

# earth Song

*Wooden Toys from Baktawng, Mizoram*



# DIPLOMA PROJECT

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## EARTHSONG - Wooden toys from Baktawng, Mizoram.

Sponsor : DESIGN CLINIC SCHEME, MSME

STUDENT : PARAG SARMA

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PROGRAMME : Post- Graduate Diploma Programme

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GUIDE : GAYATRI MENON

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2012

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INDUSTRIAL DESIGN FACULTY (TOY & GAME DESIGN)

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**National Institute of Design  
Ahmedabad**

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Secondly, I would like to thank Mr. Sashank Mehta and Mr. PSV Kurup, Mr. Shekhar Bhattacharjee for their help on my diploma project. I would also like to take this opportunity to convey my gratitude to all the crafts persons whom I came across in Baktawng, Mizoram, for sharing with me their knowledge and time. I would also thank their families for sharing their affection and hospitality whole heartly with me. If nor for them and their in-depth insights, perhaps this project would not have come into light. I would like to thank the people with whom I interacted during my market and user survey. I thank them for giving me their time and sharing information which I needed. Over and above this I would like to thank the staff of my discipline, Prakash Gholap, Harry Galsar and also my friends Mrinal Majumdar, Chaitanya Bist, Prashant Makwana, Jitu Deka, Akshay Khattri, Moia Changthu, Mrs. Ateii, Rupankar da, Pintu da, my brother Tapash, Angshuman, Pallav and Gyandip who helped me to complete this project successfully. I am also grateful to my all my classmates, seniors and juniors for their support and love. I would specially like to thank my super seniors, Abhijit Paul and Rahul Singh, for sharing and discussing my ideas. A special thanks to my friends Ketki, Roshni, Avani, Surabhi, Akki, Sunil, Vicky, Chitradip, Chiranjib, Vishal who supported me mentally, emotionally in my work and documentation. Over and above this I would also not miss to extend my gratitude to God, my mother, father and who made me capable enough to reach here and do whatever I am doing. Big thanks to all these people who helped me sailing through, thus becoming my...

“SUPPORTING PILLARS”..... Parag Sarma



## Synopsis

In my days of Post-Graduation in Sculptures, I was always attracted towards the 3 dimensional form and materials like wood, bamboo which I felt was a restriction in sculptures.

After finishing my Post-Graduation from M.S. University, Baroda, I came to NID. In the 2 years of NID, I learnt many things; like materials, design process, market study, understanding different perspectives of users. My interest inclined towards India, Indian society, Indian user and markets. Later I developed interest in craft sector especially after the craft documentation course. I was very sure, that I wanted to work with a project related to crafts. At the same time there was an opportunity to work with wooden carpentry craft sector of Baktawng, Mizoram. I found it appropriate for my diploma project. I anticipated I would get to learn and explore more about the craft sector and their development programmes.

In initial days of project, I started reading about craft sector to understand the established processes allowing me set up a starting point. I also collected data related to this craft through various means like books, internet, blogs, field visits, talking various people related to Baktawng, about the craft, carpentry etc.

Field visit gave me a whole new perspective towards the craft, the craftsmen and their surroundings and also helped me understand the culture of Mizoram in depth. I could now connect to the craft and the culture. All this ground research helped me understand the overall system of Baktawng's wooden carpentry craft in a much more clearer way.

Later I carried out market and user survey to find out the opportunity areas for the development of this cluster. Based on the surveys, I decided to work on the wooden developmental toys for 3 to 5 years children targeted towards the urban market using Baktawng carpentry craft process.

The inspiration was majorly taken from the different aspects of Baktawng, Mizoram and Assam- my native place's craft, craftsman's working style, traditional toys, modern toys available in local market etc. More focus was given on the making process and development of a specific form language which was unique and fresh while keeping in mind the manufacturing process and the products which could be made by less skilled craftsmen. The way of handling every craft is different; it has its own processes, associated culture, the people and their surroundings, its location and the various aspects related to it. It was very challenging and interesting for me to come up with a design

solution for the entire craft cluster keeping in mind their development in the overall market scenario.

The most challenging was to deal with their mind set, to understand them and involve them in the new kind of designs based on systematic thinking. The design should be such that they develop interest in them and take them forward keenly on their own.

It was interesting to see the comparison and difference/change in the making process of wooden craft, considering the raw materials used for each. The entire process of wooden crafts was very interesting and different than other crafts. Baktawng's clusters involves unique finished surfaces which I also enjoyed developing, as this got me back in touch with my education as a sculptor.

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## Introduction

The Institute

Toy & Game Design

The Sponsor : National Institute Of Design And  
Design Clinic Scheme,  
Ahmedabad, Gujarat

Background : Mizoram, Serchhip And Baktawng

Initial Design Brief

Project Time Line





## About National Institute of Design

**Main campus, Ahmedabad:** The National Institute of Design (NID) is internationally acclaimed as one of the foremost multi-disciplinary institutions in the field of design education and research. The institute functions as an autonomous body under the department of Industrial Policy & Promotion, Ministry of Commerce & Industry, Government of India. NID is recognizing by the Department of Scientific & Industrial Research (DSIR) under the Ministry of Science & Technology, Government of India, as a scientific and industrial design research organization.

NID has been a pioneer in industrial design education after Bauhaus and Ulm in Germany and is known for its pursuit of design excellence to make Designed in India, Made for the World a reality. NID's graduates have made a mark in key sectors of commerce, industry and social development by taking role of catalysts and through thought leadership.

NID is a unique institution with many problem solving capabilities, depths of intellect and a time tested, creative educational culture in promoting design competencies and setting standards of design education. The rigorous development of the designer's skills and knowledge through a process of 'hands on minds on' is what makes the difference. The diploma project is a culmination of the overall learning at NID. This project shows the student's ability to perform as a professional on the industrial platform and incorporate the design learning thus contributes towards problem solving. The diploma project also helps the sponsor to assess the student's professional abilities within the organizational working environment and system.

**PG campus, Gandhinagar:** PG campus Gandhinagar is currently an extension campus of the parent institute, National Institute of Design in Ahmedabad, is situated in the city of Gandhinagar, in Gujarat. As part of expansion plan, National Institute of Design (NID) has started building a new postgraduate campus at Gandhinagar, the capital of Gujarat State. Commerce and Industry Minister Kamal Nath laid the foundation stone for this campus. Campus will consist of lifestyle accessory design, new media design, toy and game design, strategic design management, transportation design, photography design and apparel design & merchandising centres.



## About : Toy & Game Design

The primary objective of the discipline is to help develop a holistic understanding of play and arrive at a spectrum of creative and innovative designs for multiple scenarios. The program draws its strength from its trans-disciplinary nature, integrating knowledge from various disciplines and in its diverse profile of students.

The learning modules give equal importance to conceptual thinking as well as practical exhibition/understanding. The curriculum is progressive in nature with courses involving basic design fundamentals, material and media studies, cultural studies, creative thinking, user psychology etc. and progressing into methodologies for understanding complex system level problems and scenario visualizations. Modules such as elements of play, game theory, character design, user research and testing methods with special emphasis on children and young adults provide specialized inputs.







## The sponsor | National Institute of Design

National Institute of Design (NID) is a design school in India. The institute functions as an autonomous body under the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Government of India. NID is recognized by the Department of Scientific and Industrial Research (DSIR) under Ministry of Science and Technology, Government of India, as a scientific and industrial design research organization. NID had been set up looking at the industrial design education being imparted in Bauhaus and Ulm in Germany.

### Location

The institute is located at Paldi, Ahmedabad, Gujarat from the nearest Railway station Kalupur and 15 kms from the SVBP International Airport, Ahmedabad.

### Background

During the early years of post independence India, manifold changes were taking place in economic and social scenario and in production processes with the introduction of new technologies even in the remotest corners of the Indian subcontinent. There were at that time, great thinkers who realized that the process of development demanded a closer look at the future policies and resources that would later on determine the pattern and pace of growth envisioned for India of the future. The Industrial Policy Resolution of 1953 outlined these concerns and indicated broad guidelines. It was as result of these activities that the Government of India invited the renowned design team of Charles and Ray Eames to recommend a programme of design to serve as an aid to the newly established small industries in India. On the basis of their ground breaking and insightful document, 'The India Report', the Government of India set up the National Institute of Design in 1961 as an autonomous national institution for research, service and training in Industrial Design and Visual Communication.

## Design Clinic Scheme | MSME

### Scheme information

Shri Samveg Lalbhai, eminent industrialist and NID's Governing Council member inaugurated the regional centre (West Zone), Design Clinic Scheme for MSMEs at NID, Ahmedabad campus, on 19th April 2010 in the presence of Mr. Pradyumna Vyas, Director, NID, Mr. Shashank Mehta, Project Head, Mr. Arvind Patwari, Director, MSME Divisional office, Ahmedabad and other members from various industry associations.

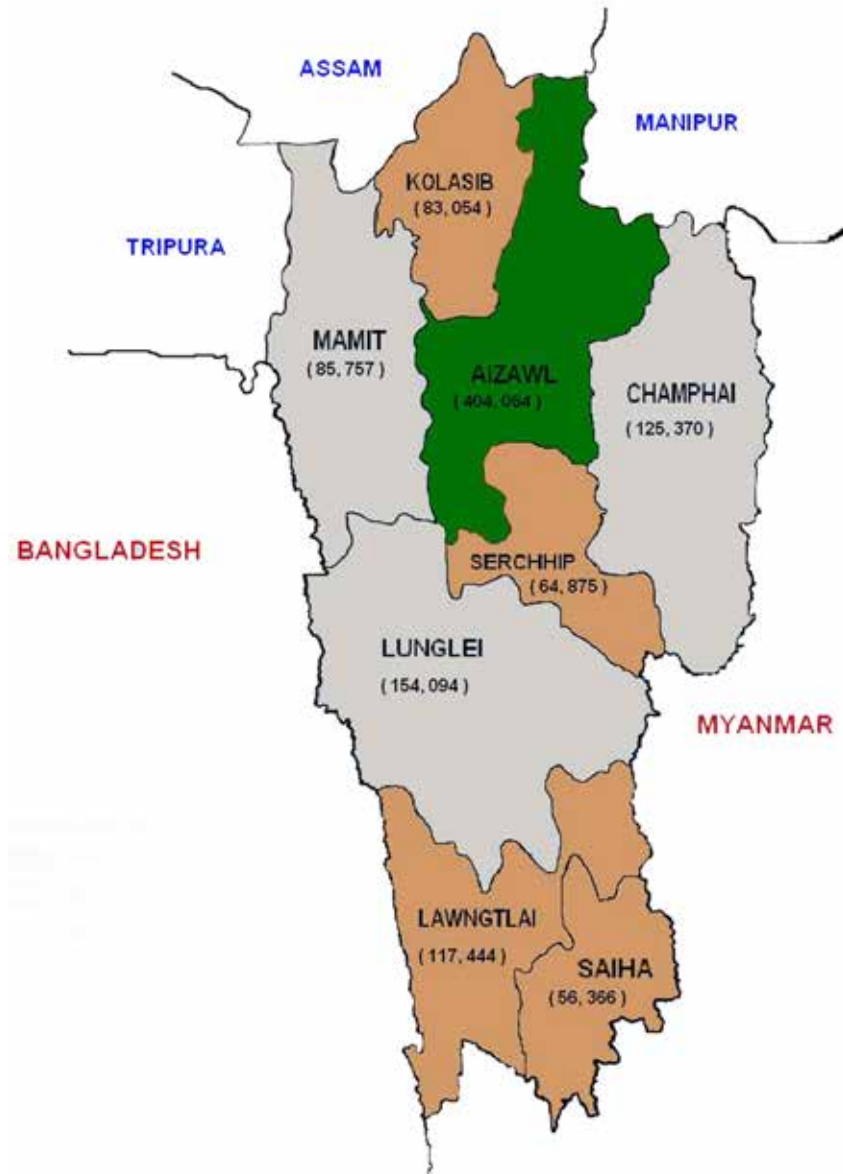
The Micro, Small and Medium Enterprises (MSME) sector has been recognized as the engine of economic growth. Many countries all over the world have established a SME Development Agency as the nodal agency to coordinate and oversee all government interventions with respect to the development of this sector.

The Micro, Small and Medium Enterprises (MSMEs) are a vital part of the Indian economy. They contribute to over 45% of industrial production and around 40% of the total exports. There are about 13 million MSMEs in India, which employ about 31 million people.

Thus MSMEs are the single largest contributor in terms of employment generation, besides production and export revenues in the manufacturing sector. Presence of MSMEs is seen in the value chain of almost all major industry sectors like automotive industry, garments and textile industry, leather industry and drug and pharmaceutical industry etc.



## Background | Mizoram, India



### Mizoram

One of the Seven Sister States in North Eastern India, sharing borders with the states of Tripura Assam, Manipur and with the neighboring countries of Bangladesh and Burma Mizoram became the 23rd state of India on 20 February 1987. Its capital is Aizawl Mizoram is located in the northeast of India. They are found in northwestern Myanmar, northeastern India and Bangladesh. Anthropologists classify them as Tibeto-Burman speaking member of the Mongoloid race. The state's natural beauty, rich with flora and fauna surrounded by mountains and rivers, has earned it the nickname "Scotland of the East".

### Climate

Mizoram has a mild climate, comfortable in summer 20 °C to 29 °C (68 °F to 84 °F) and never freezing during winter, with temperatures from 11 °C to 21 °C (52 °F to 70 °F). The region is influenced by monsoons raining heavily from May to September with little rain in the dry (cold) season. The average state rainfall is 254 cm (100 in.), per annum. In the capital, Aizawl rainfall is about 208 centimeters (82 in.) and in Lunglei, another major center, about 350 centimeters (138 in.).

### History

The origin of the Mizo people, like those of many other tribes in the northeastern India, is shrouded in mystery. Mizo history in the 18th and 19th century is marked by many instances of tribal raids and head hunting led by the village chieftains. The Lushai Hills Autonomous District Council was formed in 1952 and it led to the abolition of chieftainship. The autonomy however only partially met the aspirations of the Mizo people so representatives of the District Council and the Mizo union pleaded with the States Reorganization Commission (SRC) in 1954 for integrating the Mizo-dominated areas of Tripura and Manipur with the District Council in Assam. The tribal leaders in the northeast were unhappy with the final SRC recommendations and met in Aizawl in 1955 to form a new political party, Eastern India Tribal Union (EITU). This group raised their demand for a separate state comprising all the hill districts of Assam. The demand for a separate Hill state by EITU was kept in abeyance. Rajiv Gandhi's election to power following his mother's death signaled the beginning of a new era in Indian politics. Laldenga met the prime minister on 15 February 1985.





Some contentious issues which could not be resolved during previous talks were referred to him for his advice. With Pakistan having lost control of Bangladesh and no support from Pakistan, the Mizo National Front which had evolved from the Mizo National Famine Front after the great famine of 1958 used the opportunity that had now presented itself. New Delhi felt that the Mizo issue had been dragging on for a long time, while the Mizo National Front was convinced that disarming, to live as respectable Indian citizens, was the only way of achieving peace and development. Statehood was a prerequisite to the implementation of the accord signed between the Mizo National Front and the Union Government on 30 June 1986.

The document was signed by Pu Laldenga on behalf of the Mizo National Front, and the Union Home Secretary R.D Pradhan on behalf of the government. Lalkhama, Chief Secretary of Mizoram, also signed the agreement. The formalization of the state of Mizoram took place on 20 February 1987. Chief Secretary Lalkhama read out the proclamation of statehood at a public meeting organized at Aizawl's parade ground. Prime Minister Rajiv Gandhi flew in to Aizawl to inaugurate the new state. Hiteshwar Saikia was appointed as Governor of Mizoram.



