ranks as the ninth city at risk of severe water shortages globally, we need to implement new and serious measures to save water and draw more attention to this critical issue.

While most of us are aware of ways to conserve water in our daily household usage, we often fail to give it the attention it deserves, not fully grasping the seriousness of water scarcity. According to the UK government's strategy, reducing the average water consumption from the current 147 liters per person per day to 130 liters by 2030 could resolve many of London's water issues.

Since simply asking for water conservation is not enough, one of the most effective actions we can take is to change the culture of consumption. The best target group for establishing this correct consumption culture is children.

So, what happens if we take it a step further and empower children to guide their parents in optimal water usage? This is precisely what Mizu does. By displaying water consumption in each part of the house and signaling the status of water usage through its appearance and movements, Mizu makes children immediately aware of household water usage. This way, children take on the responsibility and can guide and hold their parents accountable for proper-water usage.



Nasrin Heidari Morad

Product Designer

- London is Number nine on the list of global cities most likely to runout of water
- 630m litres of water a day lost through leaks .
- The Environmet Agency has said by 2050 some rivers will see 50%-80% less water during the summer months .
- The Cost Of Drought To London's Economy is Estimated By Thames Water to be £330m Per Day.
- CEO warned that within25years london and south east chould ranout of water.
- Geographic mismatch between available water resources and areas with high demand, leading to extensive water distribution.

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What is Our Role in Water Consuption

Water Consuption in Liters Per Day Per Person

Daily Water Consuption By one Person

147

3 L	Drinking and Cooking
8 L	Washing Floors (Cleaning)
9 L	Washing Dishes
9 L	Body Hygiene
11 L	Garden Irrigation
17 L	Washing Clothes
44 L	Bath
46 L — 30 %	Flush Toilets

Each day, we use water in different ways and amounts throughout various parts of our homes, and by making small changes in our habits, we can significantly reduce our water consumption and achieve the goal of reducing daily water usage to 130 liters per person. For example, on average, each person urinates 6 to 8 times and defecates once a day.

In dual-flush toilets, a full flush for solid waste typically uses 1.6 gallons (about 6 liters), while a reduced flush for liquid waste usually uses 0.8 to 1 gallon (about 3 to 4 liters). Therefore, by using the appropriate flush button, we can save between 16 to 18 liters of water per person each day

Simply by using the correct button on a dual-flush toilet, we can reduce our daily water consumption by up to 16 liters. Considering each individual's daily water usage, this practice brings us significantly closer to our target of 130 liters per person per day.

Leaky Britain

Each year, 460 million litres of water are wasted, with more than a third of adults (35%) having dealt with a leak in the past 12 months. Even a leak of just one drip per second can increase your annual water bill by six percent. Despite this, Brits typically leave a leaking tap for an average of three weeks before fixing it, contributing significantly to unnecessary water waste.

made with AI

Nowadays, there are numerous advanced devices with a wide range of functions that assist us in detecting and addressing water leak issues. These technologies not only help in identifying leaks early but also provide solutions to prevent further water wastage, making them essential tools in efficient water management and conservation.

Leak Detectors **Smart Water Meters** **Smart Water Filters and Purifiers**

Low-Flow Showeheads **Dual-Flush Toilets** **Smart Water Heaters**

- Devices that detect water leaks in real time and send alerts .
  Early leak detection prevents water wastage and potential property damage .
- Faucets with sensors to controlwater flow based on motion detection or voice commands.
  Helps in reducing water wastage by preventing unnecessary water flow .
- Meters that provide real-time data on water usage .
  Helps in monitoring and managing water consumption effectively.
- Toilets with two flushing options for liqud and solid waste .
  Allows for Lower water usage by provding a lesser flush option for liqud waste .
- Heaters that allow for remote montorng and control of water temperature and usage .
  Enables efficient hot water Usage saving both Water and energy .
- Devices that provide clean water while minimizing wastage .
  Ensures clean water supply and helps in reducing water wastage during filtration.

WHAT IF ?

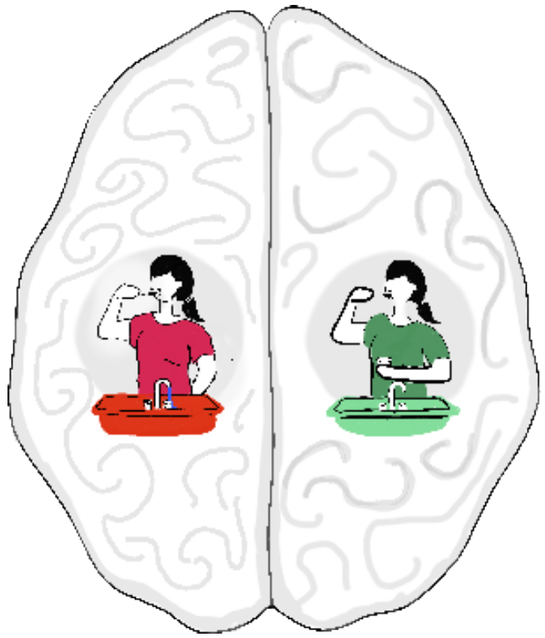
WE CHANGE

THE WATER CONSUMPSION CULTURE

One of the best methods for water conservation and optimal usage is educating individuals. The ideal age to start teaching about the value of water and efficient consumption is during childhood. Considering that a person's foundational character is formed from birth to around five years old, this period is the best time to begin education. It's when a child becomes aware of their environment and can establish connections with adults.
By the age of four, children typically develop key communication skills, including the ability to shift attention spontaneously from their activities to what someone is saying and then back to their task. They use language to express ideas and feelings, discuss plans, solve problems, and negotiate. At this stage, they ask many questions, particularly starting with 'How?' and 'Why?'. Additionally, they can tell stories about connected past events, providing an introduction, sufficient background information, a detailed account of what happened, and how the story ended.

MAKE CHILDREN RESPONSIBLE

Key aspects of fostering responsibility in children include developing social awareness, social responsiveness, and self-reliance. These traits are essential for their growth into conscientious and empathetic individuals. One of the most effective ways to cultivate these qualities is through practical household work. By engaging in tasks such as housework, childcare, and self-care, children not only learn to contribute to their families but also develop a strong sense of duty and accountability. These activities encourage them to understand the importance of their role within the household and society, laying the foundation for moral responsibility and ethical behavior as they mature.



Traditional Didactic Learning	Active Learning
Traditional didactic learning often involves passive learning through lectures	Active learning engages children in the learning process through hands-on and collaborative activities
Traditional didactic learning may result in limited retention of knowledge by children.	Active learning promotes improved retention of knowledge by allowing children to directly experience, construct, act upon, test, or revise the information they are learning
Traditional didactic learning may not emphasize these higher-order thinking skills.	Active learning involves children in problem-defining, generating solutions, and solving problems, which helps develop their critical thinking and problem-solving skills.
Traditional didactic learning students may have a more passive role in the learning process.	Active learning encourages children to take responsibility for their own education, promoting self-management and self-motivation.
Traditional didactic learning may rely more on auditory learning through lectures.	Active learning involves using multiple senses, interacting with materials, and responding to problems, providing a multisensory learning experience.

Critical Components of Active Learning

Using Multiple Senses:

Active learning involves engaging multiple senses (e.g., hearing, seeing, feeling) to enhance the learning experience.

Problem Defining, Generating, and Solving:

Students are tasked with defining problems, generating solutions, andactively solving problems, which promotes critical thinking andproblem-solving skills.

Interacting Within and Outside Teams:

Active learning encourages interactions within teams as well as with teachers and other students, fostering collaboration and communication skills.

