

PRODUCT DESIGN 2
PROJECT REPORT

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WOODEN TOYS FOR KIDS BETWEEN 9 TO 15 MONTHS OLD

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CONTENTS

1.	INTRODUCTION
2.	DESIGN INSIGHTS
3.	DESIGN OBJECTIVE
4.	DESIGN BRIEF
5.	DESIGN IDEAS
11.	CONCEPTS
12.	FINAL CONCEPT
13.	FORMAL VARIATIONS
14.	COLOR VARIATIONS
15.	FINAL DESIGN
16.	TECHNICAL DRAWINGS
17.	FINAL PRODUCT PHOTOS
18.	BRANDING

INTRODUCTION

This project was done as a part of our product design 2 module. The objective of this project was to design a wooden toy for kids between the age of 9 months to 15 months. The primary material used for making the toy has to be wood but it can be of any form like timber, plywood, particle board, MDF, etc. Other natural materials can also be used for certain applications if required, but it should be of minimal amount and no plastic parts. The design of the toy has to be inspired from nature and based on biomimicry.

DESIGN INSIGHTS

Based on the observations made during the User study, Market research and Internet research the following insights were derived. The insights were classified into must haves and may haves.

Must Have

- The toy should be safe for the kids – form, material and size of parts, etc.
- The toy should be easy to operate and visually approachable.
- The toy should be able to withstand wear and tear

May Have

- The toy should be relatable to their surrounding environment
- The toy should be able to keep up with the curiosity of the kid
- The toy should facilitate the physical development of the kid like sensory, fine motor and gross motor skills
- The toy should facilitate the Cognitive development of the kid like logical, creative and linguistic skills.
- The toy should facilitate the social development of the kid like emotional, communication, self- esteem, empathy etc.
- The toy should communicate with the child.
- The toy should be able to create memories
- The toy should be more open ended.
- The toy should provide a personalized experience to the kid

DESIGN OBJECTIVE

Problem Statement

Design a toy for kids aged between 9 months to 15 months using wood as the primary material and taking inspiration from nature.

Design Objective

To design a toy for kids aged between 9 months to 15 months which helps them in development their physical development. It has to ensure that the toy is safe for the kid in all the aspects, it has to provides easy operation and it should takes care of the wear and tear of the usage, by using wood as the primary material and taking inspiration from nature.

DESIGN BRIEF

Problem:

Design a toy for kids aged between 9 months to 15 months using wood as the primary material and taking inspiration from nature.

User requirements:

- The toy needs to be safe for the kids – form, material and size of parts, etc.
 - The toy needs to be easy to operate and visually approachable.
 - The toy needs to be able to withstand wear and tear
- The toy may be used to facilitate the physical development of the kid like sensory, fine motor and gross motor skills
 - The toy may be used to facilitate the Cognitive development of the kid like logical, creative and Linguistic skills.
- The toy may be used to facilitate the social development of the kid like emotional, communication, Self- esteem, empathy etc.
 - The toy may be more open ended.

Scope:

The product is only for the kids between the ages of 9 months to 15 months. The primary material of the product can be any type of wood with minimum use of other materials and the inspiration for the product can be anything from nature.

User and target market segments:

Primary User – 9 to 15 months old child

Secondary User – Parents, Relatives or Baby sitters

Tertiary User – Sales agent

Quaternary Users – Repair technician

The product is targeted to all the income groups of the society.

Constraints:

- The primary material of the toy should be wood.
- Other materials can be used in very minimal quantity for certain specific purposes.
- The inspiration for the toy should come from the nature
- The toy should be safe for the kids – form, material and size of parts, etc.
- The toy should be easy to operate and visually approachable.
- The toy should be able to withstand wear and tear

Micro environment for usage:

- Interior of any house – mainly floor space or the play area of the kid
- It may be used by the kid when they are either standing, walking or sitting

Broad product specification:

- Primary Material – Wood.
- Secondary materials – Metal or other natural materials
- Overall size of the product – less than 450x450x450 mm
- Color – natural or bright or light pastel colors
- Minimum size of any part (if any) – more than 75mm

User Experience:

The product should make the kid curious to play with it. It should entertain the kid. The parents should feel safe to let the kid play with the toy. The kid should be able to use it without anyone else's help.

Product life cycle:

The minimum duration of usage should be about 1 year

Servicing and maintenance issues:

- It should be easy to operate
- It should be easy to clean if required
- If any maintenance required then the parent should be able to repair.

