



Product Design 2

Toy Design

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DESIGN BRIEF

Design a wooden push/pull toy for kids, aged 9 to 24 months, by taking bionic inspiration, which is easy to manufacture.

INSIGHTS

Observations

1. Kid gets curious after seeing the toy and try to figure out what to do with it- Play? Throw? Give to their closest person?
2. Usually they use one toy for about 6 months.
3. Prefer less complex looking toys.

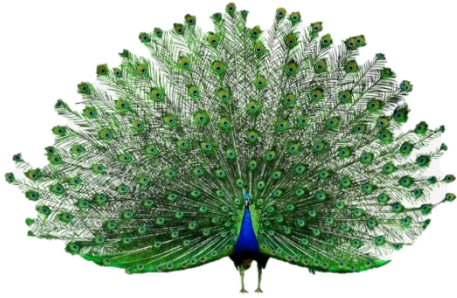
Must Haves

1. Roundness (no sharp edges)- The form should be round and edges should be filleted, to evoke friendliness and promote safety.
2. Less components should be present to avoid wear and tear, and failure.
3. Visually appealing and inviting.
4. Color palette should be enthusiastic, fresh and contrasting.

May Haves

1. The child should be able to play or fidget even when he/she is not pulling or pushing the toy.
2. Facilitate physical development.
3. The toy should be open ended, in the sense that it should not be restrictive in its usage.
4. The kid should have a personal connection with the toy.

INSPIRATIONS



1. Peacock

Peacock is the national bird of India and holds that significance. Its beautiful colors and magnificent size provided a great scope as a toy. The movement which I intended to capture in peacock was the spreading of its feathers while coming up, the shivering of those feathers once they are up, the to and fro movement of the neck and the leg motion.



2. Lady Bug

Insects have been caricatured a lot in the past few years. Lady big is also one such insect. It has a cute round form and vibrant colors and a fun pattern, therefore it was good candidate for this project. The movement which I intended to capture was the opening of elytra (the red shell) and the fluttering of the wings.

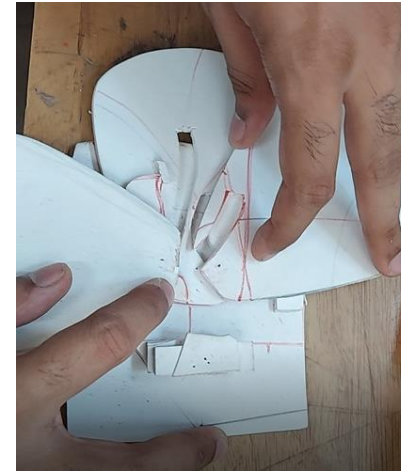
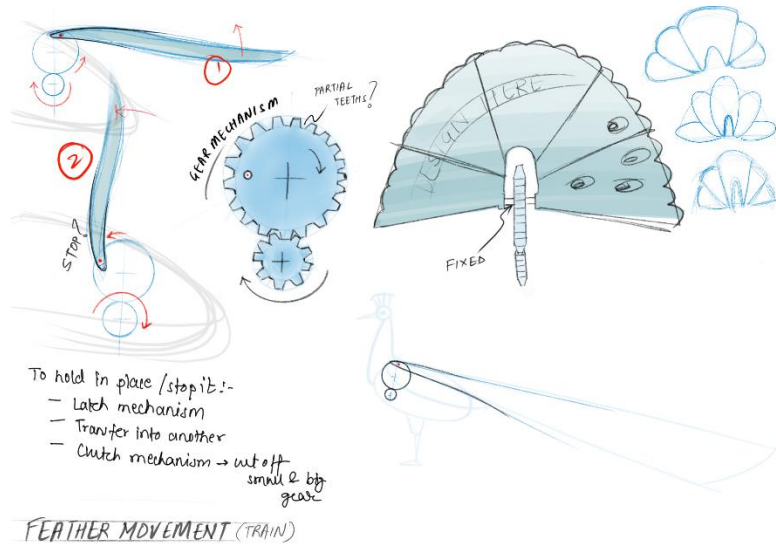


3. Rabbit

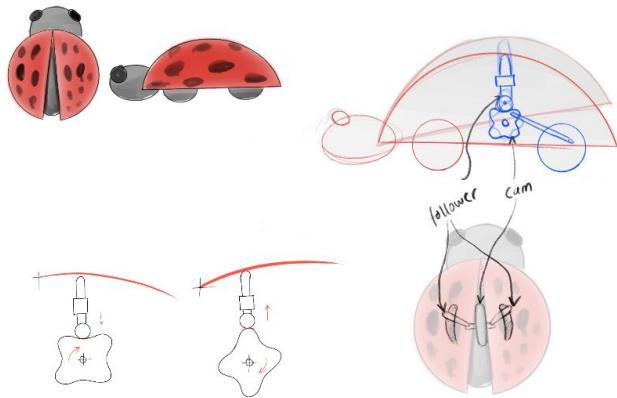
Rabbit has a timid and cute character. Even the movement and its expression are very friendly and funny. The movement which I intend to capture was the hopping motion, wagging of tail and movement of the ears and hands.