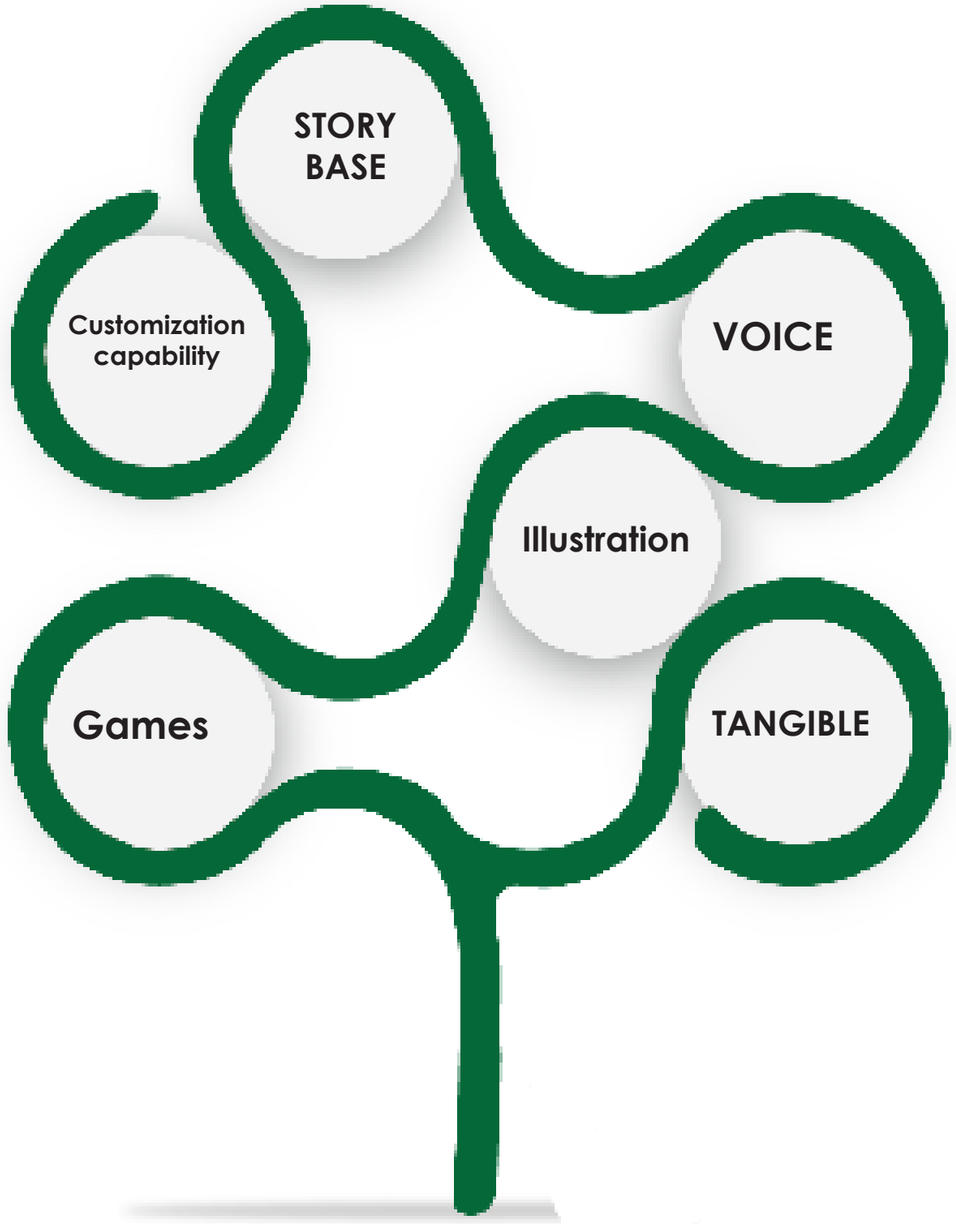
Relieving Stress:

Active learning environments are designed to relieve stress by creating a collaborative and engaging atmosphere that reduces pressure and fear of failure.

High-Level Thinking:

Students engage in high-level thinking tasks that require analysis, synthesis, and evaluation,promoting deeper understanding and critical thinking.

Interactive Features for children



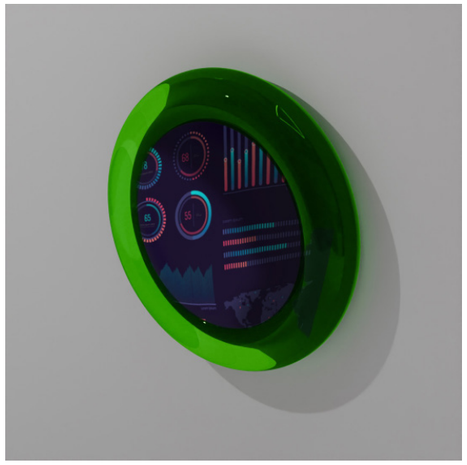
Suggested Solution

Application

An application that connects and syncs with gadgets and toy, allowing children—and especially adults—to monitor the household's water consumption. Additionally, children can use the app to play with the toy.

Toy

A toy that acts like a little friend, always with the child, allowing them to play while simultaneously learning about proper water usage. This helps instill responsible water consumption as a core value in their character.



Gadget

A system installed at the entrance of the house that displays the water consumption in each part of the home. It is synced with a toy and an application and also detects and notifies users of any water leaks.

APPLICATION

Child

Parents

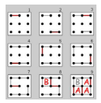
Offering various multiplayer games that children can play with the toy.

Displaying water consumption in each part of the house.

Rock and paper

Snakes and ladders

Dots and boxes



Indicating overuse in each part of the house, considering the number of people living there.

Activating different features in the toy through the app.

Suggesting various ways to save water, especially in high-consumption areas of the home.

Suggesting ways to save water, especially in high-consumption areas of the house.

Detecting leaks in different parts of the house and notifying parents via mobile notifications.

GADGET

made with AI

The system displays water consumption in each part of the house, allowing users to monitor their usage easily. It also detects water leaks, helping to prevent unnecessary waste. The color of the light serves as a visual indicator, signaling whether water usage is appropriate or has reached a maximum limit. With just minimal attention, the changing color effectively communicates the status of water consumption, making it easy to stay informed and make adjustments as needed.

THE TOY

What should be consider while designing a toy for a 4 years old ?

Safety

Ensure the toy does not have small parts that can be swallowed, sharp edges, or any potential choking hazards. It should meet safety standards for toys.

Durability

Create a toy that can withstand rough play and is made of sturdy materials to ensure longevity.

Developmental Benefits

Consider how the toy can support the child's social, emotional, and cognitive development through play.

Age-Appropriateness

Design the toy to align with the cognitive and motor skills of a 4-year-old. Consider their attention span, fine and gross motor skills, and problem-solving abilities.

Educational Value

Incorporate elements that promote learning and development, such as colors, shapes, numbers, letters, and basic problem-solving challenges.

Engaging Play

Design the toy to be interactive, engaging, and fun for a 4-year-old to encourage maginative play and creativity.

Gender Neutrality

Ensure the toy is inclusive and does not reinforce gender stereotypes, allowing all children to enjoy and benefit from playing with it.