(Reference: "Lushai & Manipuris, 1979- by K.W. No.I")





## Culture

The Influence of Christianity in Mizoram, the social and cultural life in the Mizo society has undergone enormous changes over the years. The Mizo people belong to a Mongoloid race associated to the Shaans of Myanmar (Burma). The Lushai, Hmars, Paithes, Raltes, Pang, Mara, Lakher, Kukis and Pawis of Mizoram are the tribes who were originally the believers of the Pathan (good spirit). With the immigration of the British and consequently the settling of the Christian missionaries in the region, most people got converted to Christianity. Thus, due to the influence of the British in this region, most of the population speak in English besides Mizo. Mizo is written in Roman script. The nomadic Chakmas practice a curious mix of Hinduism, Buddhism and Animism.

## The Inherent Ethics of the Mizos

The Mizo code of ethics or Dharma moved around “Tlawmngaihna”, an untranslatable term meaning on the part of everyone to be hospitable, kind, unselfish and helpful to others. To Mizo, Tlawmngaihna stands for the compelling ethical force which finds ethics in self- sacrifice for the service of the others.



## The Society of the Mizos

The Mizos are impregnable society with no class difference and no discrimination on the grounds of sex. 90% of the total society are into cultivation and the village seems like a big family. Birth of a child, marriage in the village and death of a person in the village or a community feast organized by a member of the village are prime events in which the whole village takes part.

(Reference: “Lushai & Manipuris, 1979- by K.W. No.I”)



### The Art of the Mizos

Although the advent of Christianity brought about a big change, the colourful culture of the Mizos has remained intact. The traditional crafts of Mizoram are weaving, cane and bamboo work. The Mizo women weave intricate traditional designs and patterns on their looms. For example, the shawls carrying tribal clan motifs woven into them and are passed down the generations.

### The Food of the Mizos

Mizo food is simple, basically made up of lentils, bamboo shoots and fish, pork, chicken and wild game meat and rice are hot favorites. Maize is widely grown and eaten.

(Reference: [dipr.mizoram.gov.in](http://dipr.mizoram.gov.in))





## Serchhip | Mizoram

### Serchhip District

Serchhip district is one of the 8 districts of Mizoram state in India. The district is bounded on the north and northwest by Aizawl district, on the west and south by Lunglei district, on the southeast by Myanmar and on the east by Champhai district. The district occupies an area of 1421.60 kms. Serchhip town is the administrative headquarters of the district. This district came into existence on 15 September 1998.

### Transport

#### By Air -

Lengpui Airport, located at a distance of 154 km from Serchhip town provides connection with Kolkata International Airport, Guwahati International Airport and Imphal Airport.

#### By Rail -

Mizoram is connected by Railroad up to Bairabi, there are plans to connect Bairabi with Sairang with Broad-gauge Railway track.

#### By Road -

Serchhip is connected by road with Silchar through National Highway 54, with Agartala through National Highway 40 & with Imphal through National Highway 150. Taxis, Auto rickshaws and town buses are available public transports in Serchhip.





## Baktawng Wooden Carpentry Craft Clusters

I have done my diploma project with National Institute of Design, Ahmedabad for “Baktawng Wooden Carpentry Craft Clusters, Mizoram.”

### History (About Baktawng, Tlangnuam, Serchhip District, Mizoram)

Among all the villages in Mizoram, Baktawng has become one of the most well known villages in Mizoram primarily for its fine carpentry work. A group of people popularly known as “Pu Ziona Pawl” have greatly contributed in making Baktawng village as one of the most sought after village for carpentry products in Mizoram.

Pu Sawihnuna from Baktawng is a very determined and hard working member of the Baktawng village. During the insurgency movement in Mizoram one village along with other three or four villages were sifted to what is now called Baktawng. Pu Sawihnuna started the carpentry cluster way back in the early 1970s. He was a man with a great vision and he knew that carpentry work would greatly help the people of Baktawng to earn their livelihood. At the initial stages he took training from Aizawl and he passed on his knowledge to the younger generation and in this way the Baktawng cluster became full fledged cluster with sound management body as far as the production, marketing and financial management are concerned. Baktawng is a village of 700 Mizo tribes families, out of which, about 280 families are uniquely bonded by a Christian spiritual header who advocates hard labour, self sufficiency and honesty in every walks of life. Both adult male and female members share the work load in the wooden carpentry sector of Baktawng.

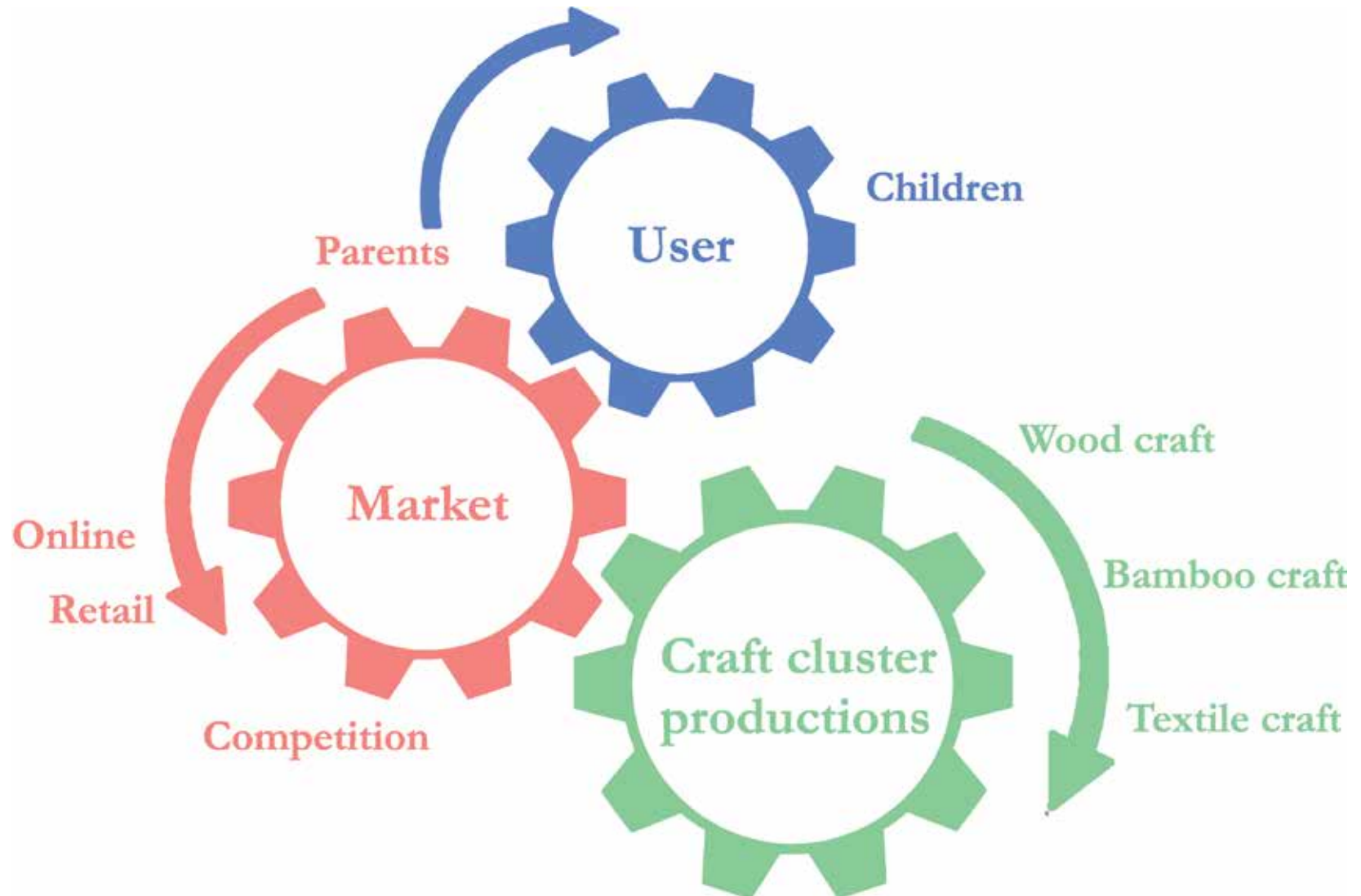
### Location

Baktawng wood carpentry cluster is located in the south of Mizoram under Serchhip district at about 70 kms from the state capital Aizawl and about 30 kms from the its district headquarter in Serchhip. Baktawng is well connected by road from Zarkawt stop of the Aizawl city. It is four hours journey from the city.

(Reference: Annual Assessment Survey On Baktawng Wooden Carpentry Craft Clusters, 2011, IIE, Aizawl, Mizoram)

## Initial design brief

Design a range of 8 to 10 toys/children's play accessories targeted to urban market for Baktawng wooden craft clusters, Mizoram.



### **Aim and objective of the project**

- To launch 8 to 10 product ranges of toys/children's play accessories for a suitable urban market keeping in mind the crafts person's skill and infrastructure.
- To highlight and bring forth this widely unknown craft techniques to improve the status and sales of this craft and its makers for the future.
- To design products for urban market which would be viable in the market at such a cost, which sustains the livelihood of the craftsmen in the cluster while creating a sense of curiosity in the customers for the products made by this technique, and for this very technique itself.
- To innovate and improve the conditions of the craftsmen.
- To give this craft a strong identity, and to create a value for customers.

### **The products should be**

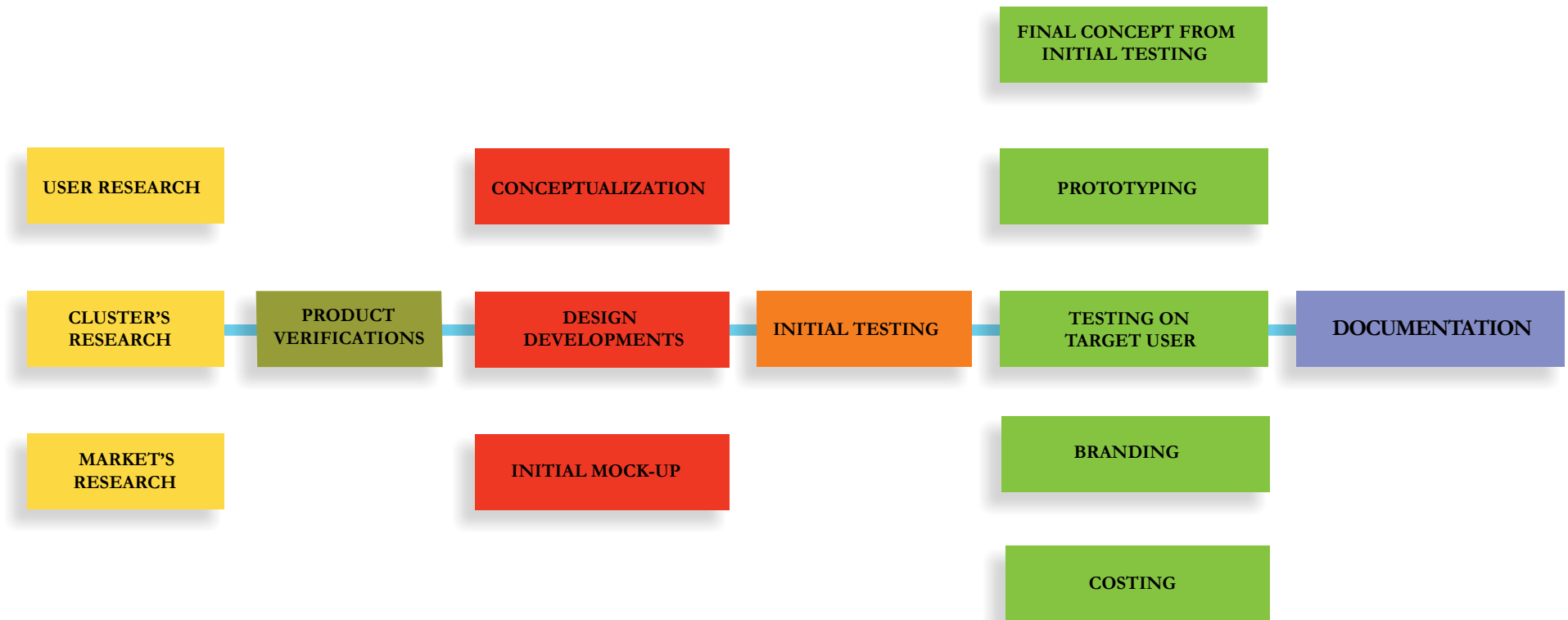
- Products should be viable in the market.
- Material properties should be exploited in its most economical way.
- Easy to produce with the existing skill levels and infrastructure.
- Contemporary in style with hints of traditional roots.



## Project Time-line

<b>Phase - 1</b>	<b>4 weeks</b>
-User Research -Market study (Survey of existing products)	
<b>Phase - 2</b>	<b>2 weeks</b>
-Redefining the brief	
<b>Guide visit - 1st</b>	<b>1 weeks</b>
<b>Phase - 3</b>	<b>3 weeks</b>
-Conceptualization phase -Initial concept testing, colours	
<b>Phase - 4</b>	<b>2 weeks</b>
-Finalized concepts	
<b>Guide visit - 2nd</b>	<b>1 weeks</b>
<b>Phase - 5</b>	<b>7 weeks</b>
-Making prototypes & process	
<b>Phase - 6</b>	<b>3 weeks</b>
-Testing of products with user's feedback	
<b>Phase - 7</b>	<b>1 weeks</b>
-Branding & costing	

## Design Process Time-Line



# Phase- 1

**User Research** (Case Studies On Children, Studies On Craftsman  
Of Baktawng And The Current Market Analysis)

**Survey Of Existing Products In Market**  
**Study Of Wooden Toy Design**

## Case studies on children

For user study, I went to homes of children of different age group and interacted with them as well as their parents. The purpose was to know about children's daily activities, nature, likes and dislikes. This way, I made many important observations which play a very major role in the design stage.

### Observations

- What is the daily routine of the child ?
- What is the child's nature ?
- What does he/she like/dislike ?
- Does the house has a separate space for the children ?
- Which types of toys parents prefer for the children ?



## Case study - 1

Name : Rupam Deka  
 Age : 3+ Year  
 Gender : Male  
 Standard : Preparatory

### Daily Routine Division by time schedule

6:30 am – 9:00 am : Waking up, Freshen up (toilet, bathroom), Playing with toys, Drinking milk, Preparing for going to school  
 9:00 am – 12:00 pm : School  
 12:00 pm – 2:00 pm : Homework  
 2:00 pm – 5:00 pm : Eating, Playing with family members, Playing with toys, Watching TV  
 5:00 pm – 9:00 pm : Dinner, Drinking milk, Homework, Watching TV, cartoons  
 9:00 pm : Going to bed  
 Nature : Cute, Little bit rigid, Shy, Intelligent  
 Like : Plastic cars, Bike, Tabu cycles, Hard board booklet  
 Visual magazines, Cartoon etc.  
 Dislike : Eating food, Bath. If anyone talks loudly to him

### Observations

- In the morning between 6:30 to 9:00 o'clock he plays with toys (plastic).
- In the afternoon from 2 to 5 o'clock he plays with the plastic toys. He has a basket of plastic toys, which he likes playing with.
- In the evening depending on his mood, he watches TV or plays with his toys.
- Sometimes at night he sleeps with his cars or bike or some other toy of his liking.



### Interaction with parent

Name : Purabi Haloi Deka (Mother)  
 Age : 33  
 Gender : Female  
 Economics status : Good (she is a house wife)  
 Class : Upper Middle

#### •Do you have a separate space for your child ?

No, Purabi has no separate space for her child, because her child plays everywhere e.g. sometimes on bed, sometimes on the outside with his friend his toy cars, bikes. Sometime he also makes clay house etc.

#### •What are the play activities and games your kid participate in ?

Her child likes to play with plastic toys, pens, copybook, magazines. Rupam has a lot of hard toys through which he interacts daily and sometimes he plays with it.

### Project related questions

#### •What types of toys you like to use for your child ?

Plastic toys like toy cars, bike, kitchen kit etc, because her children also like it. But Purabi also aware plastic toys are not very safe for children and wants to buy wooden toys. But the problem is the availability. If toy cars, bikes, kitchen kit, other toys for children will be available in the market which are wooden, she will be glad to buy it for her children.