INSPIRATIONS' MECHANISM

1. Peacock



2. Lady bug

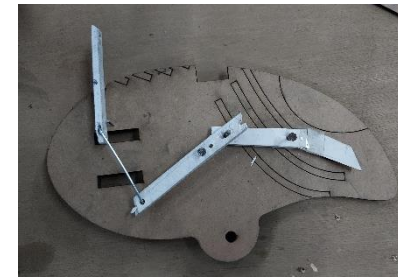
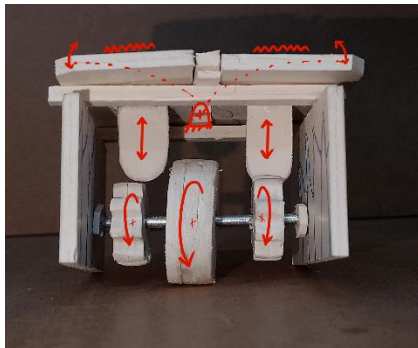


FINAL CONCEPT

1. Mechanisms

Mecahnism no. 1

The cam and follower mechanism, with the cam with closer distance lobes gives a vibrating fluttering movement. Also for shell opening lever mechanism was used which will be actuated by the push rod.



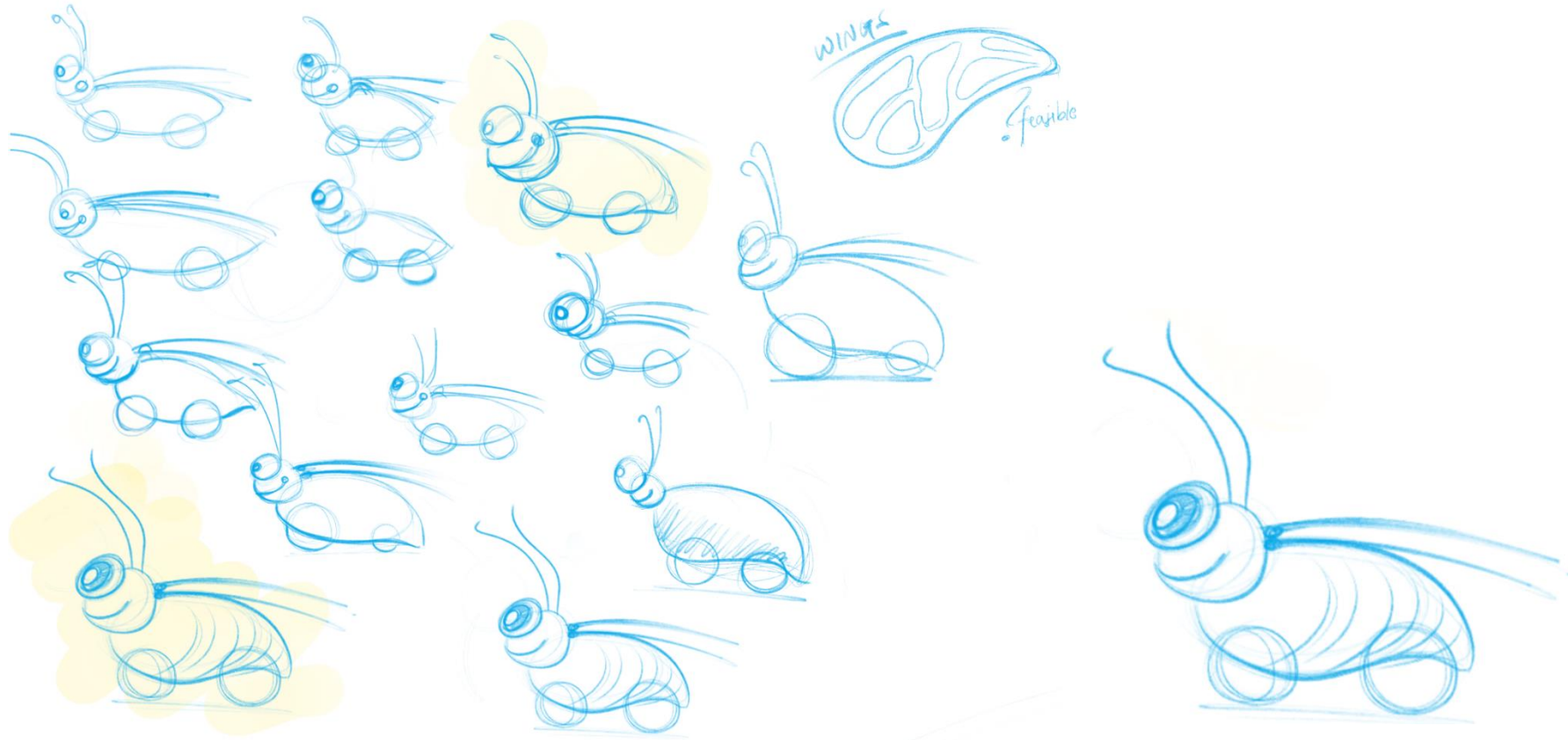
Mechanism no. 2