Frequency of usage:

Anytime, any day

USP:

Innovative ways to use wood in toy construction / Type of wood like Bamboo

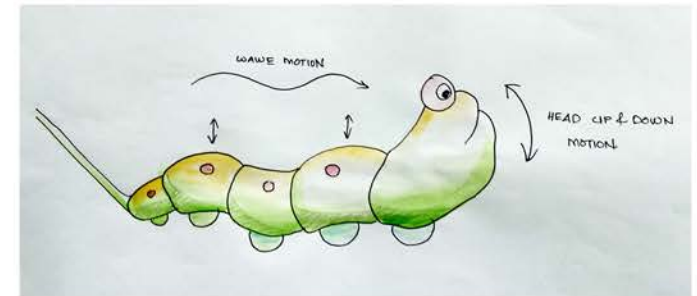
Sustainability and after use issues:

The materials used for the toy should be environmental friendly. The product should be sustainable and should be able to dispose/ recycle without causing any problems to the environment. It should be bio degradable if thrown away.

DESIGN IDEAS

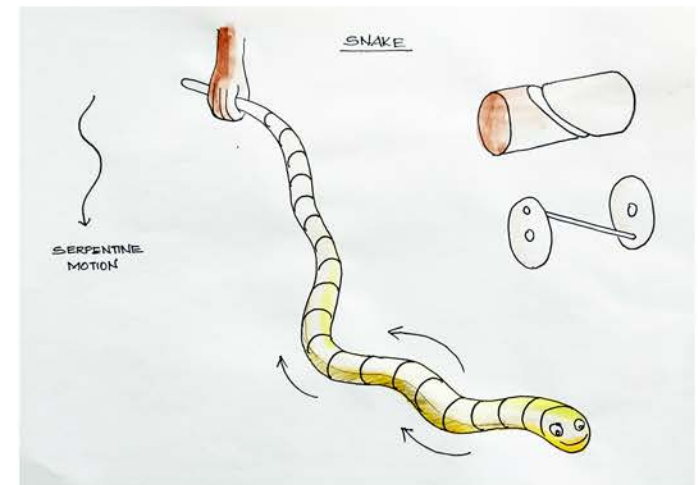
1. Caterpillar

The idea was inspired from the movement of a caterpillar. The body of the caterpillar could be segmented and can have cam mechanism for each segment to mimic the movement.



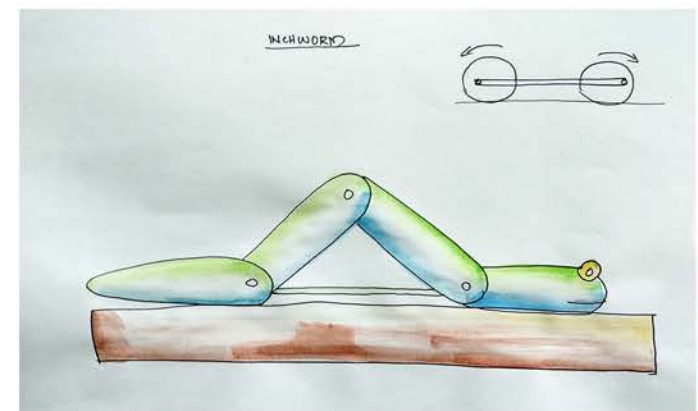
2. Snake

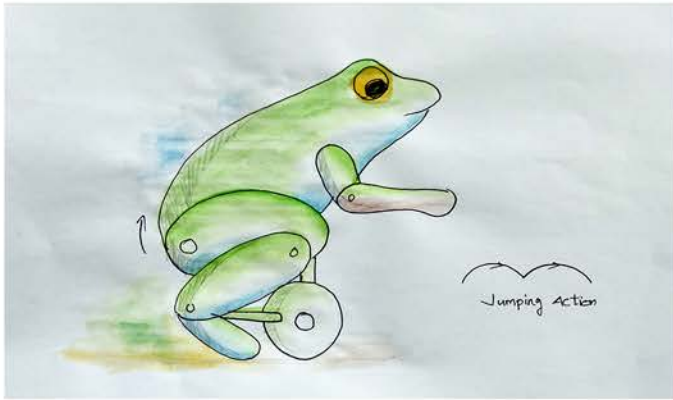
The idea was inspired by the serpentine motion of the snake. The toy body of the snake could be segments with axial cam mechanism to mimic the movement.