## Case study - 2

Name : Uddipta Kalita  
 Age : 5 Year  
 Gender : Male  
 Standard : Preparatory

### Daily Routine Division by time schedule

6:30 am – 9:00 am : Waking up, Freshen up (toilet, bathroom), Playing with toys, like tea, Preparing for going to school  
 9:30 am – 12:30 pm : School  
 1:00 pm – 2:00 pm : Homework, watching TV (cartoon show e.g. Benton series)  
 2:00 pm – 5:00 pm : Eating, Playing with his friend with his cars, JCB etc, making house with clay  
 5:00 pm – 9:00 pm : Tea, Dinner, Homework, Watching cartoons on TV.  
 9:00 pm : Going to bed  
 Nature : Hyperactive, Intelligent  
 Like : Plastic cars, Bike, Trailer , To see Benton cartoon series, To play chorr- police with his friend, To draw  
 Dislike : To Read, To wake up early



### Observations

- In the morning between 6:30 to 9:00 o'clock he plays with toys (plastic).
- In the afternoon and morning also he plays with his Bulldozer(JCB), toy car and with his toy Bike, trailers.
- In the evening he regularly watches TV cartoon shows and plays with his toy car while vehicle noises.
- He sleeps with his cars and toy trailer.





### Interaction with parent

Name : Leena Kalita  
 Age : 29  
 Gender : Female  
 Economics status : Good (she is a mathematics teacher in a good private school)  
 Class : Upper Middle (her husband is an engineer at Bangalore)

#### •Do you have a separate space for your child ?

No, she has not separate space for children to play. Her children play everywhere.

#### •What are the play activities and games your kid participate in ?

Her child likes to play with plastic toys, making car by pens and has a lot of hard toys with which he interacts daily.

### Project related questions

#### •What types of toys you like to use for your child ?

Plastic toys like cars, bike, Bulldozer(JCB), Trailer. Her kid is very fond of cars and Bulldozer(JCB), trailer. They had a set of wooden cars which Leena's husband bought from Bangalore but its already broken by the children. She wants to buy wooden toys for her children, but only if its not easily breakable. She also understands the harm plastic toys can cause.





### Case study - 3

Name : Manaswini Dutta (Paakhi)  
 Age : 5 Year  
 Gender : Female  
 Standard : Nursery

#### Daily Routine Division by time schedule

6:30 am – 9:00 am : Waking up, Freshen up (toilet, bathroom), Playing with soft toys, drink milk, Preparing for going to school  
 9:00 am – 12:00 pm : School  
 1:00 pm – 2:00 pm : Homework, watching TV (cartoon show e.g. Tom & Jerry show series)  
 2:00 pm – 5:00 pm : Eating, Playing with her friend with her dolls, cars, making rice by sand  
 5:00 pm – 9:00 pm : Tea, Dinner, Homework, Watching cartoons on TV  
 9:00 pm : Going to bed with her soft toys and sometimes with plastic car.  
 Nature : A little shy and very smart and intelligent  
 Like : Soft dolls, Plastic cars, Buses, To ride on see-saw in school  
 Dislike : To Read, To wake up early, To eat

#### Observations

- In the morning between 6:30 to 9:00 o'clock she plays with her soft dolls and other toys.
- Like to role play.
- In the evening she regularly watches TV cartoon show and plays with her soft toys and dolls.
- She sleeps with her dolls.



### Interaction with parent

Name : Bandana Dutta  
Age : 29  
Gender : Female  
Economics status : Good (she is a music teacher in a good private school)  
Class : Middle class

#### •Do you have a separate space for your child ?

No, she has no separate space for her children and never thinking about special place for child. Her children also plays in her bed and balcony.

#### •What are the play activities and games your kid participate in ?

Bandana's child likes to play with soft toys, dolls and has a little plastic bus, car etc. She also likes to Role play like washing, cooking etc. She sometimes plays with her plastic car and bus.

### Project related questions

#### •What types of toys you like to use for your child ?

Bandana like to use soft toys for her children. Her child Manaswini (Paakhi) also prefers role play with her soft dolls than play with her toy car, bus. Bandana often buys soft dolls from the market and is also planning to buy a wooden tick-tack horse for her child. Also Bandana is very aware in buying toys from the point of view of safety.



## Case study - 4

Name : Mitali Choudhury  
 Age : 6 Year  
 Gender : Female  
 Standard : KG 2

### Daily Routine Division by time schedule

6:30 am – 8:30 am : Waking up, Freshen up (toilet, bathroom), Playing with soft toys, Preparing for going to school

9:00 am – 12:30 pm : School

1:00 pm – 2:00 pm : Homework, watching TV (cartoon show)

2:00 pm – 5:00 pm : Eating, playing with her dolls, making sand houses and doing role play activities like cleaning, cooking, washing etc. with her friends

5:00 pm – 9:00 pm : Dinner, Homework, Watching cartoons

9:00 pm : Going to bed with her soft toys

Nature : Very shy, smart and intelligent

Like : Soft dolls, Plastic cars, toy train, to read and write.

Dislike : To wake up early



### Observations

- In the morning between 6:00 to 8:30 o'clock she plays with her soft dolls and other toys.
- She is also plays with sand and clay.
- In the evening, she regularly watches TV cartoon show and plays with her soft toy, car and dolls.
- She is also likes sleeping with her soft dolls.



### Interaction with parent

Name : Munindra Choudhury  
Age : 36  
Gender : Male  
Economics status : Good (he is a Govt. serviceman)  
Class : Middle class

#### •Do you have a separate space for your child ?

He has no separate space for his children and never thinking about special place for child.

#### •What are the play activities and games your kid participate in ?

His kid likes to play with soft toys, dolls and some plastic toys etc. She also likes to Role play.

#### Project related questions

##### •What types of toys you like to use for your child ?

According to Munindra, he generally buys soft dolls for his children. Apart from toy stores he also finds Mela's and exhibitions a good place to purchase toys for his children. He places great importance to buying toys from the safety point of view. When I asked about wooden toys, he told me that he was interested in buying wooden toys keeping in mind their educational and aesthetic value. Availability and price is also a very big issue when it come to wooden toys.





## Case study - 5

Name : Bitopan Das  
 Age : 6 Year  
 Gender : Female  
 Standard : KG 2

### Daily Routine Division by time schedule

6:30 am – 8:30 am : Waking up, Freshen up (toilet, bathroom), Playing with toys, drink Tea, Preparing for going to school

9:00 am – 12:30 pm : School

1:00 pm – 2:00 pm : Homework

2:00 pm – 5:00 pm : Eating, Playing with his friend with his plastic toys

5:00 pm – 9:00 pm : Dinner, Homework, Playing with toys

9:00 pm : Going to bed with his plastic toy

Nature : A little naughty and smart and a little temperamental too

Like : Toy cars, Buses, To ride the seesaw in school

Dislike : To Read, To drink milk, To eat

### Observations

- Likes to play with plastic toys like car, bus, aeroplane, train etc as a part of daily routine.
- Do not like to play on outside. He prefers indoors to play.
- When he goes to any mela or festival he buys only toys (cars, aeroplane etc)
- He breaks his toy when he is angry.







### Interaction with parent

Name : Jonali Das  
Age : 29  
Gender : Female  
Economics status : Good  
Class : Middle class (she is a nurse)

#### •Do you have a separate space for your child ?

No.

#### •What are the play activities and games your kid participates in ?

Basically plays with plastic toys like car, busses, aeroplane, train etc.

### Project related questions

#### •What types of toys you like to use for your child ?

Bitopan's mother prefers toy car, bus, aeroplanes etc. because Bitopan has a good tendency to play with these toys and he does not like other outdoor play activities except see-saw. His mother wants to buy toy which are made from natural material (wood and also aware about products cost) if it is available in the market. Bitopan's mother also told me that she prefers hard toys as they are not easily breakable.



## Case study - 6

Name : Bibek Kashyap  
 Age : 7 Year  
 Gender : Male  
 Standard : Class 1

### Daily Routine Division by time schedule

6:00 am – 8:00 am : Waking up Freshen up (toilet, bathroom) Playing with Toys,  
 Study at least one hour, Preparing for going to school  
 9:30 am – 1:30 pm : School  
 1:00 pm – 2:00 pm : Homework  
 2:30 pm – 3:30 pm : Homework, watching TV  
 3:30 pm – 5:00 pm : Playing with his friend with his cars, others toy  
 5.30 pm - 9:00 pm : Dinner, Homework, Watching TV cartoons  
 9:00 pm : Going to bed  
 Nature : Cool, smart and intelligent  
 Like : Toy cars, riding bicycles, to play cricket  
 Dislike : To Read and write

### Observations

- In the morning between 6:00 to 8:00 o'clock he plays with toys.
- In the afternoon and morning also he plays with his toys but with his friend circle.
- In the evening he regularly plays with his plastic toys in home, or front of his home and cricket.





### Interaction with parent

Name : Pranati Devi  
 Age : 34+  
 Gender : Female  
 Economics status : Good (her husband is a junior engineer in P.W.D department, Govt. of Assam)  
 Class : Middle class

#### •Do you have a separate space for your child ?

No, she has not.

#### •What are the play activities and games your kid participates in ?

Her child wants to like play cricket, plastic toy mostly likes tanks, helicopters etc. Her child also likes to see war movies and also like to play firing by his toy tank. Her child play role-play many time.

### Project related questions

#### •What types of toys you like to use for your child ?

Bibek's mother buys a lots of military toys. Bibek loves to see war movies which influences him to ask for military toys. Bibek's ambition- when he grows up is to join army and drive tanks or fly helicopters. His mother does not have any awareness about wooden toys because she never finds any kinds of wooden toys available in local market.



## Case study - 7

Name : Subham Pratyush  
 Age : 7+ Year  
 Gender : Male  
 Standard : Class 2

### Daily Routine Division by time schedule

6:00 am – 8:00 am : Waking up, Freshen up (toilet, bathroom), Playing with Toys (car, bikes etc), Study at least one hour, Preparing for going to school  
 9:30 am – 2:00 pm : School  
 2:30 pm – 3:30 pm : Homework, watching TV (Tom & Jerry show series)  
 3:30 pm – 5:00 pm : Playing with his friend with his cars, others toy and sometime choor- police etc.  
 5.30 pm - 9:00 pm : Dinner, Homework, Watching cartoons  
 9:00 pm : Going to bed  
 Nature : Cool, smart and intelligent  
 Like : Toy cars, riding bicycles, to read  
 Dislike : If someone talks loudly to him



### Observations

- In the morning between 6:00 to 8:00 o'clock he plays with toys (plastic).
- In the afternoon and morning also he plays with his hard toys with his friend circle.
- In the evening he regularly playing with his plastic toys (cars, bike etc).





### Interaction with parent

Name : Jogeswar Deka  
 Age : 45  
 Gender : Male  
 Economics status : Good (he is a practical demonstrator in a science college)  
 Class : Middle class

#### •Do you have a separate space for your child ?

No, he has not. They are living in a rented house.

#### •What are the play activities and games your kid participates in ?

His child likes to play on his own toys as well as share with his friends. They some times make elaborate houses and roads and then play with their toy cars in that scenario. He also likes to play cricket and handball but only occasionally.

### Project related questions

#### •What types of toys you like to use for your child ?

Subham's father is very careful about buying toys. His father told that during his childhood, he also played with wooden toys like king-queen and wooden hand cycles. In that time, they did not have any kind of plastic toys. They had only wooden toys which they used to buy from the local mela. He knows that plastic toys are not safe for children and was interested in wooden toys. But the issues of availability and price were a major different.





## Case study - 8

Name : Angshuman Sarma  
 Age : 7+ Year  
 Gender : Male  
 Standard : Class 2

### Daily Routine Division by time schedule

6:00 am – 8:00 am : Waking up, Freshen up (toilet, bathroom), Playing with Toys (car, bikes etc), Study at least one hour, Preparing for going to school  
 9:00 am – 2:00 pm : School  
 2:30 pm – 3:30 pm : Playing with his friend with his toy like plastic car set, train etc.  
 3:30 pm – 5:00 pm : Homework, watching TV (Chota Bhim and Dollar series)  
 5.30 pm - 9:00 pm : Dinner, Homework, Watching cartoons, playing with toys  
 9:00 pm : Going to bed  
 Nature : Cool, smart and intelligent  
 Like : Toy cars, riding bicycles, to read, train, plastic robot toys  
 Dislike : To eat food except likes Magi and Noodles

### Observations

- In the morning between 6:00 to 8:00 o'clock he plays with toys (plastic).
- In the afternoons and mornings he plays with his plastic toys among his friend circle.
- In the evening he regularly plays with his plastic toys (cars, train, robot, bike, sometime outdoor games like cricket, football etc).



### Interaction with parent

Name : Chitra Devi  
Age : 35  
Gender : Female  
Economics status : Good (her husband is a high school Head-Master)  
Class : Middle class

#### •Do you have a separate space for your child ?

No. They are living in a rented house.

#### •What are the play activities and games your kid participates in ?

Angshuman likes toy cars, bus, train and he also has a plastic robot. He has a lots of plastic toys in his house. Some are still broken. He has been collecting toys from his early childhood. Angshuman also likes to plays cricket and handball with his friends. But he mostly plays with small plastic toys.

#### Project related questions

##### •What types of toys you like to use for your child ?

Angshuman's mother is very careful about buying toys safety being her main priority. Angshuman has loves toy cars and bikes from his early childhood which his apparent in his collection. His mother is also planning to buy some educational toys. I asked them about wooden toys, then Angshuman's mother replied that they don't have any, but the reason was not money, it was availability in the market.

## Analysis of case studies

After my all case studies, I got some interesting and specific observations.

They are-

- The children enjoy scattering all their toys on the floor and then playing with them.
- Toy vehicles were one of the most popular of all the toy categories.
- They are all influenced by TV cartoon show where Benten, Tom & Jerry, Chota Bhim are most popular characters among them.
- The toys are normally dumped together in plastic bags and put in shelves or under the bed. Reason is that most families are has not enough space for storing toys and also it is easy for their child to access it.
- Most children play with toys in the early mornings and after school with their friends in the evening.
- Parents prefer buying toys which are liked by their kids.
- Parents has awareness about wooden toys, but it is not available in market. They don't have any option but buy plastic toys.
- Chinese toys are the ones most readily available in the market and even though they are cheap the built quality is bad.
- Most of the parents belong from middle class background and they want to buy toys which are economical. They are comfortable with any toy which costs below Rs.500.
- Almost all children don't have a specific place for play activities. they change their places like bed, floor to outdoor with either their friend or alone.
- Children share their toys among their friends.
- Apart from toy stores parents also buy toys from mela's and exhibitions.
- Girls mainly prefer soft toys and role play. They also have plastic dolls but soft toys are always preferred.

## **Inferences from case study**

The case study helped me to understand the ability and interest of children aged between 3 to 7 year.

### **Abilities**

- They had good ability to differentiate between different shapes, colours etc.
- They can hold every toys and can move.
- They were very much interested in such activities.
- They were able to do simple role play.
- They has very interest in movements/kinetics.

### **Interests**

- They liked vehicles very much. They liked the movement and also to role play with them.
- They liked to play outdoors, specially in the sand and also play in room.
- They liked color and form of the toys. Because all user's has colourfull toys which indicates their interests on colour.

## Observation on toys during the user's visit



I observed a lot of toys during my user and market surveys. All of the toys like cars, buses, trains, dolls, robots and puzzle games, the motor vehicles were the most popular ones, specially in the age group of 3-5 years. Also almost all of the toys were made of plastic and wood being completely non-existent. Another important observation was that the children are very keen observers of everything that happens around them, that includes their parents, peers, friends, television etc. Moreover their activities are not limited to just indoors, they very much also prefer outdoors but that depends on availability of space. All these factors are important factors in the design of toys and activities that kids play. Role-play being the most popular one. Most importantly, this age group is the period when the imagination and creativity of kids is at their peak and the toys have to be designed accordingly. Also development of motor functions, hand eye coordination, muscular strength and colour differentiation are also important factors that have to be kept in mind when designing for these kids. Following these parameters would not only help in designing toys which children enjoy but also that would help in both physical and mental development.