Designing an Interactive Storytelling System for Children Using a Smart Toy

Story components

objects cab be used in actions of characters

Story world
Imaginative location where actions take place

Object
Tangible, inanimate thing that can't perform actions

Character
An animated, lively object that can perform actions

System components

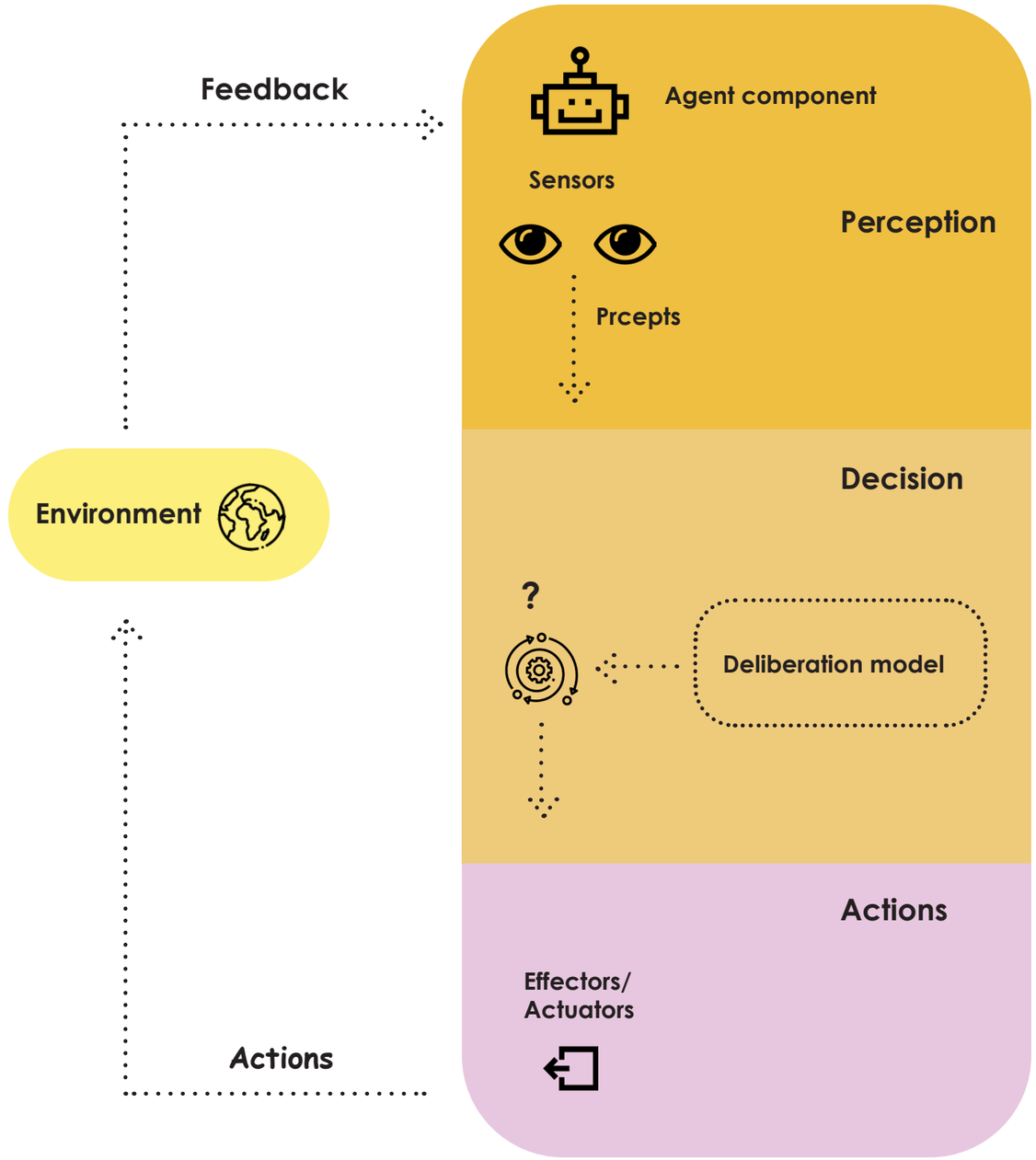
Static component
Features fixed

Dynamic component
Features change over time

Agent component

Reactive component
Features in response to stimuli

Hybrid component
Features in response to stimuli & deliberation



Reactive Behaviour & Storytelling

children expect to **receive feedback** from a smart character toy.

Dynamic objects that gave feedback in the form of **sound** or **movement** are the main important sources for children's inspiration and creativity

It is expected that reactive behaviour of a character toy can be a source of **inspiration** for children during the storytelling activity

That interactive objects had **positive** effect on **children's imaginations**

It helps children with story structuring

Extending character toys with deliberative behaviour, allows them to initiate ideas

Deliberative toys could provide suggestions concerning the structure of the story

Deliberative Behaviour & Storytelling

MARKET ANALYS

Toy of the Year (2023)

Attributes

An App

Creating more options for the game and preventing adding more features on the physical appearance of the product

Connection

Physical

Licky

Petting

Audio

Visual

Different light

Different Eye shape

Personalization

Has Authority of a Dog

Naming the dog

photo credit : amazon.com

COZMO

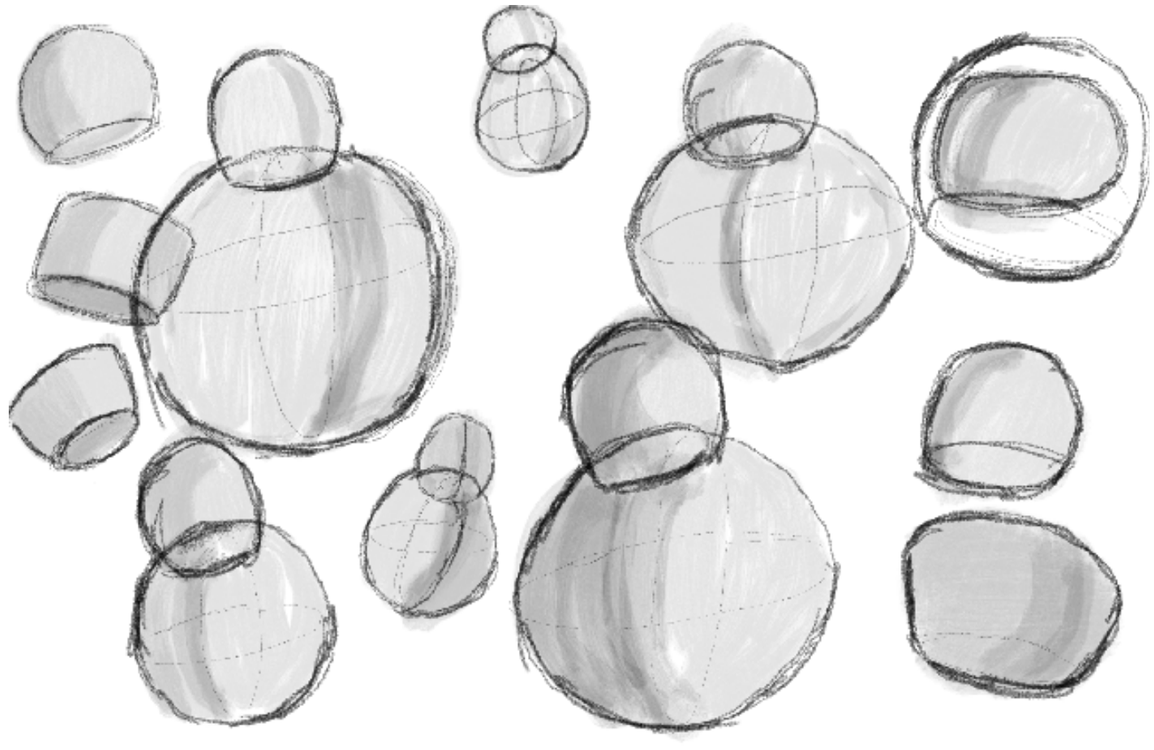
Cozmo: an interactive consumer robot, Anki, https://anki.com/en-us/cozmo/product-details