3. Inchworm

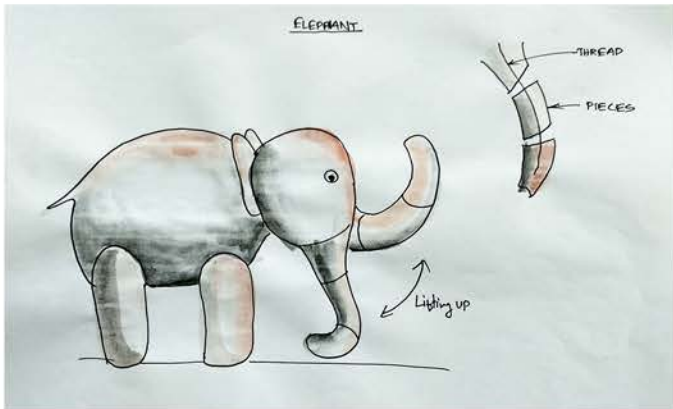
The idea was inspired by the movement of an inchworm. The mechanism can be made using crank mechanism.





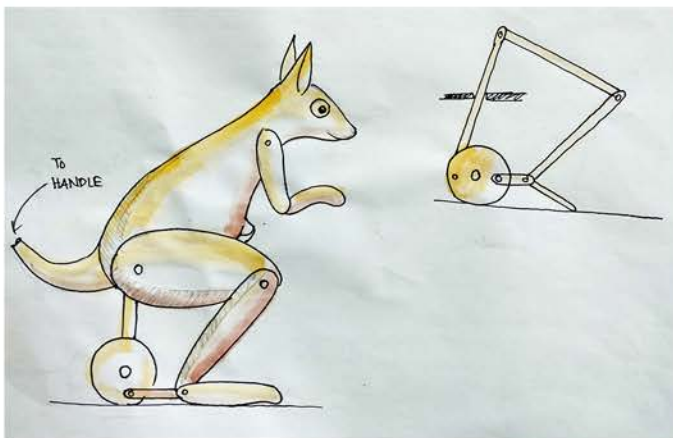
4. Frog

The idea was inspired from the jumping action of a frog. The jumping action can be mimicked using crank mechanism



5. Elephant

This idea was inspired by the trunk movement of an elephant. A thread and crank mechanism with segmented trunk can be used to mimic the lifting up and down motion of an elephant's trunk.

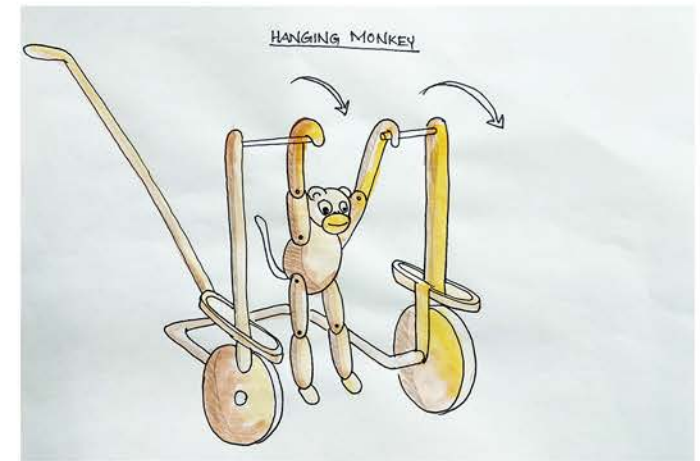


6. Kangaroo

This idea was inspired by the movement of a kangaroo. The jumping action can be achieved using crank mechanism.

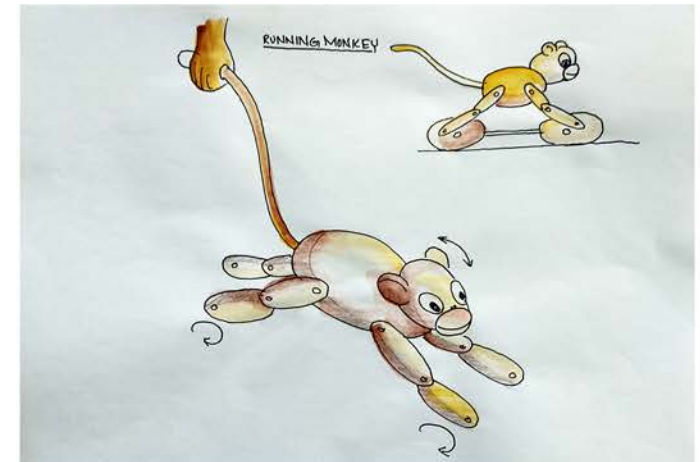
7. Hanging monkey

This idea was inspired by the movement of a monkey from branch to branch. The action can be mimicked using two crank mechanisms on opposite ends.