### I have noticed when children are playing with their toys

- Play with their toy stuff with very consciously.
- They are using their body parts like hands, finger when they pull/push/moves or through their toys.
- They are also known to play with their toys very well.
- A lots of car, bus, train, robot toys have on their toy's collection.



## Children Are Playing With Toys



Plastic remote controlled toys and train



Toy car, train, remote etc.



Plastic cars

## Most Popular of all the Toys used by Children



## About Child development and psychology

### (Age group : 2 to 7 years)

According to Piaget, this stage is the stage of percepto motor development. The key development happens in terms of learning symbols, language learning, simple logic, physical activities, socialization, self confidence and independence.

During this stage, children shift from interacting with their environment through senses and movement to functioning in a conceptual symbolic mode. They can now think in symbolic form. Gradual language development begins around the age of 2, and is almost mastered by 4. They can count, but still do not really understand what numbers mean. Their communication is not yet person to person, but consists of the child's monologue. They are able to think operations through logically in one direction, referred to Piaget as centration. Around the ages of 6-7, or earlier if a child is constantly exposed to other children, egocentrism will erode. Children begin to validate their own thoughts against those of their peers. Through maturation and experience a more sophisticated and adult-like state of cognitive development begins to evolve.

### Preoperational Phase

#### (2-4 years)

Increased use of verbal representation but speech is egocentric. The beginnings of symbolic rather than simple motor play. Transductive reasoning. Can think about something without the object being present by use of language.

#### (4-7 years)

Speech becomes more social, less egocentric. The child has an intuitive grasp of logical concepts in some areas. Concepts formed are crude and irreversible. Easy to believe in magical increase, decrease, disappearance. Reality not formed. Perceptions dominate judgment.

At the age of two, the child enters what Piaget called the Preoperational Stage. This stage usually lasts until about age seven. Since a child can now pretend and remember, it can now begin to understand symbols more complex than simple words. It picks up these symbols and uses them to communicate and to play. A child in this stage may not understand, for example, that he can be seen when he has his eyes closed.

According to some child psychologist and famous designer, they have mentioned child growth stage and also give some suggestions on it. They are I have mentioned like-



## “Age Group, Activities, Ability And Interests, Observations & Toy Suggestions”.....

AGE GROUP	ACTIVITIES	ABILITIES & INTERESTS	OBSERVATION	TOY SUGGESTIONS
0-6 months	SLEEPING AND LAP ACTIVITY	Infants use their senses to learn about their world. For the first few months of life, babies are unable to grasp objects with their hands, but enjoy exploring with their ears and eyes.	Most of time sleep, Live with their mom And play with their Soft stuff	Cloth toys, Soft dolls, Stuffed animals (with short pile fabric),Musical and chime toys, Rattles
6-12 months	SLEEPING AND LAP ACTIVITY	In the second half of the first year, infants master the motor skills that enable them to play with toys in new and exciting ways. When babies can sit up, they enjoy toys they can manipulate – to bang, drop, stack, put in and take out, and open and shut.	Most of time sleep, Live with their mom And play with their Soft stuff	Soft dolls, Stuffed animals (with short pile fabric),Simple musical instruments, Rattles Squeeze/squeak toys, Cloth and cardboard picture books
1-2 years	SLEEPING,PLAYING AND UNDERSTANDING ENVIRONMENT	In the second year of life, children are explorers. Fueled by curiosity and wonder, toddlers also possess the physical skills that make it easy for them to play and learn.	Interact with family members Play with interactive game, light, color	Child-sized table and chairs, Non-toxic art supplies (large crayons and coloring books, clay, finger-paints), Musical instruments, Cardboard picture books, pop-up books
2-3 years	PLAYGROUP SCHOOL, DANCING,COPYNG, TV WATCHING	Older toddlers love testing their physical skills – jumping, climbing, and throwing – and enjoy toys for active play.	Possessive about their things, animal, form understanding	Tricycle, Play vehicles, Wagon, Shape sorters, Playhouse, Storybooks, Stuffed animals

## “Age Group, Activities, Ability And Interests, Observations & Toy Suggestions”.....

AGE GROUP	ACTIVITIES	ABILITIES & INTERESTS	OBSERVATION	TOY SUGGESTIONS
3-6 years	SCHOOL,DRAWING, OUTDOOR	After the age of three, children begin to play Actively with each other. Preschoolers and kindergartners are masters of make-believe. They like to act out grown-Up roles and enjoy costumes and props to help them bring their imaginations to life.	Digital experience, judging sense	Tricycle and helmet, Bicycle and helmet, Backyard gym Equipment, Construction toys, Lacing and threading sets, Puzzles ,Play vehicles, Hand/finger puppets, Dress-up clothes and accessories
6-9 years	SCHOOL,OUTDOOR PLAY,CYCLING	School-age children enjoy play that requires strategy And skill. Board games, tabletop sports and classic toys like marbles and kites are favorites. Grade-schoolers Also enjoy exploring different kinds of grown-up worlds and like fashion and career dolls and action figures. Children this age seek out new information and experiences through play and enjoy science, craft and magic kits.	Interaction with real life, stubborn, choosy	Tabletop sports, Electronic games, Jigsaw puzzles, including three-dimensional puzzles, Fashion/career dolls ,Puppets, marionettes and Theaters, Doll houses and Furnishings, Video games ,Board games, Music/CD player

(Reference: [www.toyinfo.org](http://www.toyinfo.org))



## Studies on craftsman : Baktawng

The Baktawng village has around 140 households with a total population of 558. The male population is 288(52%) and the female is 270(48%). Out of total 140 households in the village, 85(61%) household units are engaged in this carpentry work. The total number of artisans (workers) in these units is 335 out of which 301(90%) are male and only 35 (10%)are female workers.

### Literacy

As in rest of the state, Baktawng village is 100% literate. Almost all people has completed their higher secondary educations and graduation.

### Languages

Mizo is their language of communication but most of the people are also very comfortable with english and can easily converse in it.

### Religion

Christianity is the religion of the village. There are two communities(veng, Mizo word) in Baktawng village. They are-

#### Tlangnuam

#### Baktawng

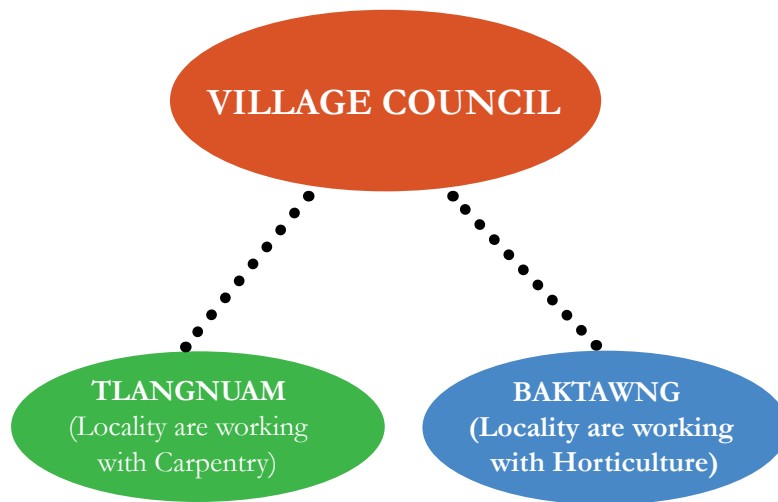
Both communities are well represented in the village council.

The next step was to prepare a questionnaire for the Artisans. It was important from the point of view of gathering data related to their socio- cultural, economic and skill status. This carpentry cluster has two types of artisans. They are-

#### -Junior Artisan

#### -Senior Artisan

Almost all of the craftsmen are highly skilled and comfortable in making all kinds of furniture. But the major chunk of the earning comes from making door and window frames that they make on daily basis.





## Craftsman profile - 1

NAME

-Rammawia (Senior Artisan)

AGE

-52 years

FOR HOW MANY YEARS HAVE YOU BEEN WORKING WITH THIS CRAFT?

-Almost 36 years

WHAT ARE YOUR MAIN EARNING SOURCES ?

-Carpentry

HOW MUCH MONEY DO YOU EARN IN A DAY ?

-1000 Rs.

HOW MANY PRODUCTS DO YOU MAKE IN A DAY ?

-Minimum 3 products (window/door frame, stool etc)

WHAT ARE THE MAIN TYPES OF FURNITURE THAT YOU MAKE ?

-Rammawia can makes door frame, window frame and many other kinds of furniture like table, stool, bed, sofa set etc.

IS CARPENTRY A FULL-TIME OR A PART-TIME OCCUPATION ?

-Full time

WHAT KIND OF PRODUCTS ARE MOST POPULAR IN THE MARKET ?

-Window frame, dinning table, bed, chair etc but they also make built to order furniture as desired by the client

HOW MANY FAMILY MEMBERS DO YOU HAVE ?

-5

DO YOUR CHILDREN GO TO SCHOOL ?

-Yes.

IS ANY OTHER MEMBER OF YOUR INVOLVED WITH THIS CRAFT ?

-Yes. His son also involved

ARE YOU SELLING ALL PRODUCTS IN MARKET BY OWN OR BY THE MIDDLE MEN ?

-By middlemen

ARE THE PRODUCTS SOLD IN LOCAL OR EXPORTED TO OTHER STATES AS WELL ?

-Both. Apart from being sold in Aizawl, they are also sold in neighboring states.

ARE FEMALES FROM YOUR FAMILY ALSO INVOLVED IN THIS CRAFT ?

-No

ARE YOU SATISFIED ECONOMICALLY WITH THE CARPENTRY ?

-Yes





## Craftsman profile - 2

NAME

-Mawiluizela Chongthu (Junior Artisan)

AGE

-25 years

FOR HOW MANY YEARS HAVE YOU BEEN WORKING WITH THIS CRAFT?

-Almost 10 years

WHAT ARE YOUR MAIN EARNING SOURCES ?

-Carpentry

HOW MUCH MONEY DO YOU EARN IN A DAY ?

-200 - 500 Rs.

HOW MANY PRODUCTS DO YOU MAKE IN A DAY ?

-Minimum 2 products (window/door frame, stool and can finished a chair in a day)

WHAT ARE THE MAIN TYPES OF FURNITURE THAT YOU MAKE ?

-He can make door and window frames and many other kinds of furniture like table, stool, bed etc.

IS CARPENTRY A FULL-TIME OR A PART-TIME OCCUPATION ?

-Full time

WHAT KIND OF PRODUCTS ARE MOST POPULAR IN THE MARKET ?

-Window frame, dinning table, bed, chair etc but they also make built to order furniture as desired by the client.

HOW MANY FAMILY MEMBERS DO YOU HAVE ?

-7

DO YOUR CHILDREN GO TO SCHOOL ?

-No, he is not married

IS ANY OTHER MEMBER OF YOUR INVOLVED WITH THIS CRAFT ?

-Younger brother

ARE YOU SELLING ALL PRODUCTS IN MARKET BY OWN OR BY THE MIDDLE MEN ?

-By middlemen

ARE THE PRODUCTS SOLD IN LOCAL OR EXPORTED TO OTHER STATES AS WELL ?

-Both. Apart from being sold in Aizawl, they are also sold in neighboring states.

ARE FEMALES FROM YOUR FAMILY ALSO INVOLVED IN THIS CRAFT ?

-No

ARE YOU SATISFIED ECONOMICALLY WITH THE CARPENTRY ?

-Yes







### Craftsman profile - 3

NAME

-Ngaihsanga (Senior Artisan)

AGE

-51 years

FOR HOW MANY YEARS HAVE YOU BEEN WORKING WITH THIS CRAFT?

-Almost 33 years

WHAT ARE YOUR MAIN EARNING SOURCES ?

-Carpentry

HOW MUCH MONEY DO YOU EARN IN A DAY ?

-1000 - 1500 Rs.

HOW MANY PRODUCTS DO YOU MAKE IN A DAY ?

-2, 3 products (long bench, window/door frame, stool etc)

WHAT ARE THE MAIN TYPES OF FURNITURE THAT YOU MAKE ?

-He generally makes door and window frames but is good with any kind of furniture like long bench, table, stool, bed, sofa, etc.

IS CARPENTRY A FULL-TIME OR A PART-TIME OCCUPATION ?

-Part time

WHAT KIND OF PRODUCTS ARE MOST POPULAR IN THE MARKET ?

-Window frame, dinning table, bed, chair and also made to order furniture

HOW MANY FAMILY MEMBERS DO YOU HAVE ?

-6

DO YOUR CHILDREN GO TO SCHOOL ?

-They are all educated

IS ANY OTHER MEMBER OF YOUR INVOLVED WITH THIS CRAFT ?

-Yes. Elder son also helps him in work

ARE YOU SELLING ALL PRODUCTS IN MARKET BY OWN OR BY THE MIDDLE MEN ?

-By middlemen

ARE THE PRODUCTS SOLD IN LOCAL OR EXPORTED TO OTHER STATES AS WELL ?

-Both. Apart from being sold in Aizawl, they are also sold in neighboring states

ARE FEMALES FROM YOUR FAMILY ALSO INVOLVED IN THIS CRAFT ?

-No

ARE YOU SATISFIED ECONOMICALLY WITH THE CARPENTRY ?

-Yes, he is very happy with his current occupation





## Craftsman profile - 4

NAME

-Engzami (Senior Artisan)

AGE

-35 years

FOR HOW MANY YEARS HAVE YOU BEEN WORKING WITH THIS CRAFT?

-Almost 15 years

WHAT ARE YOUR MAIN EARNING SOURCES ?

-Carpentry

HOW MUCH MONEY DO YOU EARN IN A DAY ?

-300 - 500 Rs.

HOW MANY PRODUCTS DO YOU MAKE IN A DAY ?

-2, 3 products and is also involved in the final finishing of the products

WHAT ARE THE MAIN TYPES OF FURNITURE THAT YOU MAKE ?

-She generally makes door and window frames but is good with any kind of furniture like long bench, table, stool, bed, sofa etc.

IS CARPENTRY A FULL-TIME OR A PART-TIME OCCUPATION ?

-Part time

WHAT KIND OF PRODUCTS ARE MOST POPULAR IN THE MARKET ?

-Window/door frame, dinning table, bed, chair and almirah etc

HOW MANY FAMILY MEMBERS DO YOU HAVE ?

-5

DO YOUR CHILDREN GO TO SCHOOL ?

-Yes. Her children are small and they all go to school

IS ANY OTHER MEMBER OF YOUR INVOLVED WITH THIS CRAFT ?

-Yes. Her husband is a senior artisan

ARE YOU SELLING ALL PRODUCTS IN MARKET BY OWN OR BY THE MIDDLE MEN ?

-By middlemen

ARE THE PRODUCTS SOLD IN LOCAL OR EXPORTED TO OTHER STATES AS WELL ?

-Both. Apart from being sold in Aizawl, they are also sold in neighboring states.

ARE FEMALES FROM YOUR FAMILY ALSO INVOLVED IN THIS CRAFT ?

-No, her children are not old enough

ARE YOU SATISFIED ECONOMICALLY WITH THE CARPENTRY ?

-Yes, she is happy with carpentry as an occupation







## Craftsman profile - 5

NAME

-Hmingthanga (Junior Artisan)

AGE

-26 years

FOR HOW MANY YEARS HAVE YOU BEEN WORKING WITH THIS CRAFT?

-Almost 8 years

WHAT ARE YOUR MAIN EARNING SOURCES ?

-Carpentry

HOW MUCH MONEY DO YOU EARN IN A DAY ?

-200 - 400 Rs.

HOW MANY PRODUCTS DO YOU MAKE IN A DAY ?

-2 products

WHAT ARE THE MAIN TYPES OF FURNITURE THAT YOU MAKE ?