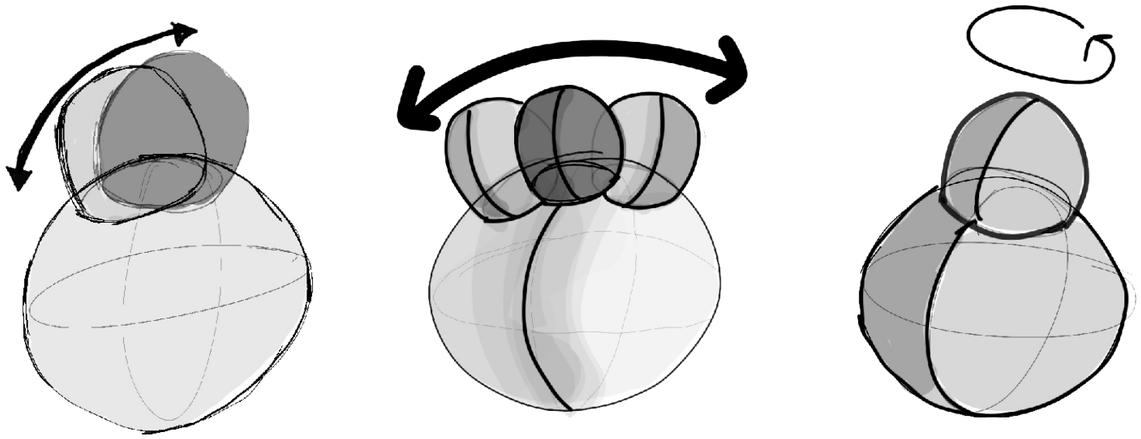
ASPECT	IMPLEMENTATION
Emotion	Emotional model based on interaction with user and environment
Builds relationships	Recognises person based on face, adapts emotion and actions based on experiences with this person
Self-learning on performance and interest actions	Change of performance on and interest in actions based on daily activities performed
Amount of actions that can be performed	The more the user plays withCozmo, the more actions are “unlocked”

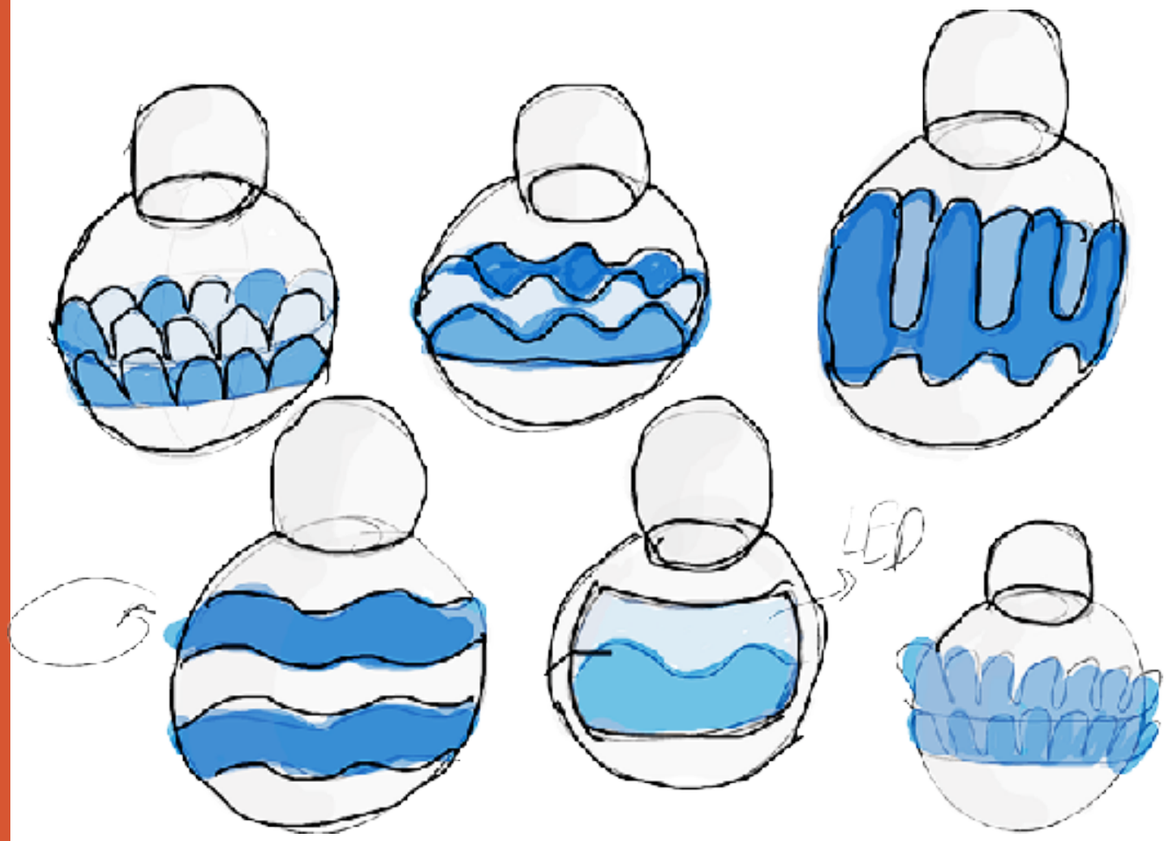
Reactivity

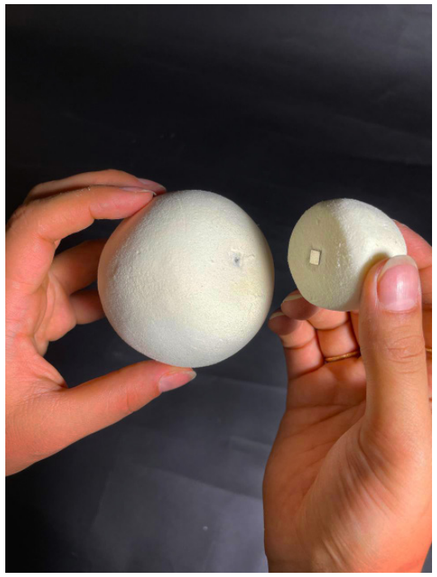
STIMULUS	RESPONSE
Specific face	Change face animation, sound, posture, movements
Sound	Change face animation, sound, posture, movements
Touch	
Position (close to a certain object)	Change face animation, sound, posture, movements