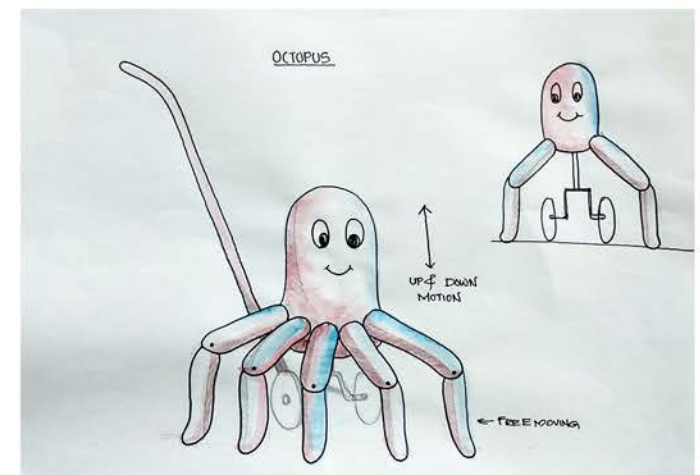
8. Running Monkey

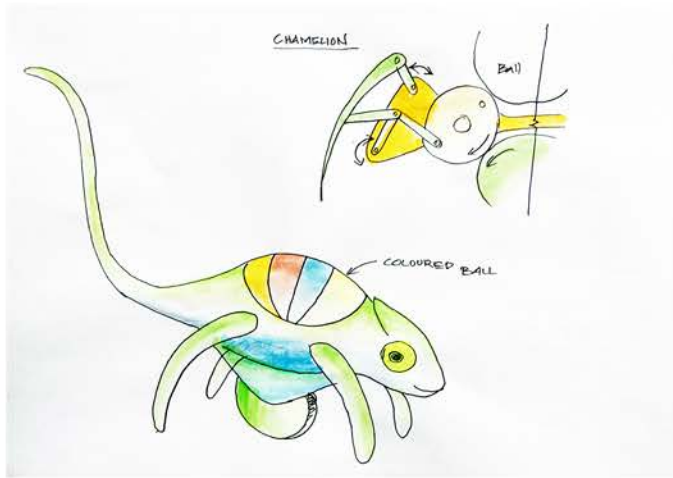
The idea was inspired by the movement of a running monkey. Using an elliptical wheel with crank mechanism can be used to mimic this action.



9. Octopus

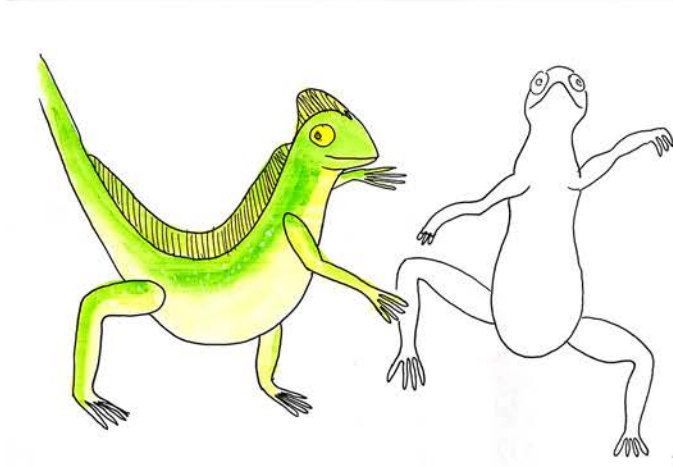
This idea was inspired by the motion of an octopus in the water. The body of the octopus can be attached to a crank mechanism to make the body move up and down and the tentacles can be free hanging, so that it goes outward or inward according to the movement of the body.





10. Chameleon

This idea was inspired from a chameleon. The movement of the chameleon can be made using crank mechanism and it could also have a colored wheel which rotates and as it moves to represent the color changing of the chameleon

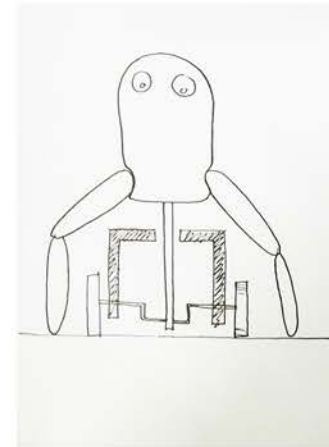
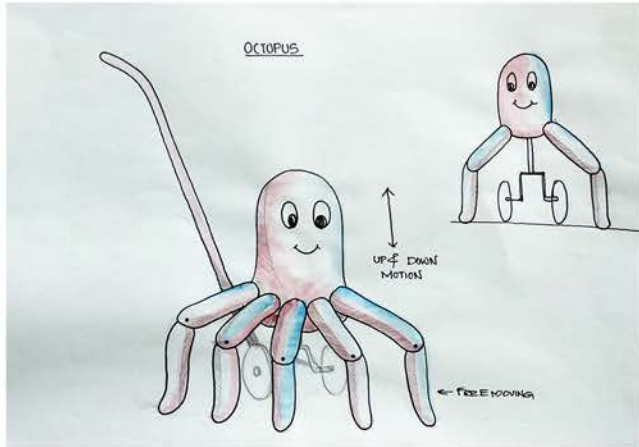


11. Water Lizard

This idea was inspired by the movement of a water lizard. The action can be made using a combination of crank and pulley mechanism.