The crank and connecting rod mechanism, gives a promising movement which was not able to achieve by the cam and follower mechanism. The cam and follower mechanism was getting stuck sometimes, to avoid that new mechanism was implemented.



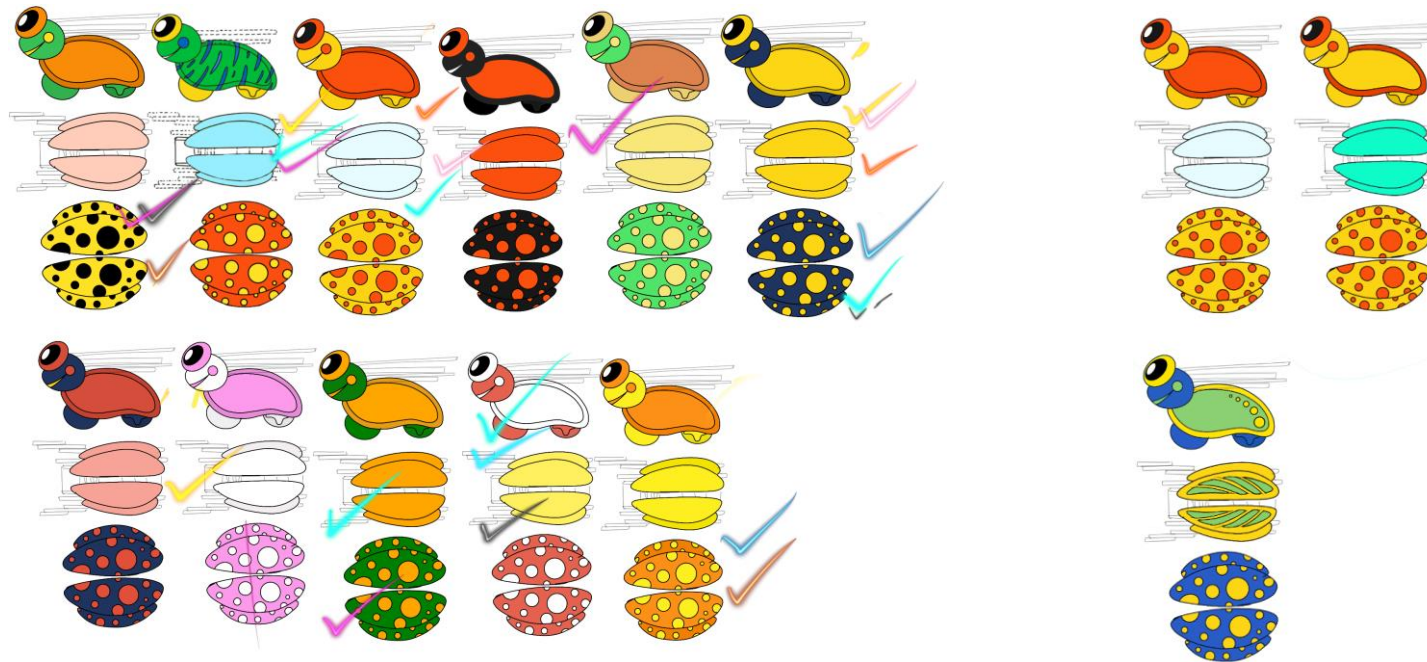
2. Form explorations

The focus was to almost make it like a cartoon character which speaks to the kid, with round form and cute expressions. To exaggerate the eyes and alter the proportions in such a way that it achieves the intended form.