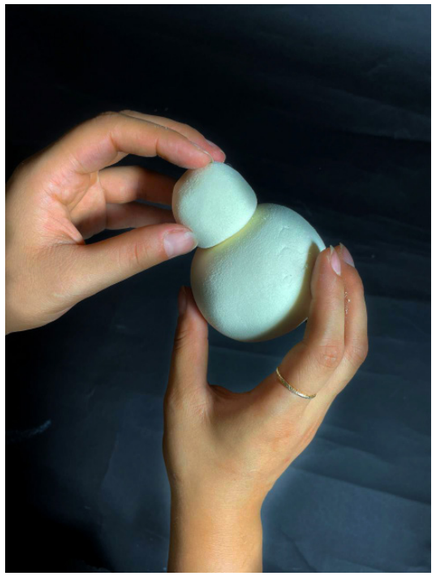
SKETCHES







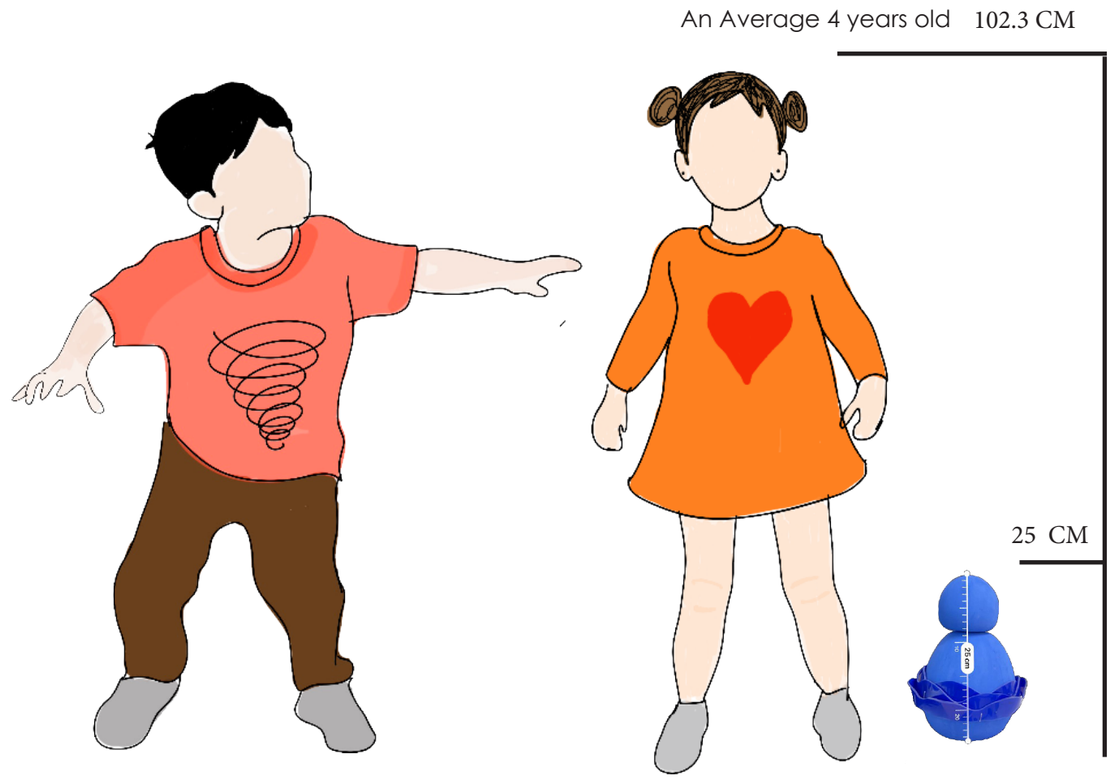




Given our target group of four-year-olds, it's crucial that the toy has a friendly and approachable appearance to engage children and make them eager to play. To achieve this, one of the key design elements should be the use of soft lines and rounded curves, which naturally make the toy appear more welcoming and less intimidating. These design choices not only enhance the toy's appeal but also create a sense of comfort and safety, which is essential for young children as they form early attachments and develop their imaginations through play.

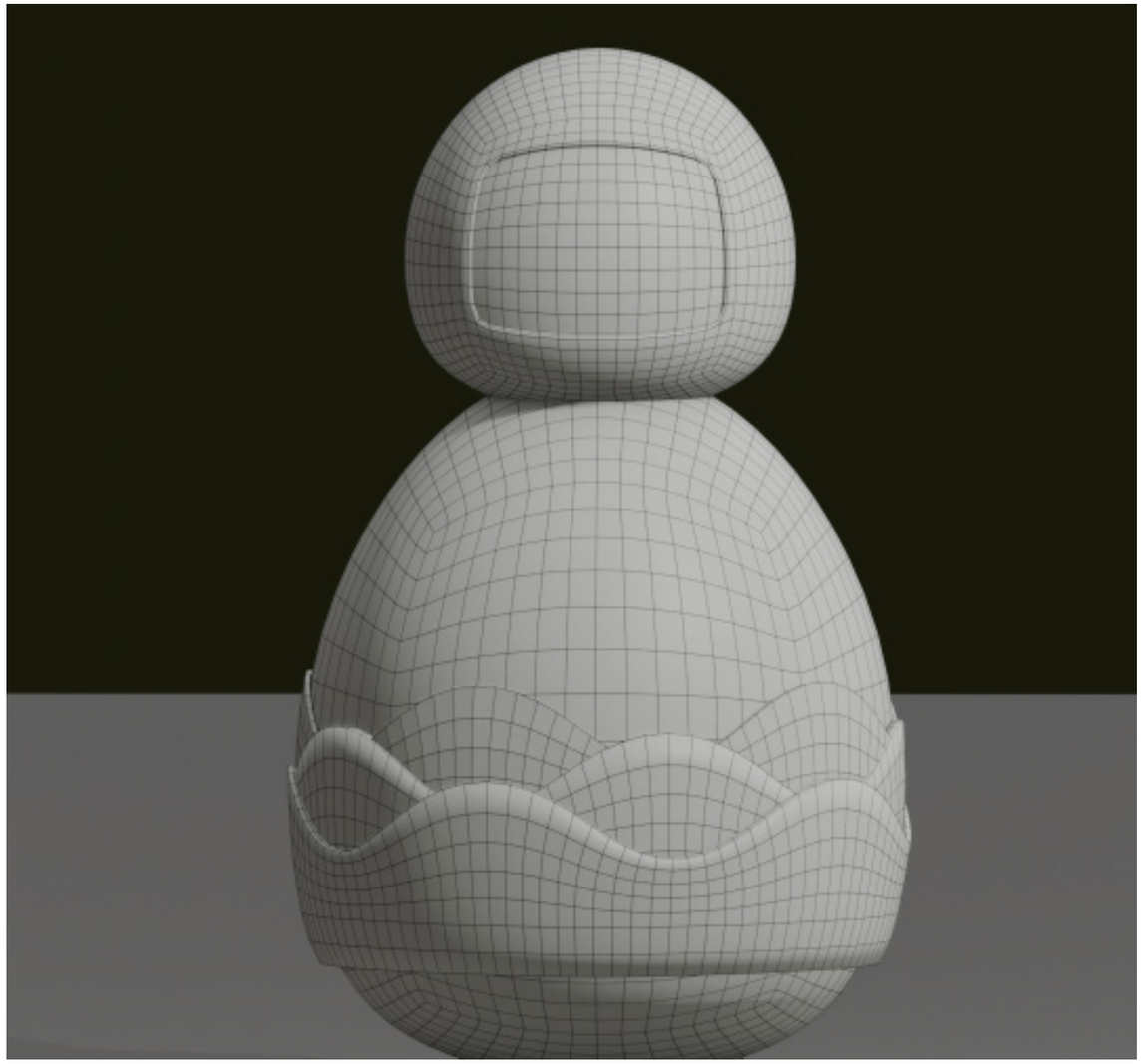
The process involves designing and testing various models, each with different parameters and configurations. These models are then applied to the main framework or core structure to evaluate their effectiveness. Through this iterative process, the goal is to identify the model that delivers the most optimal results, ensuring accuracy and efficiency in achieving the desired outcome.