-He can makes door/window frames and is good in all kinds of furniture like long bench, table, sofa set, almirah etc

IS CARPENTRY A FULL-TIME OR A PART-TIME OCCUPATION ?

-Full time

WHAT KIND OF PRODUCTS ARE MOST POPULAR IN THE MARKET?

-Window frame, dinning table, bed, chair and almirah etc

HOW MANY FAMILY MEMBERS DO YOU HAVE ?

-8

DO YOUR CHILDREN GO TO SCHOOL ?

-Yes

IS ANY OTHER MEMBER OF YOUR INVOLVED WITH THIS CRAFT ?

-No

ARE YOU SELLING ALL PRODUCTS IN MARKET BY OWN OR BY THE MIDDLE MEN ?

-By middlemen

ARE THE PRODUCTS SOLD IN LOCAL OR EXPORTED TO OTHER STATES AS WELL ?

-Both. Apart from being sold in Aizawl, they are also sold in neighboring states

ARE FEMALES FROM YOUR FAMILY ALSO INVOLVED IN THIS CRAFT ?

-No

ARE YOU SATISFIED ECONOMICALLY WITH THE CARPENTRY ?

-He is satisfied with his earnings





## Craftsman profile - 6

NAME

-Ramzana (Senior Artisan)

AGE

-32 years

FOR HOW MANY YEARS HAVE YOU BEEN WORKING WITH THIS CRAFT?

-Almost 17 years

WHAT ARE YOUR MAIN EARNING SOURCES ?

-Carpentry

HOW MUCH MONEY DO YOU EARN IN A DAY ?

-800 - 1000 Rs.

HOW MANY PRODUCTS DO YOU MAKE IN A DAY ?

-2, 4 products

WHAT ARE THE MAIN TYPES OF FURNITURE THAT YOU MAKE ?

-He can makes door/window frame and is also good other kinds of furniture like long bench, table, stool, bed, sofa set, almirah etc

IS CARPENTRY A FULL-TIME OR A PART-TIME OCCUPATION ?

-Full time

WHAT KIND OF PRODUCTS ARE MOST POPULAR IN THE MARKET ?

-Window frame, dinning table, bed, chair, sofa set and almirah etc

HOW MANY FAMILY MEMBERS DO YOU HAVE ?

- 11

DO YOUR CHILDREN GO TO SCHOOL ?

-Yes

IS ANY OTHER MEMBER OF YOUR INVOLVED WITH THIS CRAFT ?

-Yes, his younger brother also works with him

ARE YOU SELLING ALL PRODUCTS IN MARKET BY OWN OR BY THE MIDDLE MEN ?

-By middlemen

ARE THE PRODUCTS SOLD IN LOCAL OR EXPORTED TO OTHER STATES AS WELL ?

-Both. Apart from being sold in Aizawl, they are also sold in neighboring states

ARE FEMALES FROM YOUR FAMILY ALSO INVOLVED IN THIS CRAFT ?

-No

ARE YOU SATISFIED ECONOMICALLY WITH THE CARPENTRY ?

-Yes, he is satisfied with his work.





## Observations about skilled craftsman working under a unit

The craft people who are working under the unit are skillful but they don't have the skills level or the technical know how which is required to start carpentry on their own. Moreover, funding to start a new business is also a big issue. These are the basic reasons because of which many of the craftsmen prefer to work under bigger units.

-Most of the artisans high skill level.

-They work on what they are told to and take money on daily basis. Their job is very similar to that of a skilled labour.

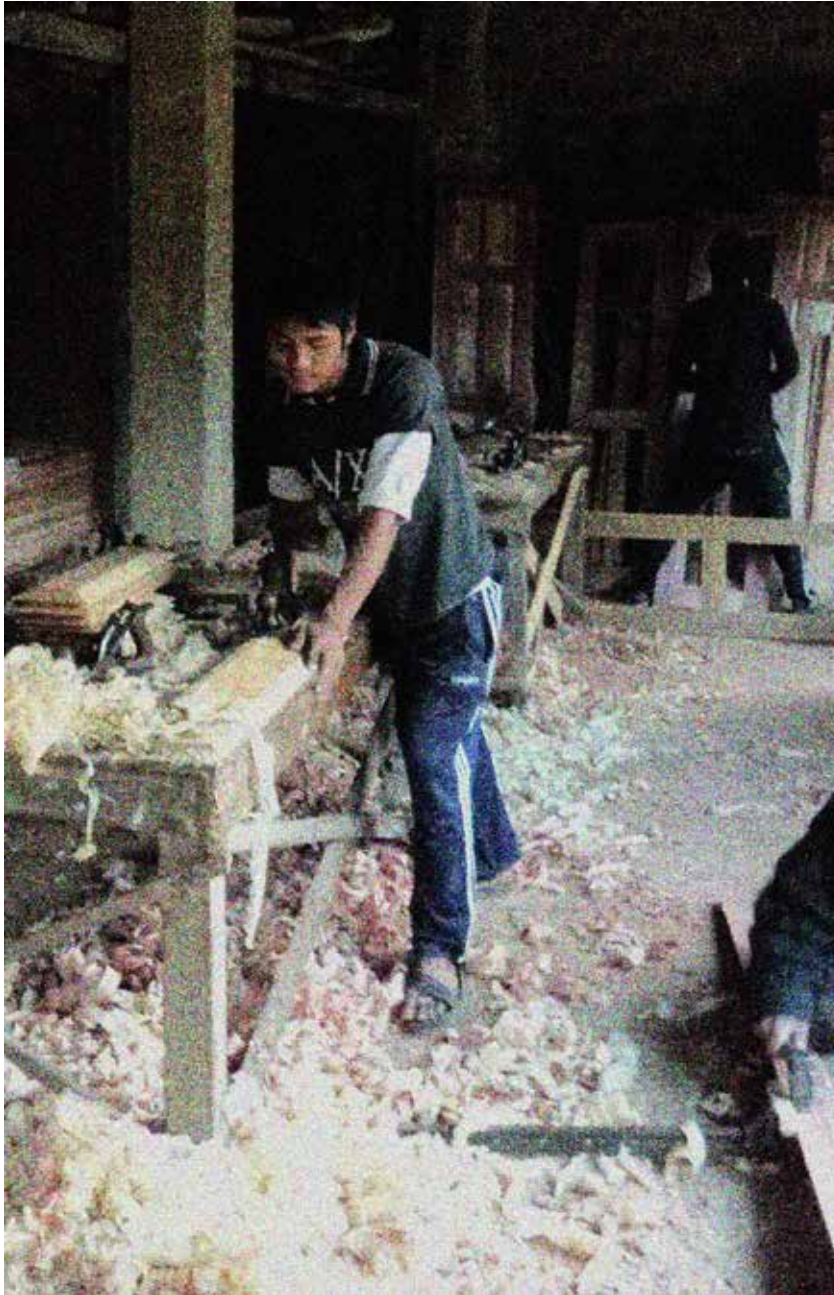
### +VE

- They have a lots of experience in carpentry with good skill level both in machine operated processes or physically intensive work.

### -VE

- Their unawareness on some modern techniques on wood. Some of the craftsmen have a very laid back attitude.





## Financial data on Baktawng carpentry craft clusters

**Implementing Agency-** Baktawng Carpentry Industrial Co-operative Society, (Registered under the Mizoram Co- operative Societies Act, 1991 under registration No is- AE 233 / 96-97).

**Total persons are working - 335**

Male craftsman	-	90 %
Female craftsman	-	10 %
Skilled craftsman	-	90 %

The State Bank of India and Mizoram Rural Bank are the main sources of funding for these activities.

(Reference From Annual Assessment Survey On Baktawng Wooden Carpentry Craft Clusters, 2011, IIE, Aizawl, Mizoram)

## Wood procurement and storage



The artisans of Baktawang use many kinds of wood which they source from different areas of Mizoram. Their main suppliers are from the governmental agencies, as Mizoram has a vast plantation of timber which are auctioned from time to time. Apart from these agencies, wood is also sourced from the border areas of neighboring countries, mainly Bangladesh and Burma. The timber is then transported from the place of sale to the respective villages by trucks. The prices also vary, depending on the type and the quality of timber. Mainly, the artisans of Baktawang use Teak, White Beech, Australian Red Cedar, East Indian Almond wood etc. The prices are calculated in Rs./KB.

Baktawang carpenters mostly use teak wood because of more availability.

**1 (ONE) KB = Rs. 350.00** (1 KB = 3 inch x 4 inch x 144 inch)





## Woods And Its Mizo | Scientific | English Name

<b>TIMBERS NAME ( IN MIZO)</b>	<b>SCIENTIFIC NAME</b>	<b>ENGLISH NAME &amp; USES</b>
<b>TATKAWNG</b>	<b>ARTO CARPUS CHAPLASHA</b>	<b>COMMERCIAL TIMBER</b> Best For Construction of Vehicle Body
<b>TAI or TEIPUI</b>	<b>CEDRELA LOONA</b>	<b>AUSTRALIAN RED-CEDER</b> Best for Baskets, Bedroom suites, Bent Parts, Blinds, Boat building (general), Boxes
<b>THLANVAWNG</b>	<b>GMELINA ARBOREA</b>	<b>WHITE BEECH</b> Best for House Construction
<b>ZUANG</b>	<b>DUABANGA SONNER TIOIDES</b>	<b>ONE KIND OF TEAK</b> For Carpentry Work
<b>TLAWR</b>	<b>TECTONA GRANDIS</b>	<b>TEAK</b> Best for Furniture Making
<b>CHAR</b>	<b>TERMINALIA MYRIOCARPA</b>	<b>EAST INDIAN ALMOND</b> Best for Hard & Durable Usability
<b>KHIANGZO</b>	<b>CINNAMOMUM CEICODAPHNE</b>	<b>CAMPHOR LAUREL</b> For Making Furniture and Other Carpentry Work

## Wood Variations Of Baktawng, Mizoram





## Storage

After the timber is procured from the source, it is then transferred to the workplace and stored in a very specific manner. All the timber is stacked at a height from the ground and spaced so as to maintain a good circulation of air through them. This is done to prevent the timber from getting infected by insects and fungus. Another purpose is to properly season the wood before it is used in making of the furniture.







## Tools and Technology used

The household micro units are using manual method of production in splitting, sizing or in cutting of timber. They use indigenous Mizo hand tools like Hand Saw, Daw etc. The raw timber is cut into length according to the requirement of the product. Then it is smoothed by Randa. The parts are then processed and integrated with each other to get the final product.

### Tools used by the Artisans

- Vertical Bend Saw
- Thickness Planer
- Circular Saw
- Wood Lathe Machine
- Drilling Machine
- Grinding Machine
- Vice
- Randa
- Chisel
- Hammer



## Tools



Pattern Grinder



Angle Grinder



Pattern Grinder



Drill Machine

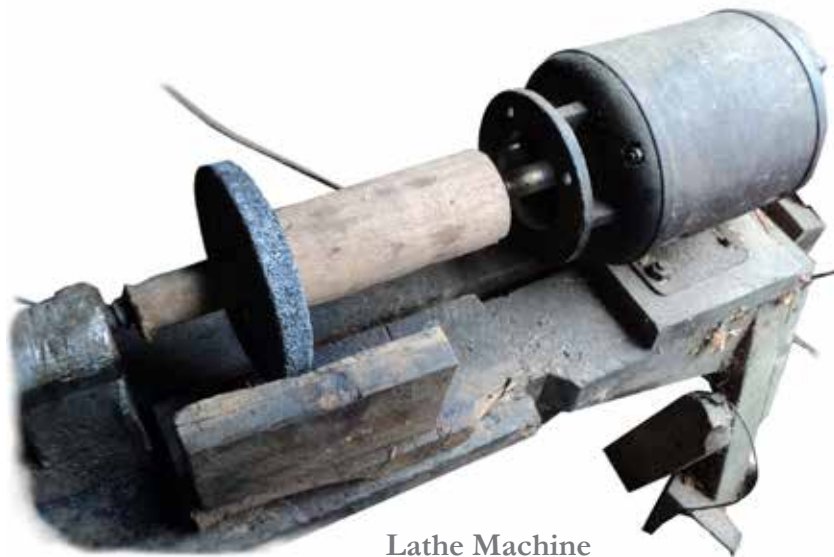
## Tools



Circular Saw



Thickness Planer



Lathe Machine



Table Saw



## Tools



Vertical Bend Saw



Hammer, Chisel, Randa



Zig Saw

## Current Product Range



Dressing table (price = 7,500 Rs.)



Showcase (price = 10,000 Rs.)





Bed (price = 7,500 Rs.)



Sofa (price = 6,000 Rs.)



Showcase (price = 4,000 Rs.)



Dinning table (price = 4,500 Rs.)



Turned works



Wooden patterns



Candle stands

## Joineries used

The artisans of Baktawng use many different kinds of Joineries for their products. They also use nails and sometimes bamboo dowels to join two pieces of wood according to the product requirement.

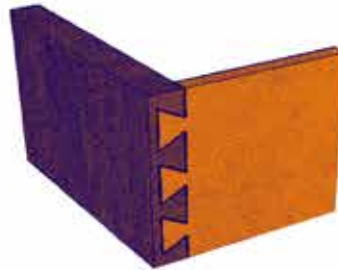




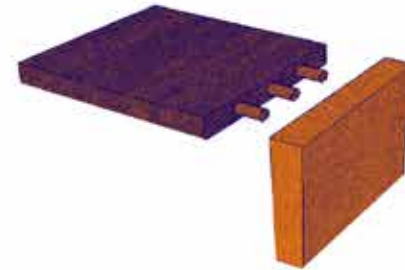
## Different Kinds Of Joineries And Its Name



Butt Joint



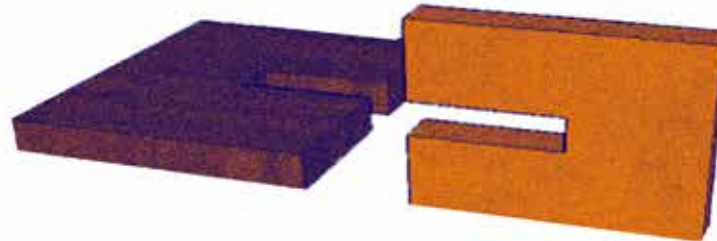
Dovetail Joint



Dowel Joint



Spline Joint



Half – lap Joint



Box Joint

## Use of various Joineries in the Furniture made by Craftsmen in Baktawng



Tenon Joint



Dado Joint



Mortis and Tenon Joint



Dado Joint



Tenon Joint



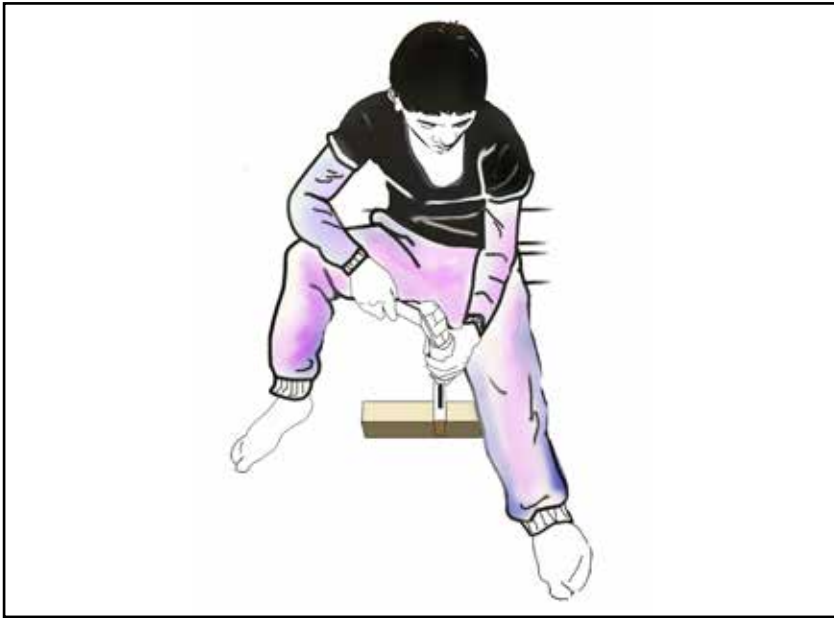
Dado Joint



Rabbet Joint



Butt Joint



## Working environment

Carpentry involves both hard physical labour as well as precise work. As a result of this nature of work, the artisans employ all kinds of postures during the course of a day. Sometimes they are standing and working and some of the work is achieved by sitting. Moreover, they have to work from 7:30 in the morning to 5:00 in the evening, so workspace ergonomics is a very important aspect of the design of the places where they work. Also, the only time they have a vacation is during Christmas or some family function.