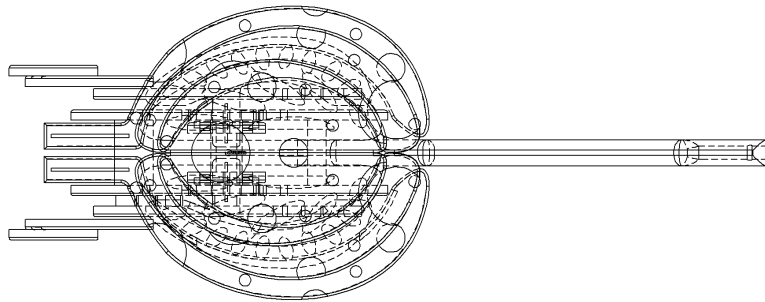
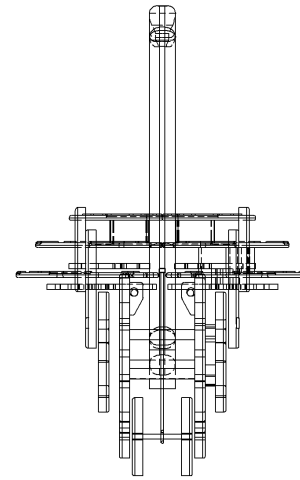
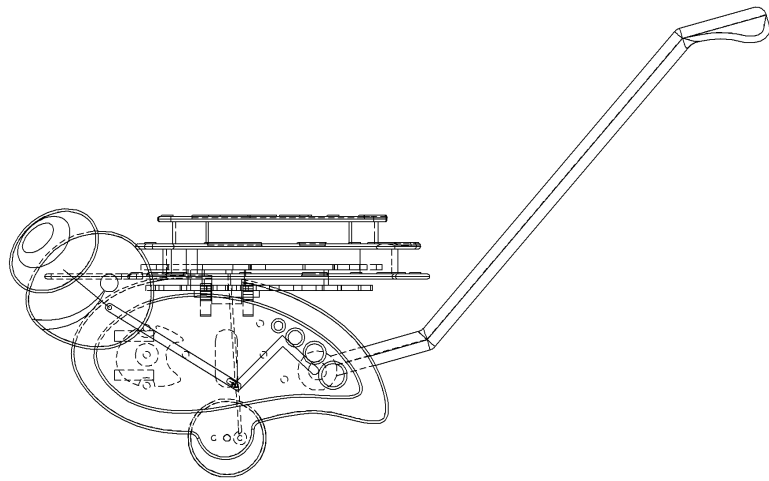


3. Color palette

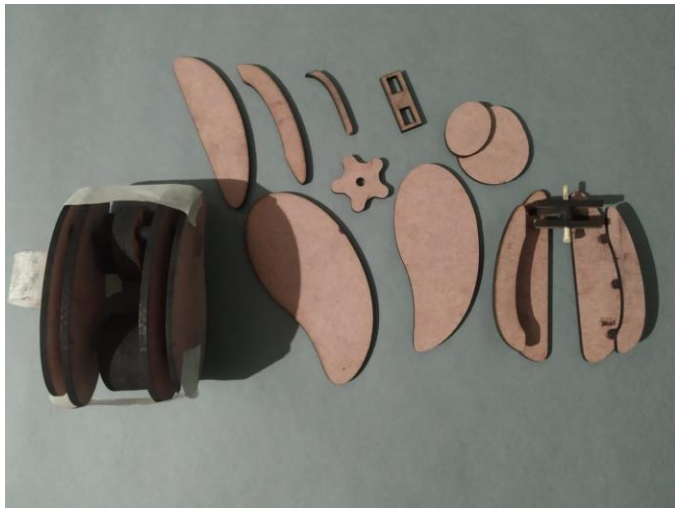
Voting was taken and top 3 candidates for color scheme were chosen. Later Blue, Yellow & Green scheme was chosen.



4. Views and dimensions



5. Prototypes



6. Final model



CONCLUSION

The project was to make a wooden flat toy in 3 weeks. Market research, mechanism exploration, material experiments, manufacturability and simplicity were some areas that worked on extensively during the tenure of the project. Dirty prototyping accompanied by various iterations were the basis of understanding and making the toy. Key concepts and ideas which were valid on paper were proving to be very challenging while prototyping, thus, making us aware about the manufacturability of the toy. After dirty mockups a final prototype was made with foam board, aluminum wires, and wooden sticks which formed the basis of the final toy. Later, I also made a prototype with MDF to conform the design before making it final.

In this project, we learned to work in constrains and realized how constrains itself become the stepping stones towards ideas. Taking care of details and reducing the number of moving parts (complexity) is a key skill that we developed.

LOGO

'Buba' is Bosnian term for bug. I chose this name because it is easy for the kid to remember and also the repetitive sound bu-ba is fun to say.



POSTER