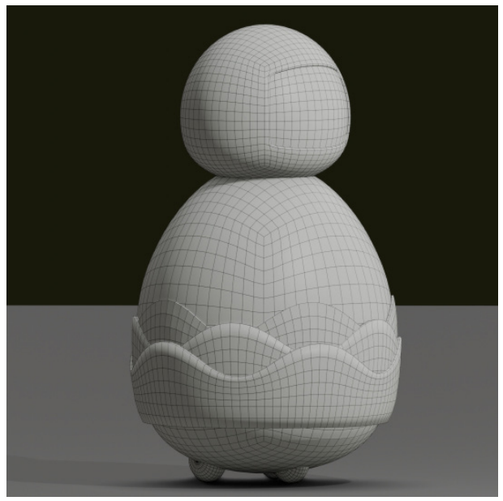
DIMENSIONS

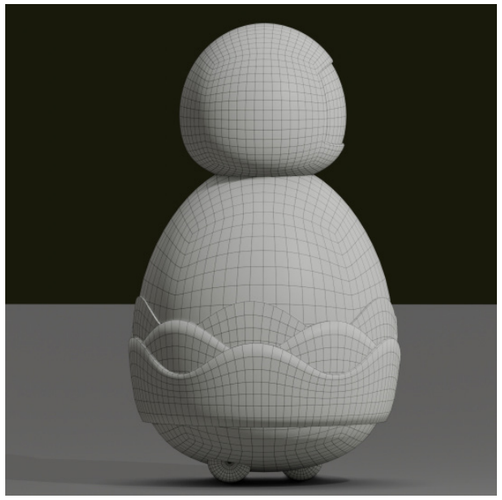


RECOGNIZE GENDER

Early Childhood (5-7 years): Around this age, children's understanding of gender becomes more stable and consistent. They realize that gender is typically fixed and connected to biological sex, though they may still have a limited understanding of the complexities of gender identity. As a result, considering our target group of children aged four and above, we can have a toy that is gender-neutral, making it suitable for both girls and boys.



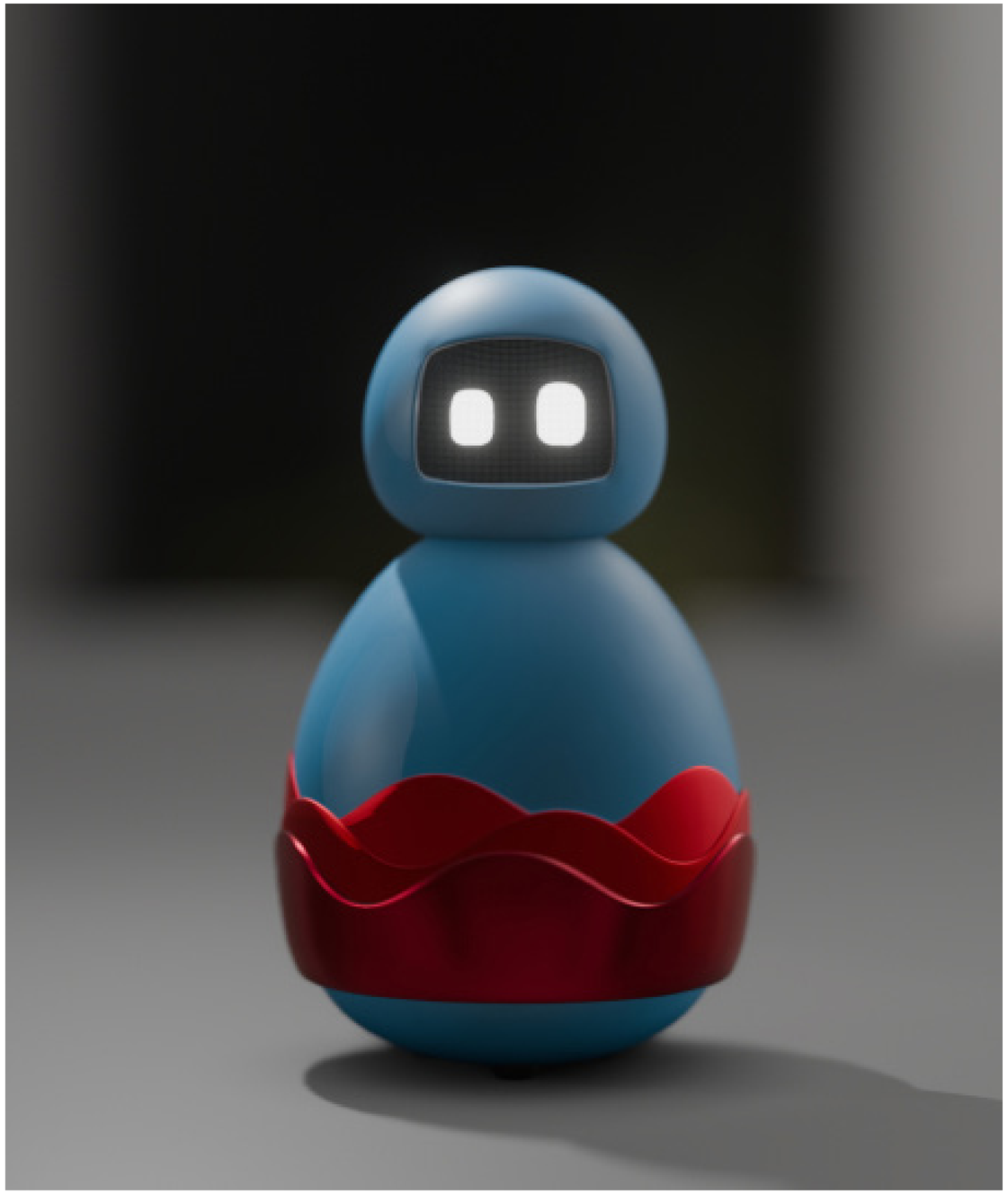




FINAL LOOK

M I Z U

(Japanese word : Mizu =Water)



Fanctions

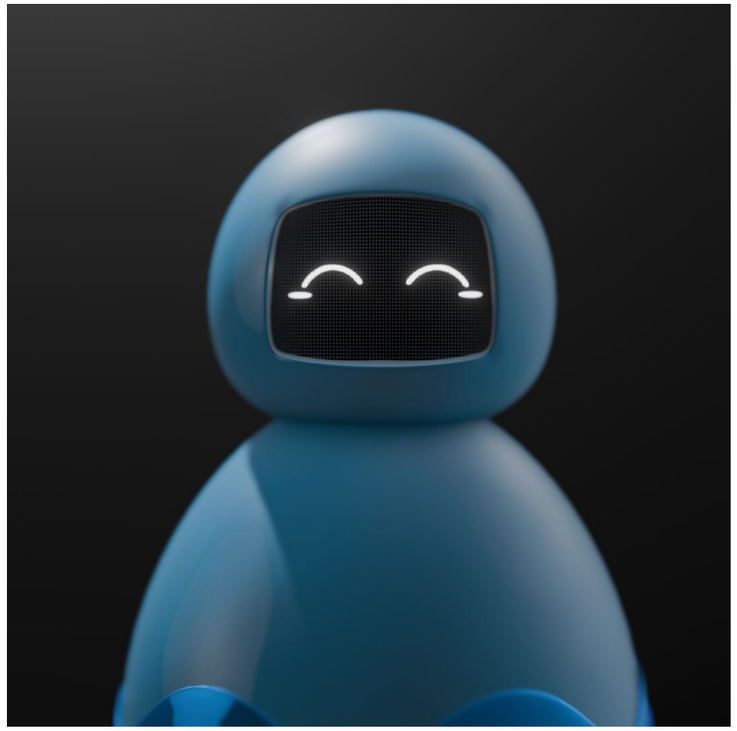
Deliberation

Emotion	Change face animation to angry or sad, sound
High Water Usage	Change face animation, sound, The ring around the body changes from blue to red.
Colour	**Red** Water consumption in different parts of the house is high, considering the average usage and the number of family members.
	Blue Water consumption in different parts of the house is appropriate, considering the average usage and the number of family members.