Working by standing



Working by sitting



Cutting

## **Current market analysis of Baktawng wooden carpentry craft clusters**

Marketing is the big problem for the finished product. The entire product range is mostly sold in the local market itself and these are mostly order based production. There are 80 local shops spread over the entire Mizoram state that directly buy the items from these carpentry units. Maximum number of such shops are found in Aizawl. They also get some orders from Shillong, Silchar and Hailakandi district of Assam. Moreover, the carpentry units do not have any showroom of their own to display the products produced by them. Also till now they have not participated in any national seminars, neither they have promotional system for marketing.

**SWOT** analysis (Baktawng wooden carpentry craft clusters in present scenario)-  
SWOT analysis has done in present scenario. This analysis has been carried out with a view to assess the strength, weakness, opportunities and threats of the cluster. This analysis would help in understanding the capabilities and the short comings of the cluster to face the challenges ahead.

### **Strength**

- Raw material really available.
- Traditionally skilled workers.
- Existence of sufficient production capacity.

### **Weakness**

- Design and quality of product is not suitable for export.
- Infrastructure facility is not well developed.
- Marketing process is not well organized.

### **Opportunity**

- Product development & design.
- Scope for creating showroom and display spaces for the products made by the artisans.
- Product promotion.
- The cluster has a good machinery based product portfolio which reduces the time spent during production.

### **Threat**

- High competition with other cluster unit outside the region.
- Product designs and well polished products pose a threat to the cluster products.



## Why Baktawng Carpenters should be a craft cluster

Baktawng artisan (carpenter) are skilled craft people who work with timber to construct, install and maintain furniture and other objects. The work, known as carpentry, may involve manual labor and work outdoors. Carpentry skill is gained through experience and study. Carpenters use their skills to make structures and fittings such as windows, doors, furniture, etc. They use a variety of hand tools and power tools to cut, shape and join the wood.

A wooden-crafts person needs all power equipment and also very important hand skill which are exist in all artisans of Baktawng. They have all power equipment and has also hand carved skilled. Raw materials are also available and are very good in quality. The famous craftsman of woods from other parts of India like Channapatna, Chitrakoot, Kondapali and Chilkana craft clusters are using lathe work for making their crafts. The artisan of Baktawng are also expert in making products on lathe machines and other power tools. They also have hand-carved skill when they make their products.

## Market study (survey of existing products in market)

The market research has been carried out in two steps-

### 1. Primary research

By visiting directly the toy shop and interview the owner/manager of the store. It also involved study of their existing products.

### 2. Secondary research

By the search through internet and other references.

In order to understand the urban market in India, I visited a group of stores in Guwahati. This helped me in understanding the type of toys sold in the market, price points, problems, issues etc. Four to five different retail stores were visited and the owner/manager of the store was interviewed to help me to get the required information. Also the wooden toys sold in the International market were studied. The most popular toys were role playing sets, construction kits, sorting-balancing toys, vehicles, plastic car, bulldozers (JCB), trailer, puzzles etc. This study gave some idea about marketing possibilities about my own project.





## Toy market

The main markets for wooden craft based toys in India are-

### a) Domestic marketing

1) Dilli Haat- Dilli Haat provides an excellent marketing opportunity for the artisans coming from all over the country who are allotted stalls on fortnight basis for making sales of their products directly, thereby ensuring due returns of their skill & effort.

Eligibility conditions are that artisans should be registered with the Marketing & Service Extension Centers or other field units of the Office of the Development Commissioner (Handicrafts), Ministry of Textiles, Government of India.

2) Urban Haats- On the pattern of Dilli Haat, a number of Urban Haats are being set up at other prominent places in the country. Five such Haats named “Ekmara Haat”, Bhubaneswar (Orissa); “Craft Bazar”, Karnal (Haryana); “Urban Haat”, Jammu (J&K); Tirupati (Andhra Pradesh) and Gohar Mahal, Bhopal (M.P.) have become operational now.

### b) International marketing

Craft clusters like Etikopaka have a good international export market. There is good demand for such toys in the export market. The demand for goods in the export market is more than the production. But the demand of the products has reduced in the past few months due to fall of the American dollar. While only about some products reach the local market, around 40% is exported to the countries outside India.

### c) Exhibitions and displays

Apart from local regional fairs there are also many other national level fairs which cater to the craft market. Surajkund fair in Haryana is one of the biggest fairs and is held in February. Artisans are provided markets through these exhibitions and fairs. Only registered artisans are allowed to participate in these events.

## Toys in the local market

### Vishal Mega Mart, Guwahati

Although this shop was mainly a clothing store, it also had a corner which was meant exclusively for toys. According to the manager, they only catered to branded clothing lines but later opened a toy department considering the huge demand. This was one of the reasons why Barbie, Fisher-price toys and Hot-wheels were the most sold items. In spite of the good demand from the customers, the owners have failed to capitalise on the public sentiment. However, the toys have helped in attracting more children to the shops.





### Big Bazaar, Guwahati

All the toys here are bought at their headquarters and are then distributed to all their outlets. They keep a wide range of Toys, board games, action figures and sports goods. The majority of toys here are bought as birthday gifts and they are normally bought at around Rs. 250. The maximum number of toys found here were made by Indian toy industries. The toys ranged from various types of balls, dolls, action figures, board games to infant gift sets, indoor games etc. The prices were also comparatively less as compared to the other shops. One of the reason could be that Big Bazaar buys the toys in bulk from the manufacturers and then sends them across to all their outlets in different parts of the country.







## Liliput, Guwahati

They are mainly retailers for baby products that includes toys and play material. The rationale behind starting the outlet was that they found that parents are ready to spend big amount of money on new born babies and don't compromise when it comes to quality. They also keep some items from U.K, U.S.A and Hong Kong based companies and Funskool, India. The product range includes baby teether, thermometer, building blocks, soft toys, car, tabu-cycle etc. But they don't have any wooden toys in their shop.

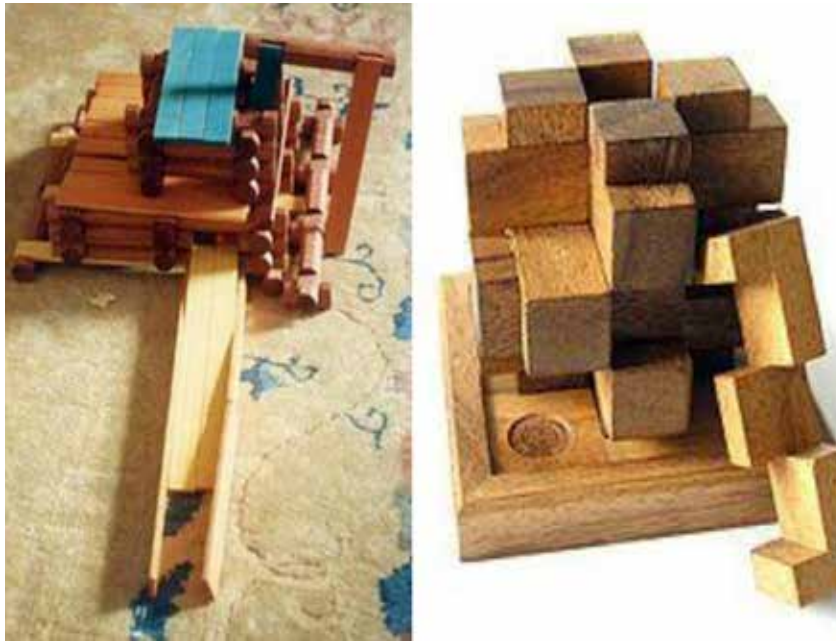




## Pantaloons, Guwahati

Although Pantaloons is primarily known for its clothing, birthday cards, gift items, artifacts, mugs etc; Guwahati Pantaloon was also planning to introduce a new range of toys and games in the market. At present when I visited the shop, only some toys were available but according to the shopkeeper, new toys and games would very soon be introduced. This shows that there is growing need in the market for such items.





## Study of wooden toy design (some world famous wooden toys)

The Greek philosopher Plato wrote that the future architect should play at building houses as a child. A construction set is a collection of separate pieces that can be joined together to create models. Popular models to make include cars, spaceships, and houses. The things that are built are sometimes used as toys once completed, but generally speaking, the object is to build things of one's own design, and old models often are broken up and the pieces reused in new models.

The oldest known mechanical puzzle comes from Greece and appeared in the 3rd century BC. The game consists of a square divided into 14 parts, and the aim was to create different shapes from these pieces. In Iran “puzzle-locks” were made as early as the 17th century AD. During 1742 in Japan, there is a mention of a game called “Sei Shona- Gon Chie No-Ita” in a book. Around the year 1800, the Tangram puzzle from China became popular and 20 years later it had spread through Europe and America. The company Richter from Rudolstadt began producing large amounts of Tangram like puzzles of different shapes, called “Anker-puzzles”.



Kokeshi, Japanese traditional wooden dolls which are made from 200 years ago in mid- EDO era (1603-186). Wooden dolls are generally found in the region- Bath Onsen (hot springs) along the Japan and the vast majority were Tohoku Kadang region. Called the toy/decoration typical of the region Tohoku. Kokeshi shaped wooden doll that resembles a daughter, little girl or woman. Muda- Kokeshi made of wood (cherry tree, tree Mizuki, etc.) and consists of 2 parts of the body, that is body cylindrical/oval, spherical head with no legs. Tangan- Bagian head painted nose, eyes, mouth and hair and also traditional Japanese clothing.





## Some Indian craft toys

### Channapatna-

Channapatna toys are a particular form of wooden toys that are manufactured in the town of Channapatna in the Bangalore Rural district of Karnataka state, India. Channapatna is known as Gombegala- Ooru (toy-town) of Karnataka. Traditionally, the work involved lacquering the wood of the *Wrightia tinctoria* tree, locally called Aale mara (ivory-wood).

### Chitrakoot-

Lacquering wood cluster falls under Uttar Pradesh State in Chitrakoot district. This clusters make wooden toys which are finished by lacquer.

### Kondapali-

Kondapalli village about 25 km from Vijayawada in Andhra Pradesh. Artisans use white sanders wood (a type of soft wood) to make traditional toys.

### Chilkana-

It includes 5 village and falls under Uttar Pradesh State in Sultanpur.



# Indian Toys In The Market





## Wooden Toys In The International Market (Eco- Friendly Toys)





## Analysis: Wooden toys in the National and International market

Safe and Eco- friendly toys are quite popular in the International market. Eco- friendly toys are made from natural, safe materials which do not harm the environment. Eco- friendly toys, also known as green toys, have become quite common. There are certain speciality manufacturers who take great pride in their Eco- friendly products. Some of these manufacturers include the German company HABA, CAM and others.

In India, there are a lot of craft toys available. They are like Channapatna Lacquer toys, Wooden Toys of Dakor, Turned wood craft of Mhowa, Idar, turned wood craft cluster located in Kutch etc. All these crafts are based on wood. Channapatna toys are very famous in India due to its identifying lacquer techniques used on turned wood. The craft of making toys from recycled wood is relatively new and is located in Dakor and some places of Saurashtra, Gujarat.



**The wooden toys in the international market were studied to understand the following:**

- The detailing and joinery.
- The form: radius on edges, geometry etc.
- Movement.

The wooden toys are very well finished with rounded edges and smooth surface. The basic forms are geometric and the joinery is rugged. The mechanisms are simple but interesting. The toys are painted in bright colours yet the wooden texture is exposed as it is the primary material of the toy. The world famous companies like HABA, CAM etc. are using non toxic paints on their wooden products.

#### **Analysis from images**

- The wooden tricycle has very nice structural detailing. The edges are all rounded which makes it look softer. The movement of vehicle is very neatly worked out.
- The different components are joined quite neatly and the joinery is rugged.
- The use of chord for the legs and tail of the caterpillar is done quite appropriately.



## Analysis: Inferences from market study

The majority of toys bought for younger children from retail shops are for gifts. From the view point of price and children, toy kits become important considerations for designing for these markets.

-The market for Eco- friendly toys is increasing internationally. International toy companies like HABA, CAM, HAPE toys are very sensitive by making Eco- friendly and non-toxic toys for children.

-In India as well, Eco- friendly thinking is becoming important part and there is a good possibility of definite market for them.

-There are a lot of possibilities in making wooden toys by using the craft sector, because this sector is very strong in its form and identity. Furthermore this can be exploited in formation of new clusters as well.

-Most of the buyers also demand the cost of the toys should be in the range of Rs. 150 - Rs. 500.

-Wooden toys are not available in North-East region of India. Because Chinese toys are very cheap in cost and easy to find in any kinds of toy shop or stores. Chinese plastic toys have gained a huge market in this region. But people also know that Chinese toys are not good but their easy availability, price and colour are the deciding factors when buying a toy for a child.

From a design and manufacturing point of view, this region has an abundance of excellent quality timber. The real challenge would be to create pride and awareness about indigenous craft. After that the possibilities and opportunities are high for wooden toys regionally, nationally and internationally as well.





## Project significance

a) Children during the critical stage of growth from 3-7 need safe, non-toxic toys which would help them in their overall growth and development.

### b) **Environment friendly sustainable design**

Environment is a growing concern. The increasing use of plastics and other non-Eco-friendly materials especially in toys is a cause of concern because of environmental damage and also because of possibilities of toxicity and safety issues for children. The use of Eco-friendly and sustainable material and processes in toys would help to give a new direction in Toy Design.

### c) **Empowering craft community**

In spite of having over 30 million artisans, India accounts for only 2% of the world trade in handicrafts. Design can be a powerful medium to empower them and provide new markets and avenues for them. It is expected that the new toy designs using “traditional craft process” will help craftsmen to earn more.

## Project vision

The project should help give a new direction to designing of “culturally sensitive and indigenous” toys for children. Children would be provided with safe, non-toxic interactive toys which would help them during their critical stage of growth. The project would also help to create a social awareness about our rich cultural heritage and ethical design practices through the design of these toys. It is expected that the new Toy Designs will help the craft communities in getting a sustainable means of livelihood.

## Relevance of craft

India is a country with over a crore of hand loom weavers and an equal, if not larger, number of crafts people engaged in diverse crafts from pottery to basket making, stone ware, glass ware, handmade paper products and multifarious other utility items made out of locally available materials. Yet, India accounts for only 2% of the world trade in handicrafts despite over 30 million artisans and weavers while China has cornered 17% of the world trade in the same sector.

(Reference: 'Craft As Industry', Jaya Jaitley, 2003)

In spite of the huge diversity in terms of materials and craft skills, the sector faces a lot of problems specially in the area of infrastructural support, design and marketing. This has prevented the development of Indian Craft. My experience of working with the craft sector has helped me to look at designing Contemporary Toys based on these craft skills and sensibilities as a potential area. Design, development and marketing of toys based on these crafts will not only help in reviving the crafts, but will also help in creating awareness about our heritage to the children.

## Phase- 2

Redefined Design Brief

Why Age Group 3-5 Years

Why Wooden Toys

Targeted To Urban Market

## Redefined design brief

To design wooden toys to be made by Baktawng wooden carpentry craft clusters for the children of age group 3-5 years for the urban market.





## Why age group 3-5 years

At this age, child believes that everything revolves around him/her. He/she is the center of their world. The world is full of magic. Children's imagination is working all the time. They are also learning to be a good companion to other children of him/her age.