CONCEPTS

1. Octopus

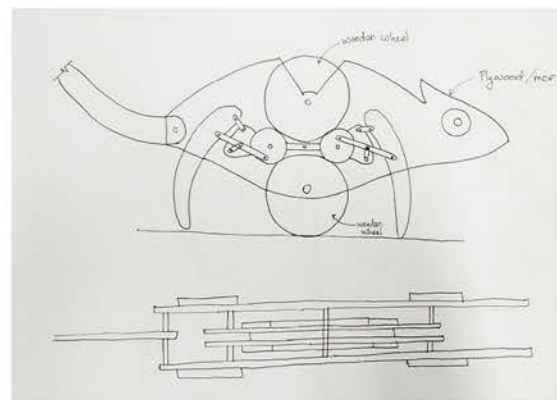
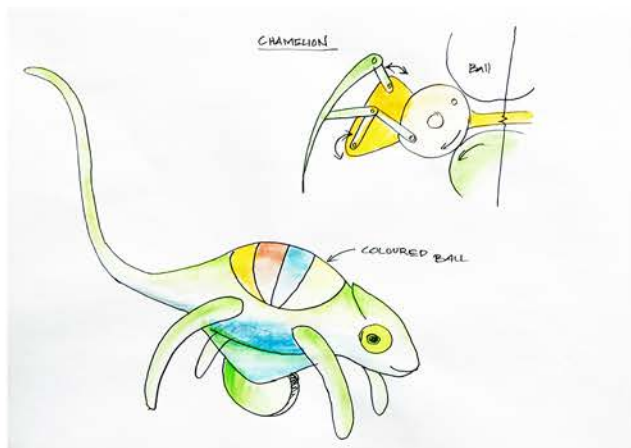


Mechanism



Quick prototype

2. Chameleon



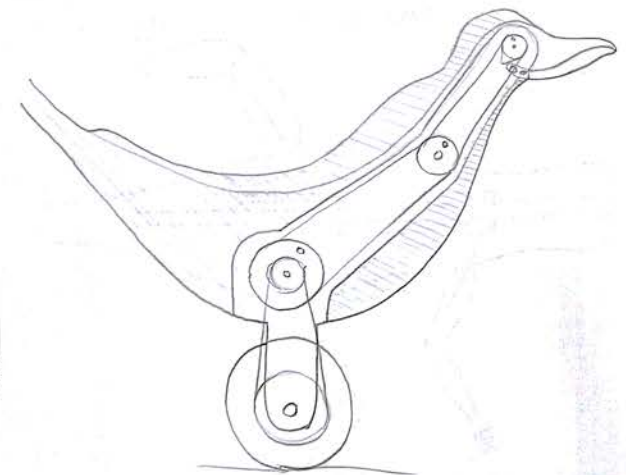
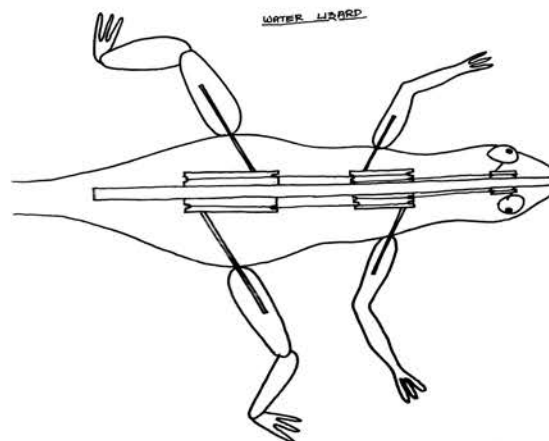
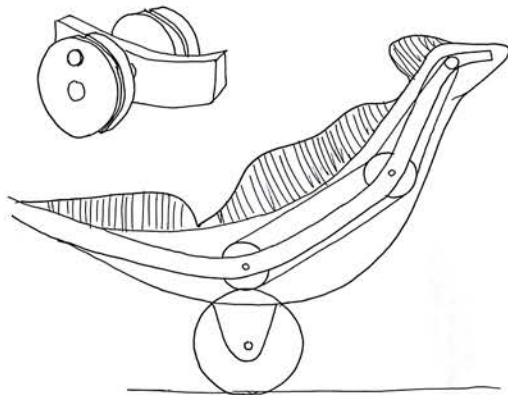
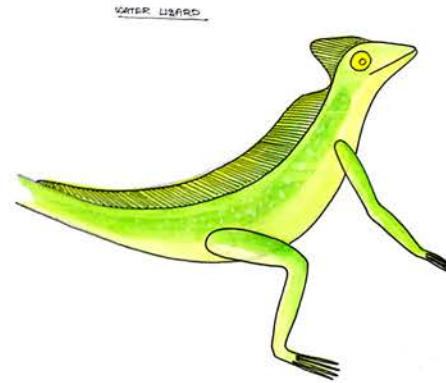
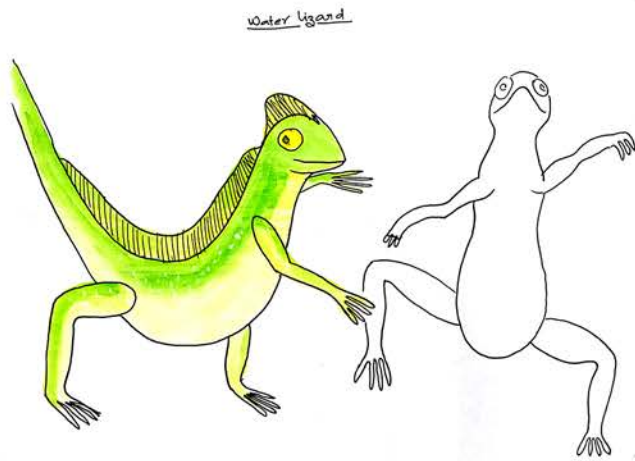
Mechanism