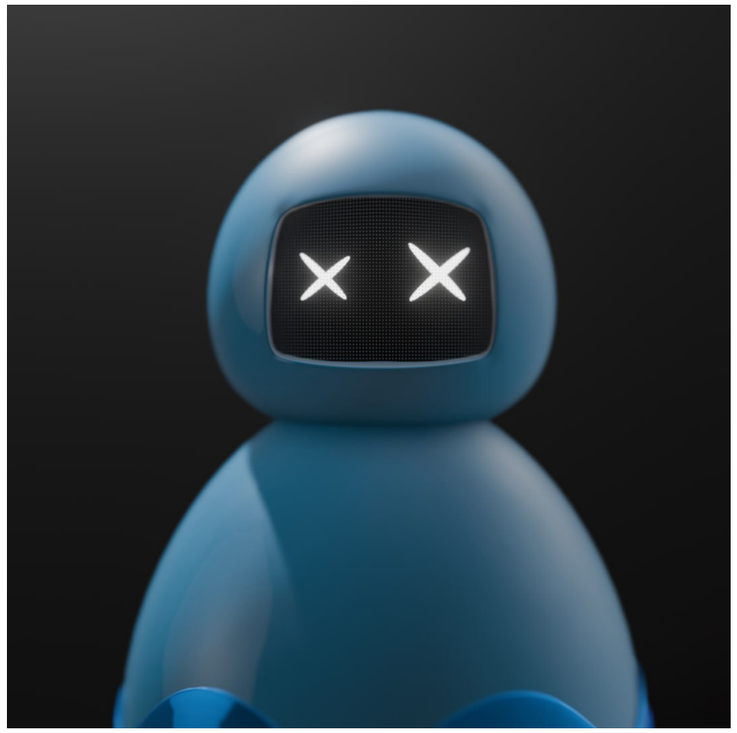
Reactivity

Touch	Tilting the head to one side and the eyes changing into heart shapes.
Calling its name	Approaching the user
Playing	Playing two-player or multiplayer games in the app

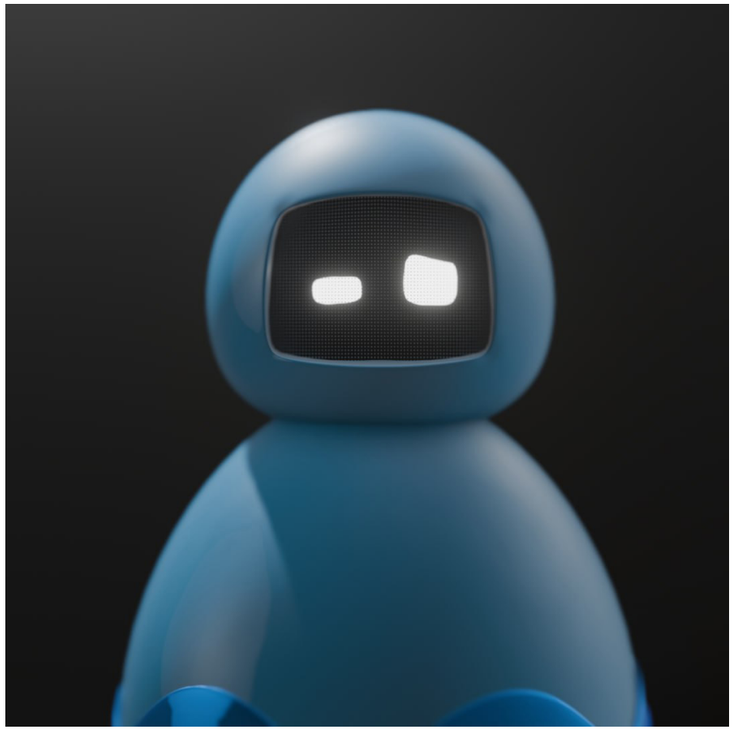
This toy becomes a child's friend, accompanying them everywhere. Throughout the day, children can play with it while also being directly exposed to the concept of water usage. Since the toy's functionality is tied to responsible water consumption, children become responsible for taking care of the toy and, in the process, learn about proper water usage. They can even teach their parents what they've learned. As a result, we have families in the present who are more mindful of their water consumption, leading to significant water savings. Additionally, we are raising a generation of children for whom responsible water use becomes ingrained in their culture. Over time, this ensures that responsible water consumption becomes an increasingly stable and integral part of daily life, passed down from generation to generation.