-Three to five years is the best age for development (pre school age group). This is the age when maximum development happens in terms of fine motor coordination, language skills and visual discrimination.

-Wood as a material has other benefits as well like the weight of the material will help in muscular and motor development of 3-5 years children.

-Tactile senses also developed in these age group. Wood is a natural material which has different tactile feels. But other material like plastic, foam, metals can not give tactile interaction like wood.

-These age group of 3-5 years are very important from the view of safety. They are small and do not know about safety. They can hold any things in their mouth which can be dangerous for them. Thus, wood which is a natural material and non-toxic is very good material for children in this age group.

-3-5 years age group have a tendency to throw around their toys. The plastic toys generally available are made from cheap and unsafe kind of materials, as a result they break easily and can be big health hazard for kids. Compared to this, wood is a far stronger material with added benefits of non-toxicity and completely natural, this makes it a better material for making toys.

**Perspective** (From the view of developmental stages)-

Emotional - Can speak about own and others behavior & consequences.

Pro-Social - Shares and takes turns independently.

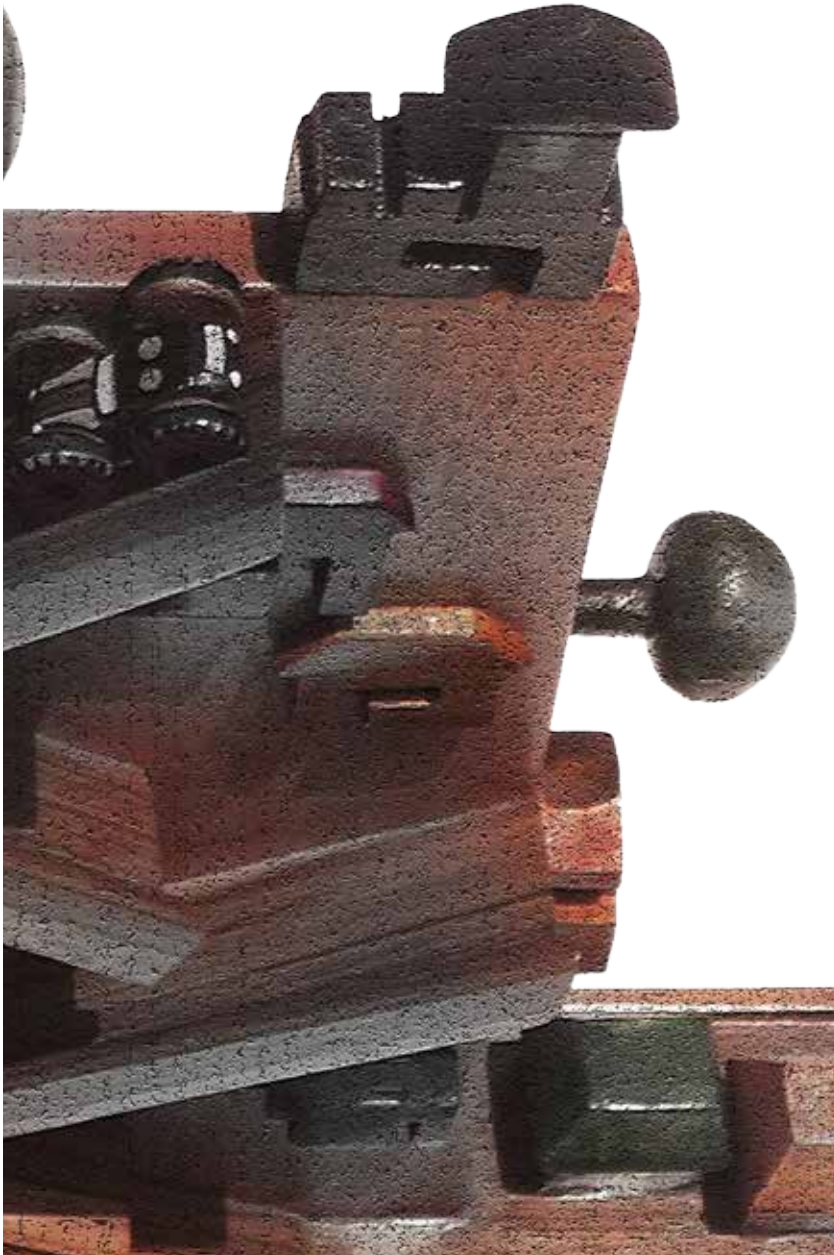
Cognitive - Aware of own strengths & weaknesses. Also can speak about how they have done something or what they have learnt.

Motivation - Finds own resources without adult help and also enjoys solving problem.

## Why wooden toys

From all the research and study, I came up with a list of desirable features for the wooden toys. They are

- The wooden toys are fun to play with for children.
- The wooden toys are safe and easy to maintain. It should not have small detachable parts and the colours (if colour is being used) should be non-toxic.
- Because of easy availability of wood in the region, the cost of the toys could be in the range of Rs. 150- 400.
- The wooden toys have good developmental value, because of most of the buyers (parents). This is one of the deciding factors, wooden toys can play a very important role between target user.





## Targeted to urban market



### Urban Market

Marketing is one of the important parts of product selling. According to my initial brief, my targeted market is “Urban” market. For this, I did a market study of some markets in Guwahati, Aizawl, NIDUS, Ahmedabad, etc. In Guwahati, I also visited Assam Handicrafts stores like Purbashree, Assam Emporium, shopping mall likes Vishal Mega Mart, Big Bazar etc. Apart from this, I also visited Mizoram Handicrafts store, Millennium Mall, Aizawl etc.

- There are good possibilities for Baktawng carpenters who will can make toys from their carpentry skills and sell it in urban market (their existing products are already selling furniture in cities like Aizawl, Shillong and Silchor, Assam).
- They have the required skill level in product making and finishing. Toy making can become an extension to the existing product range and can be instrumental in earning better livelihood for the artisans.



### Proposed markets for the toys-

- Cities like Guwahati, Shillong, Aizawl have their own handicrafts emporium. These establishments can be very good options for selling their products.
- Another option is that they can supply their products to the Mega malls like Millenium Mall, Aizawl, Vishal Mega-Mart, Pantaloon, etc.
- These products can also be sold in NIDUS, National Institute of Design, Ahmedabad.

### Targeted Market Scenario Of Specified Areas





## Studies of Urban market

### (Handicrafts and Mall's toy market)

#### Handicraft markets

Handicrafts products are well finished and price cost of most of the products is not more than 500 Rs. Large products like bamboo furniture and tables from handicraft shop fetch a very good price. One drawback (or otherwise) is that many product do not have colour on their surfaces. Generally only lacquer is used. But it is also looking very good and also reflects the craft very clearly.



## Toy shops on Mall

Toys from Mall's are colourfull. Because maximum products are made from plastics. Wooden toys are not available in the Mall. Apart form malls, small local shops also sell plastic toys.



## **Phase - 3**

Conceptualization Phase

(Concept Generation, Inspirations And Visualization)

Initial Mock - Up Models Of Concept Drawing

Initial Concept Testing

Colours And Colour Palettes

## Concept generation and inspirations

After doing user survey, market study and Artisan profile, I did brain-storming board to further develop my design ideas/concept's generation while incorporating new techniques and innovations.

### Concept inspirations

When I went to study children, I observed how they play and what kind of toys they like. All concepts were thought from the view of safety and easy to play with. Ideas were conceptualized keeping in mind a particular age-group. Moreover, the ideas also took into consideration the skills of the craftsmen in which this craft cluster is based. All concepts are very easy to make using the existing skills of craftsman and their existing tools.



## Brain-Storming On Case Studies



## Selected Keywords Found From Brain-Storming Board :

*IMAGINATION*

*SLEEPING WITH TOYS*

*EMOTIONS*

*THROUGH AWAY*

*DREAM WORLD*

*ROLE PLAY*

*KINETICS/MOVEMENTS*

*SOMETIME TAKES ON MOUTH*

*CREATIVE*

*WATCHING TV CARTOON SHOW*

*PHYSICAL DEVELOPMENT*

*INDOOR/OUTDOOR*

*ROBOT LIKE*

*FUN*

*CHARACTER LIKES*

*NAUGHTY*

*MECHANICAL*

*FUNCTIONAL*

*PLAY WITH FRIENDS*

*LOW COST*

*JOYFUL*

*CONSTRUCTION CAR / JCB / TRAIN*

*LIKE TO PUSH / PULL*

*MOTOR SKILL DEVELOPMENT*

*NO SPECIAL PLACES FOR PLAY*

*EDUCATION/LEARNING*



## Concept Visualizations

### Matching Play

This simple round character blocks could be of three different diameters and heights. Each piece can have different heads/characters. Also the blocks have to be colour coordinated to fit in the stipulated slot.

Other is a car, where the user can put human characters in a particular space designed to fit only that.

### Learning

**This two concepts will help the child in finger manipulation, colour matching through learning, hand grip and imagination.**

### Inspiration

This concept came to my mind when I did the user survey and see how kids hold the toys with their hand and put it in different places. I found that this activity (holding of the toys) will also help the kids to develop motor skills apart from colour coordination and finger manipulation.





## City Play

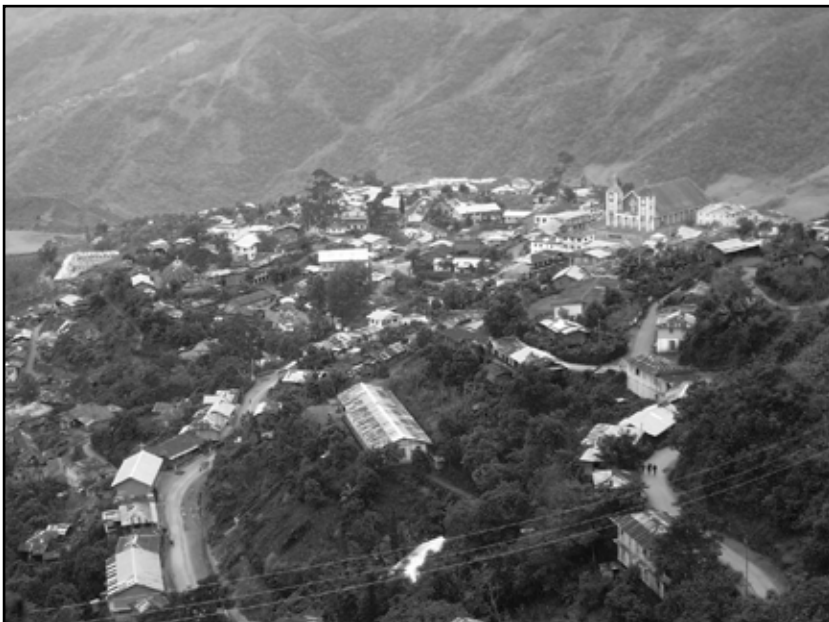
This is a toy children where they can construct their own imaginative city and can run their car in it. There are three elements in this toy, the building blocks, the road and the car. Different building blocks can be chosen from the set and stuck on the vertical board using magnets. The roads can also be attached using the same method. Then when the car is released from the top, it races down the hill though the city.

### Learning

**This will help child in creating structures, imagination in making the city. User group can also enjoy racing the cars on the road in the toy. This toy can be played both in and outside of the house.**

### Inspiration

The inspiration for this toy came to me when I was travelling to Baktawng by a car. I saw the villages of Baktawng situated on top of a hills and roads that linked them.







## Fun With Animals

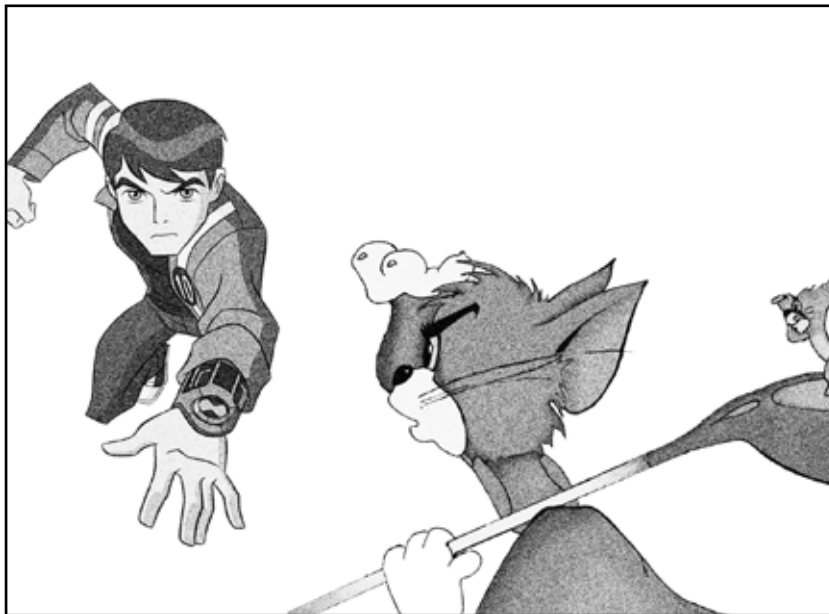
The idea was to make this toy set modular. The different parts can be attached to one another to make figures of different animals.

### Learning

This will help child in finger manipulation, imagination and increase their knowledge about animal kingdom.

### Inspiration

This idea of funny toys concept came from the animated Tv programmes with the characters being animals. As kids love these characters, they could use this toy set to role play and in the process learn about animals and develop motor functions and other important physical and mental development.





## Construction Car Kit

Wooden construction car like JCB, ROLLER, CRANE etc. User can play on their own way through these kind of toy ranges. All construction car's part can be moves.

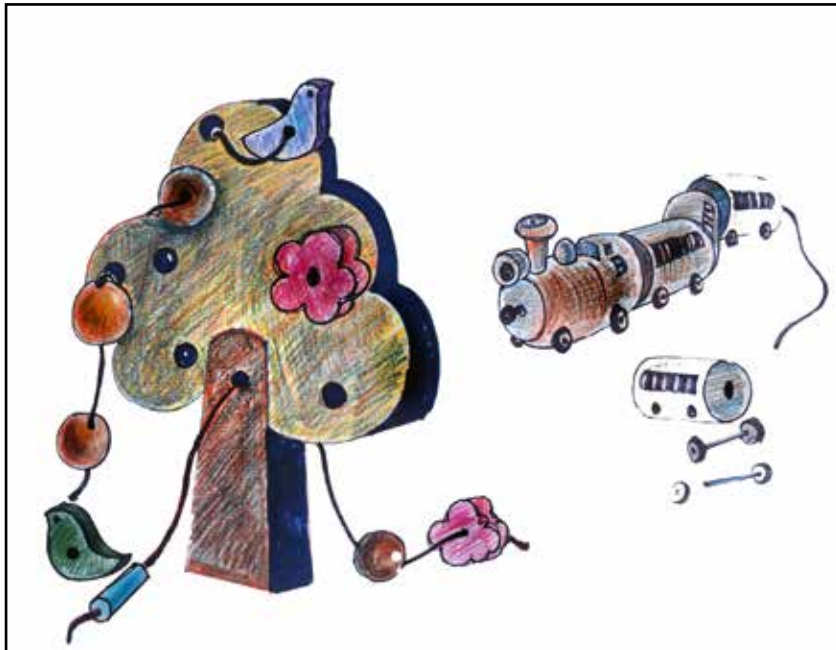
### Learning

This will help child in role playing and also play both inside or outside. They also can create their imaginative city on clay and play their construction car in the city.

### Inspiration

This concept is inspired from user's likeness of construction car kit. They are playing with construction car kit like JCB, Dumper etc. Construction car kit toys help me to come up with this idea. User group can play with these toy in their home and outside of the home.





## Fun With Lacing Tree

Wooden piece is cut as shown and holes are drilled on both sides. The child has to use given thread and lace the holes as shown and create flowers and birds on it.

Another is a train which has also some holes, from where user can attach the wagon of train.