Quick prototype

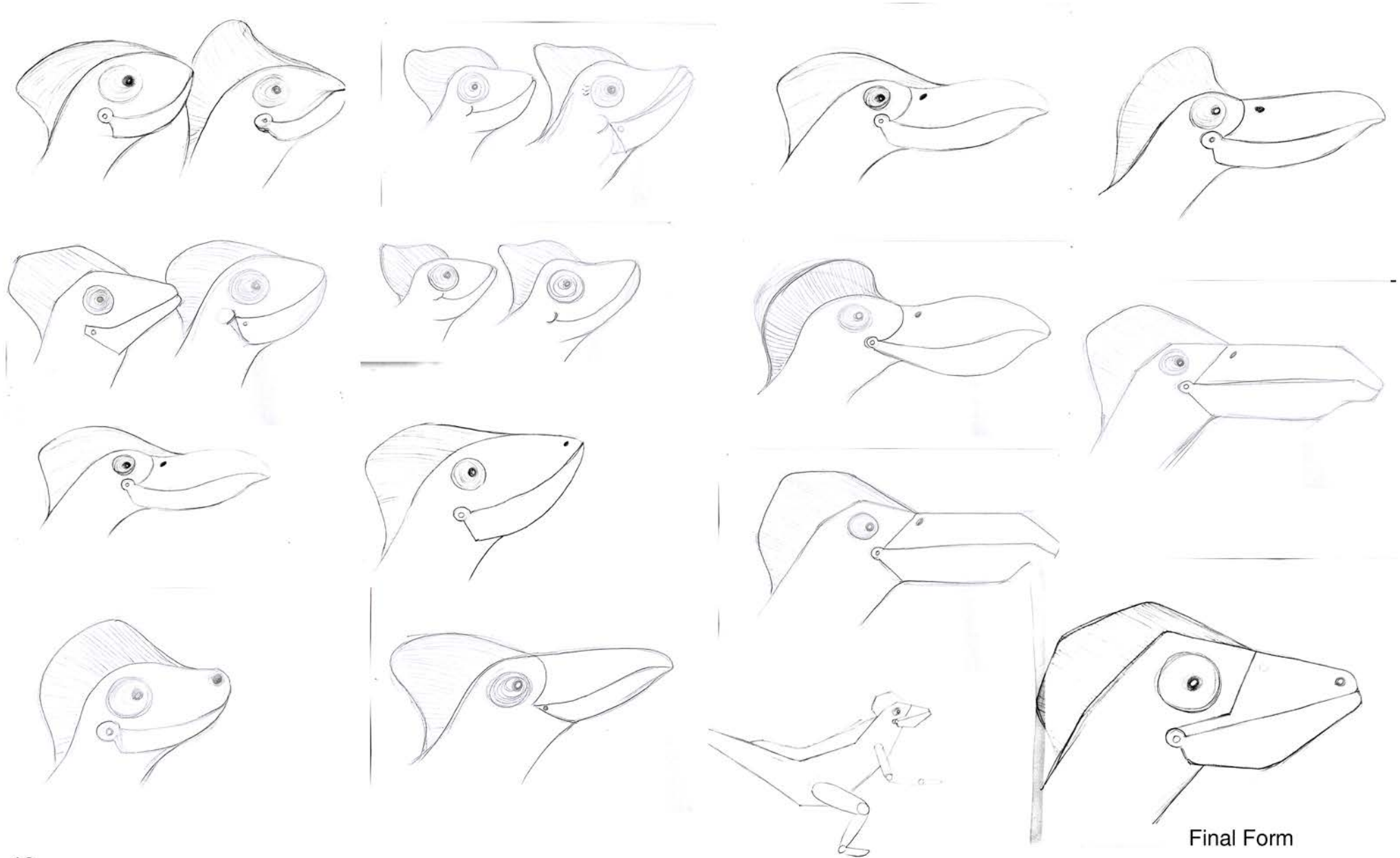
FINAL CONCEPT

My final concept is inspired from a Water lizard. There are four types of movements there in this concept. The legs, hands, eyes and the mouth. The legs, hands, and the eyes works on crank mechanism and pulleys. The tail will act as the handle for pushing the toy.