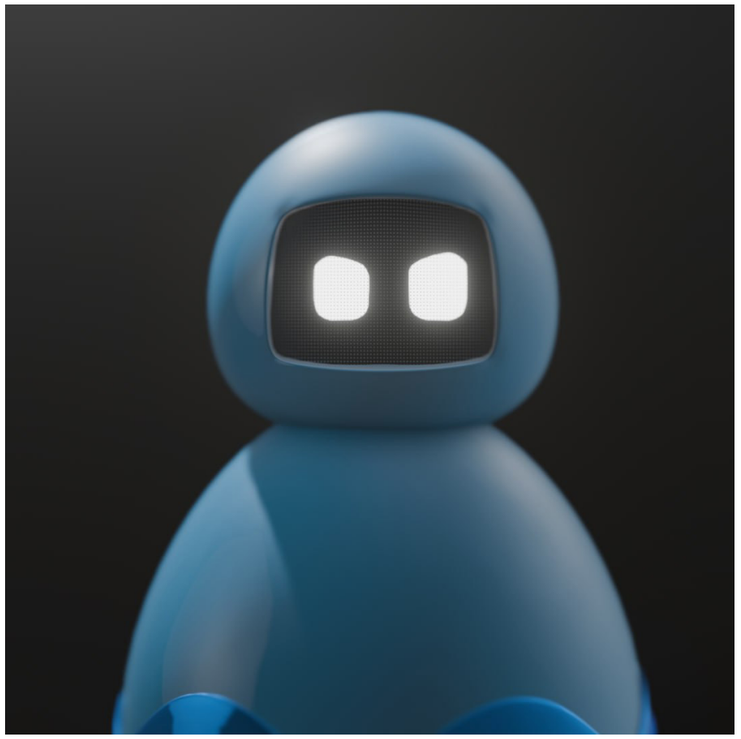
Happy



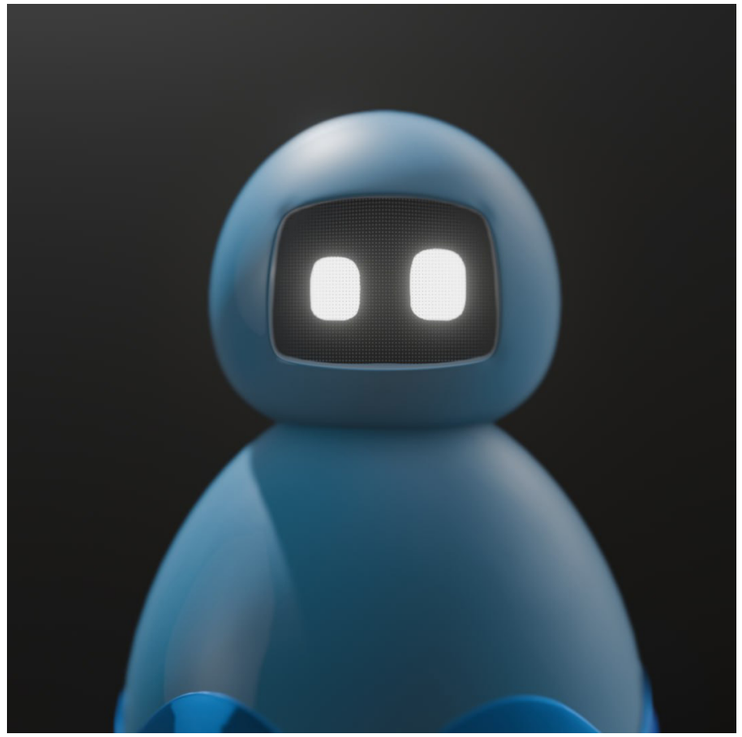
Neutral



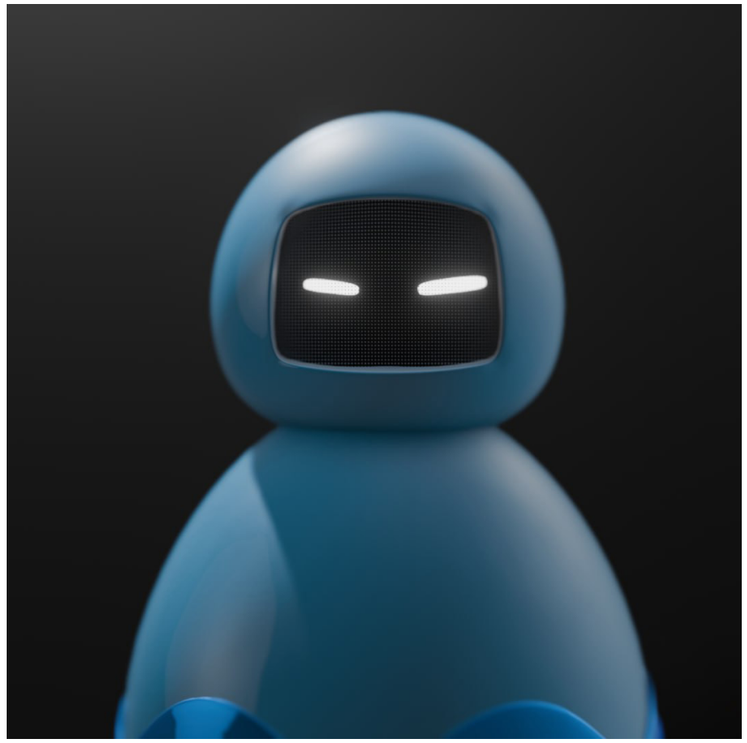
Sleepy Eyes



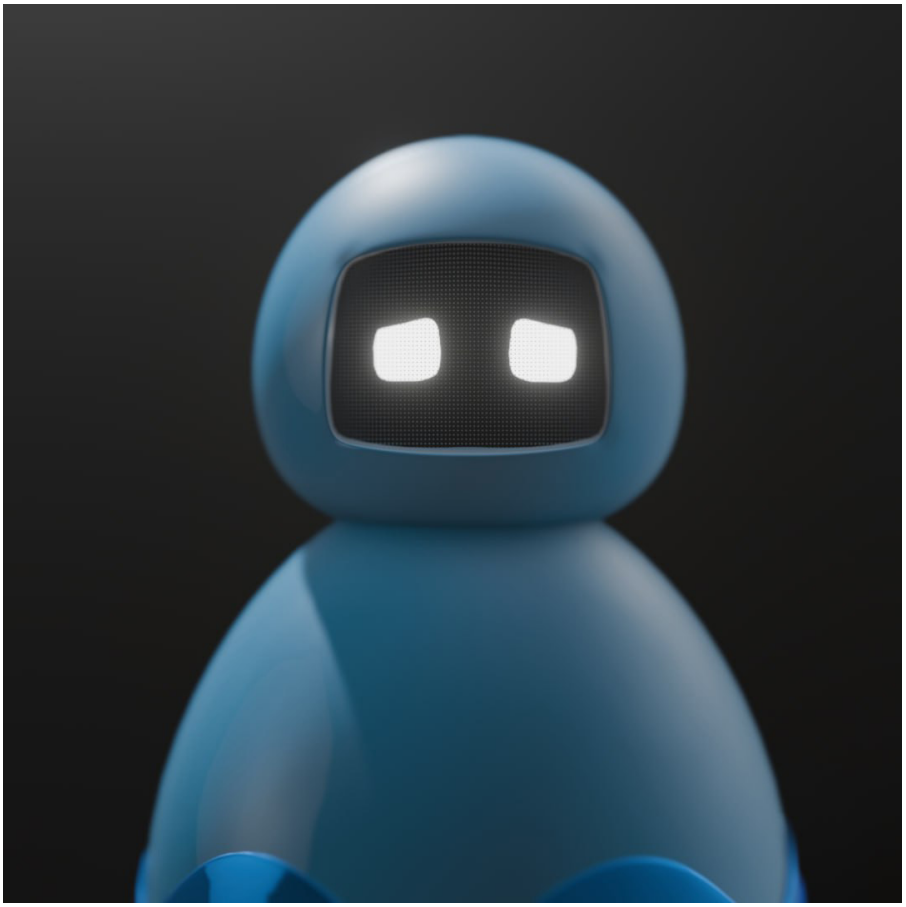
Angry



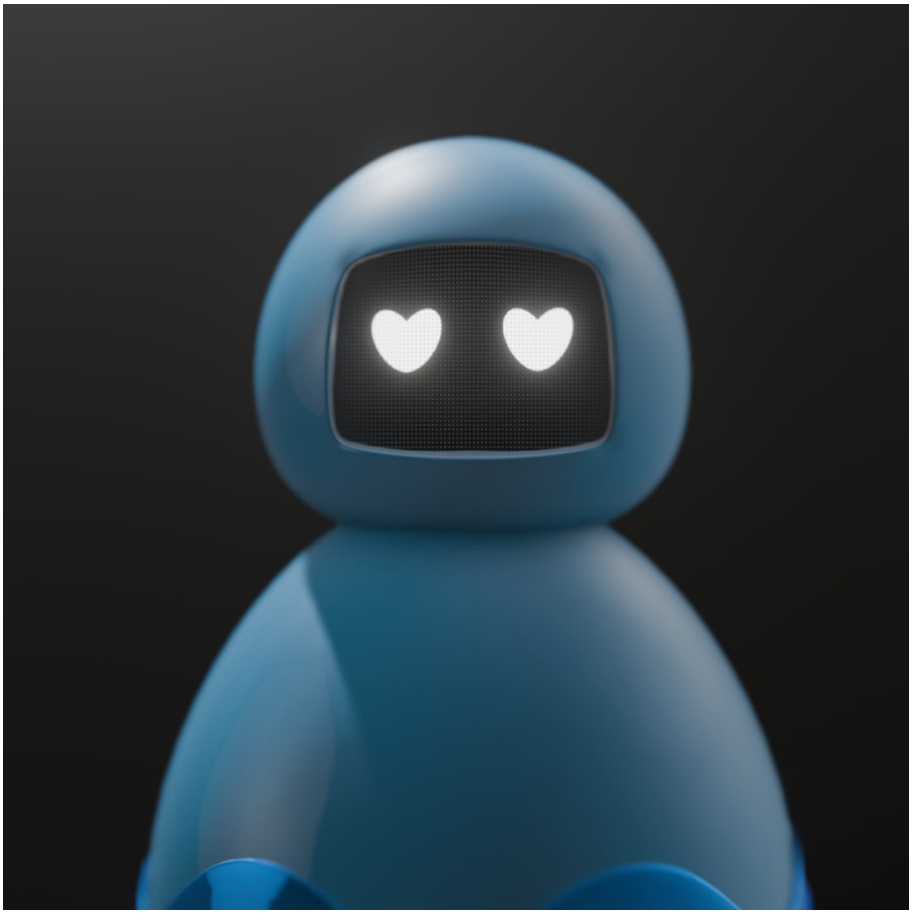
Neutral



Squint



Sad



In Love