Initial Concept sketches

FORMAL VARIATIONS



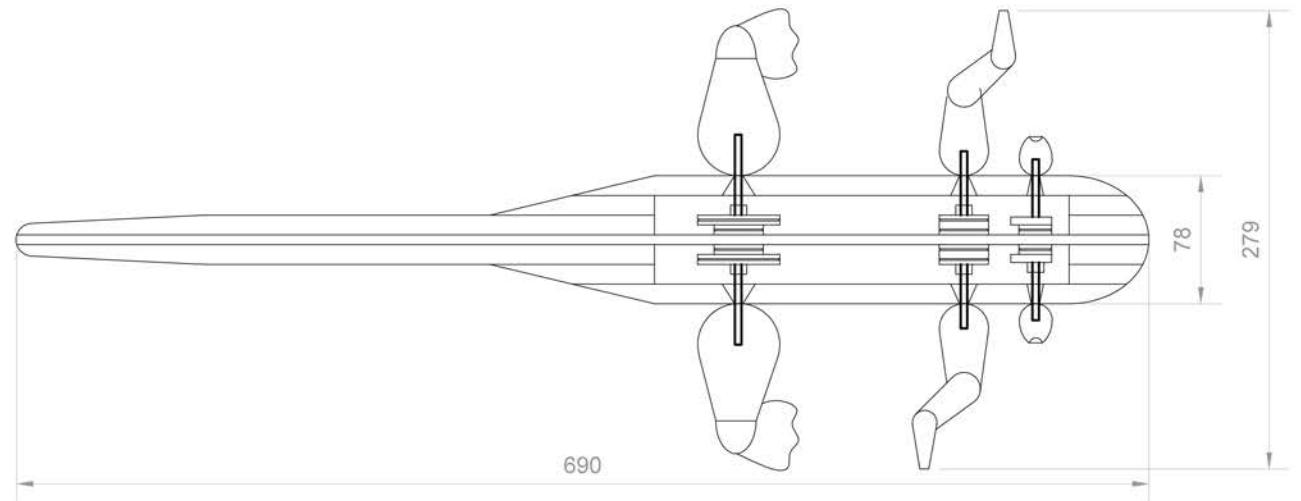
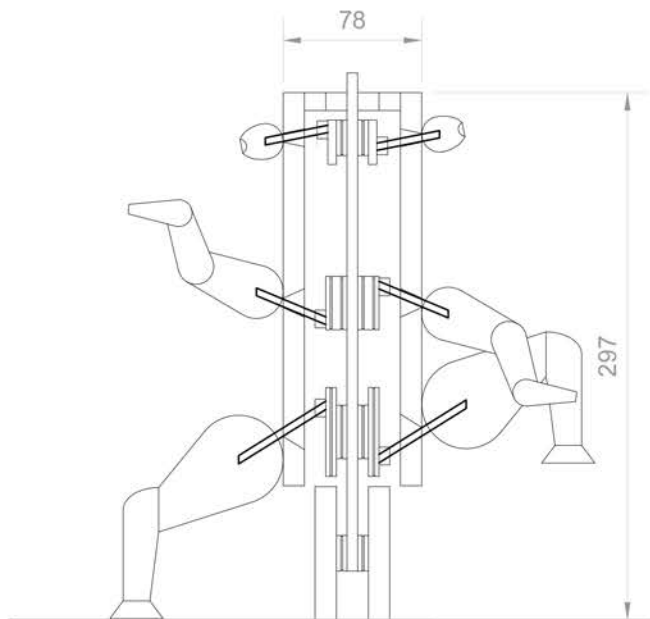
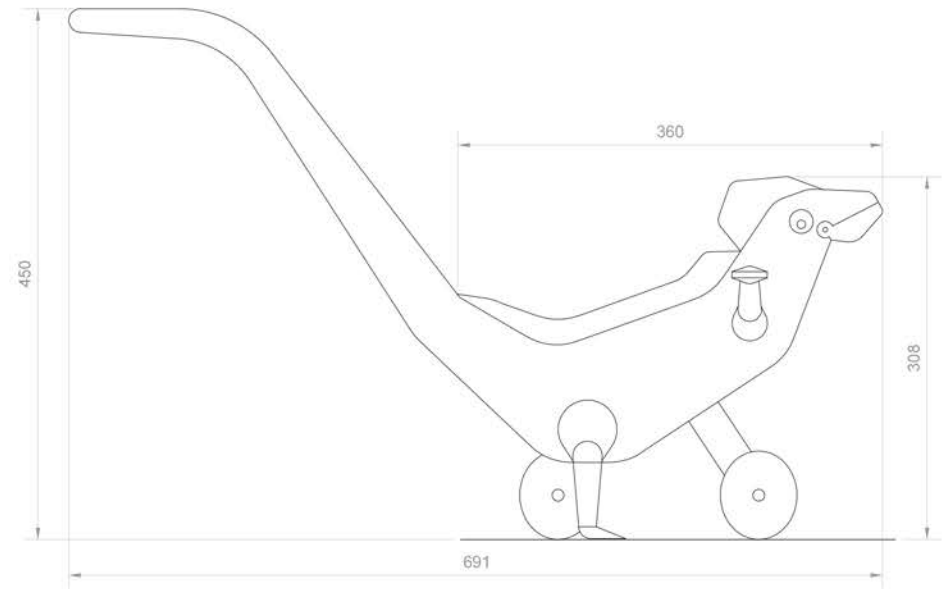
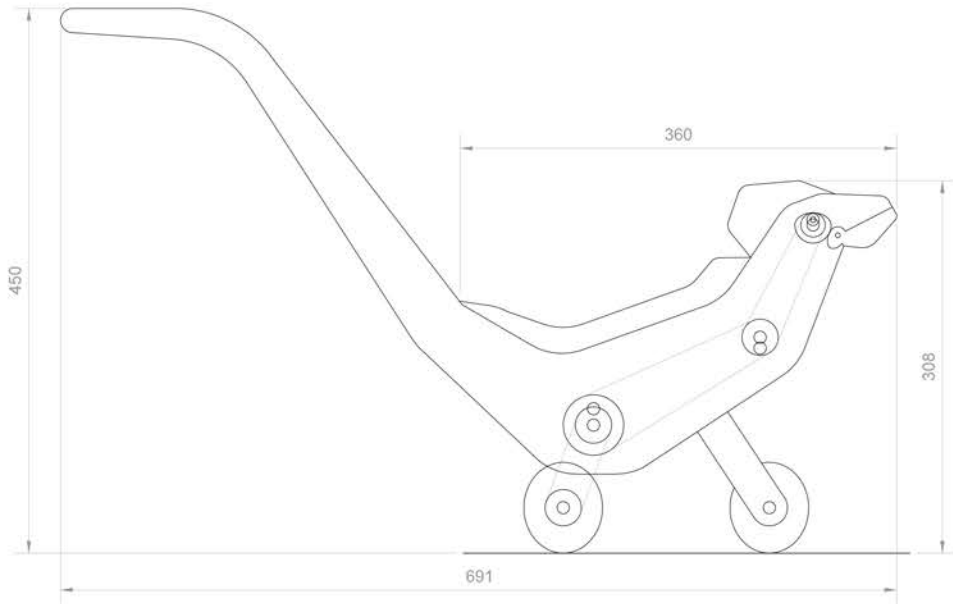
COLOUR VARIATIONS



FINAL DESIGN



TECHNICAL DRAWINGS



FINAL PRODUCT PHOTOS



BRANDING

The Name of the toy is Waliz which stands for water lizard. The Logo shares the same formal language of the toy and the colour scheme.