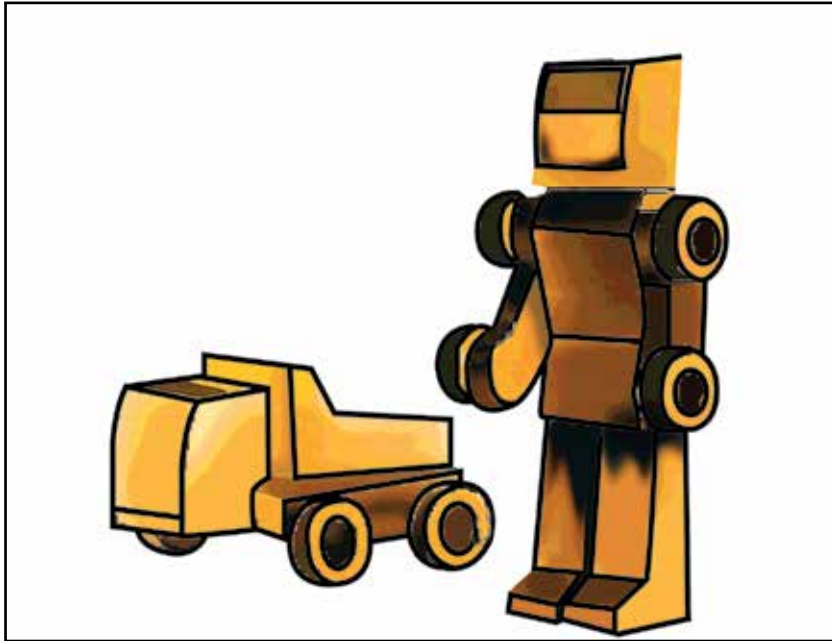
### Learning

This will help child in learning hand skill manipulation, daily activities like shoe lacing in a fun way.

### Inspiration

This idea has come to me from my travels to Mizoram where I saw a lots of tree where birds were sitting on the tree. Child also likes nature. So, I think to bring this reality to toy where user can put birds, flowers and fruits on the toy tree and also enhance to develop their daily activity like lacing shoe, etc.





## Trans Toy Kit (Transformer Toys)

Wooden transformer toy kit where children can manipulate their toys to a robot, to a car etc. Here user can find their car and robot with characters both. They can not buy cars and robot individually because it can manipulate in both e.g. car and robot. It also very easy to manipulate one to another because of its simple wooden joineries.

### Learning

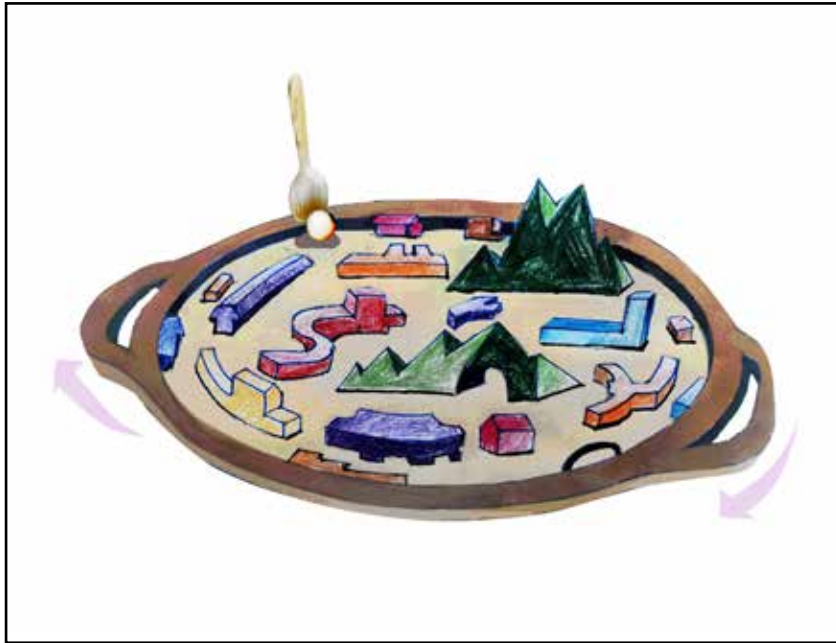
**This will help child hand and finger coordination, imagination, creating structures when manipulate this range of toy kit.**

### Inspiration

This idea has come from user's like of robot kind toys. User group has a lots of robot kinds toy which inspired me to come up with this idea. User has main problem is that they has not special area for play with their toys. This idea of Transformer toys has solve their problem of space and also do not buy toy like car and robot separately. Because this robot can be modified as a car.







## Balance Play Kit

Wooden balance play set where children can move the ball between the city. There are some maze towards the road to final point. It can be play by using of both hand by doing up-down the playground or by push the ball by wooden spoon.

### Learning

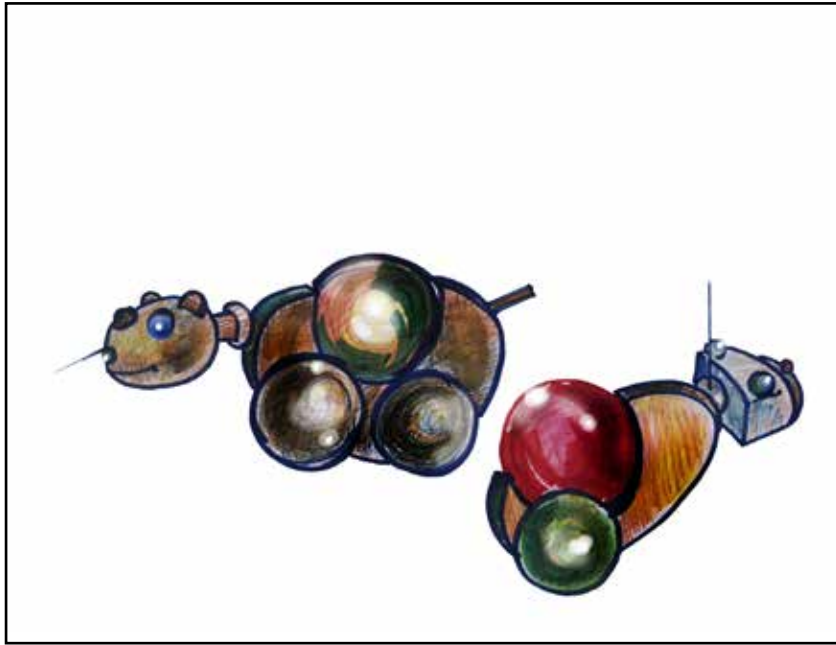
**This will help children's body coordination, movement of their body (physical and mentally both) to achieve their target.**

### Inspiration

Idea of balance play kit has come from the user's own dream world where they created their imaginary city on clay. I put this dream city on a simple wooden board where wooden buildings, hills, tunnel are available. Just user will put their target ball in the particular place and moves the board by their hand. They can feel fun and enjoy with this toy kit when wooden ball is moving on the board to its target point. This kit can be played both inside and outside of the home.



## Charactmotion (Character + Motions)



As the name suggests, this toy is a combination of both a character and an induced motion in the character by movement of the toy. The idea for this toy came from seeing how children are fascinated by the characters they see in the television. I wanted to use this affinity and add to it a physical and mental activity so as to add to it some value missing, as in the case of television. This toy consists of a handle and a wooden stick to which characters (developed by me as well) are added. These characters are interchangeable, which has to be achieved by matching the colour of the character. When the handle and the stick is pushed, the character balls up and down. This toy can also be played by pulling the object using a string in case the length of the stick is not of appropriate size for the child.

### Learning

**This toy would help children in developing necessary motor functions, muscular strength, hand eye coordination, colour differentiation as well as finger manipulation.**



### Inspiration

Idea of this toy will come from the motion of the toys which user has exist. User group likes to play with motion toys and they have a habit to see animated characters like Bentan and Tom & Jerry show etc on TV's. I mixed both motion and characters (head which can exchanged with each other character). This also can be played with pull the strings or push by hand. Name also suggested from combined of two words character and motion (charactmotion). Characters are developed by me and not looking like as same as Bentan or Tom & Jerry show's character.



## Push Character Car

Wooden pushable character car for child, where children can change the head of the characters. There are different kind of head and fan which children can change and push it by running.

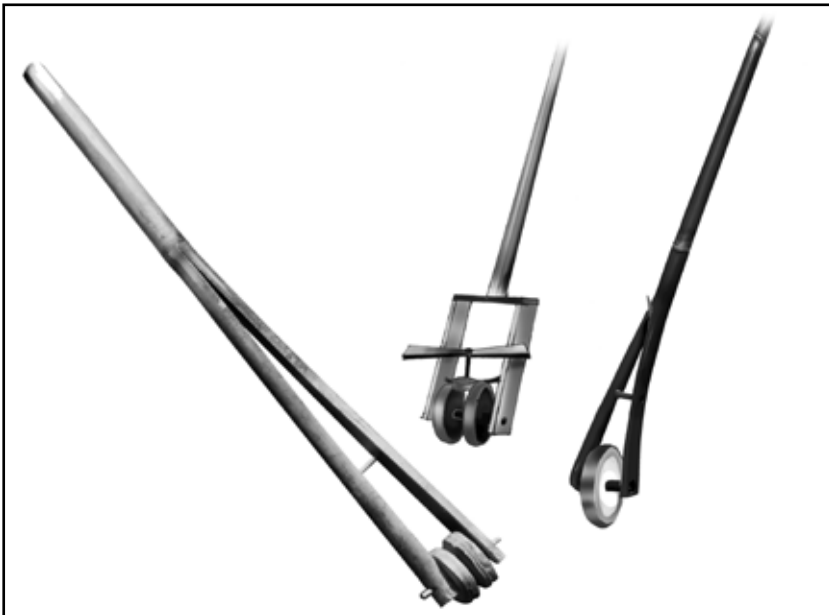
### Learning

**This will help child hand and eye coordination, imagination when change the character (heads) and also develop body movement of the user when it is running.**

### Inspiration

Wooden pushable character car, which idea has come from the traditional push toys which are not available today. Wooden pushable toys were available in the North- East region before 15 to 20 years ago. This idea will help to promote and rediscover traditional toys again, with a new identity.

(Note: known from the user's parents and also I visited to see this push toy in local mela, but it is not available now-a-days. Sometime bamboo push toys have been seen in the villages of Assam, Manipur, Megahlaya etc.)

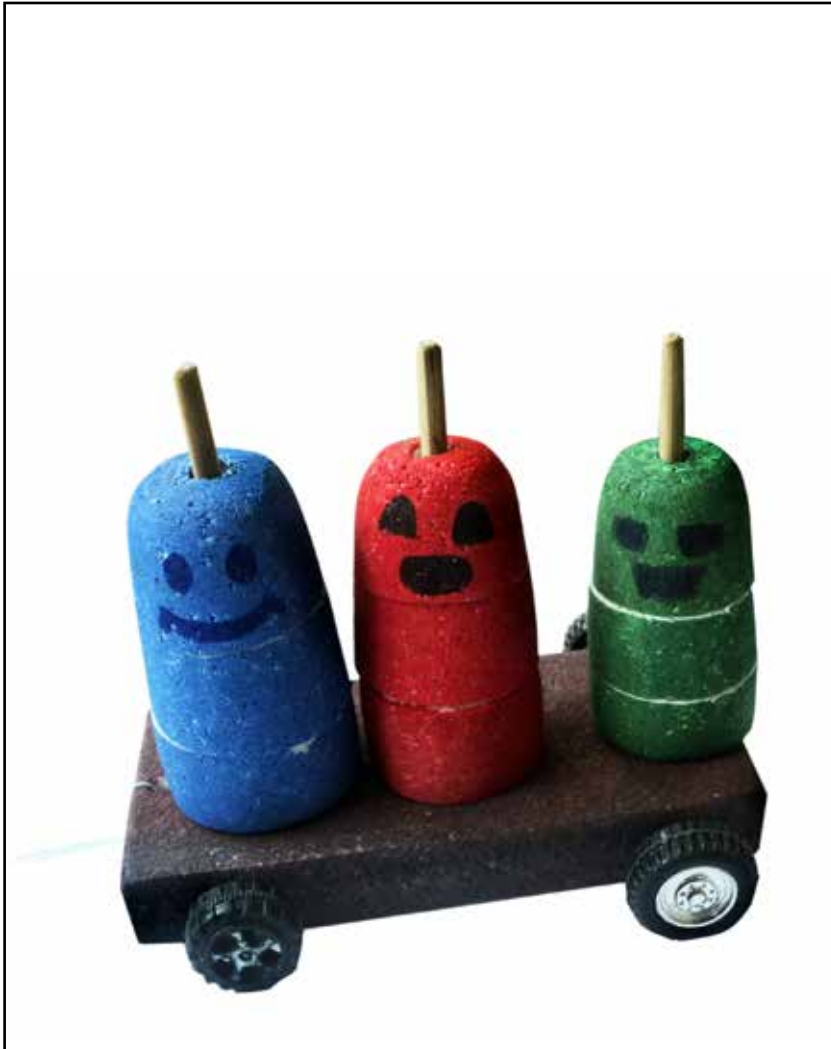


## Initial mock - up models of concept drawing

Initial models were made in thermocol. This helped me to get an idea of the shape, an idea of the dimensions, the form in terms of radii manipulation, detailing etc. It also helped in my initial concept testing on the target user group.



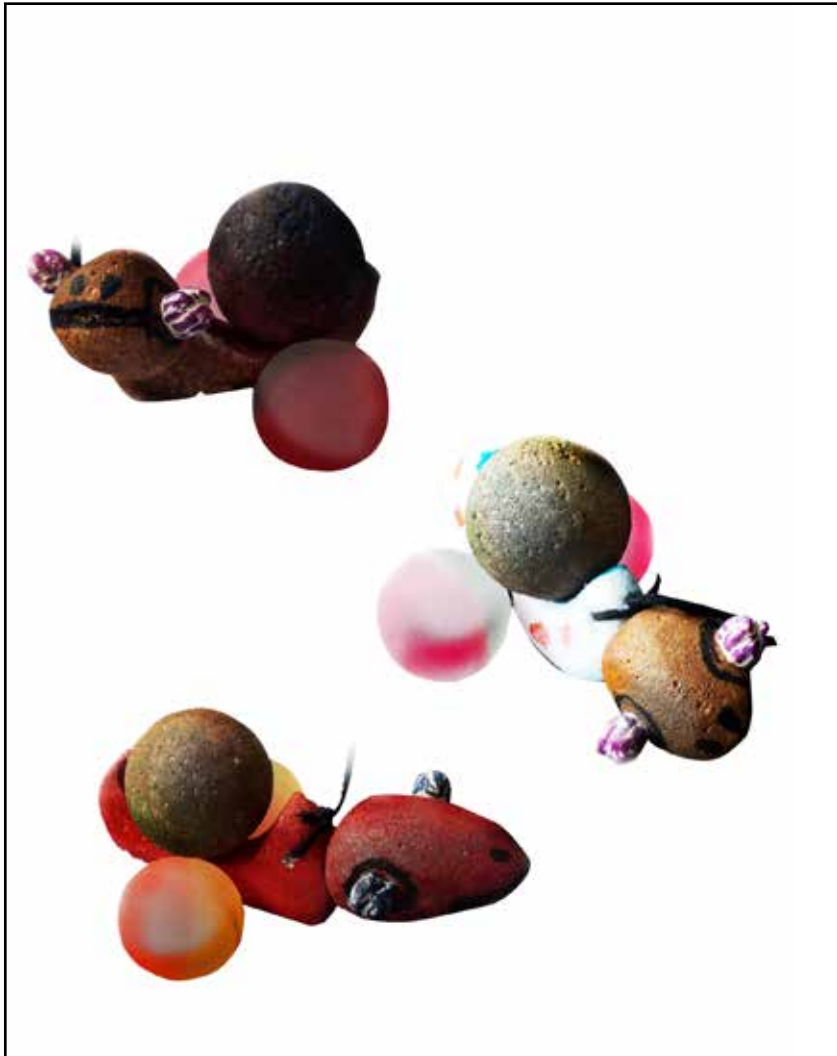




Matching Blocks



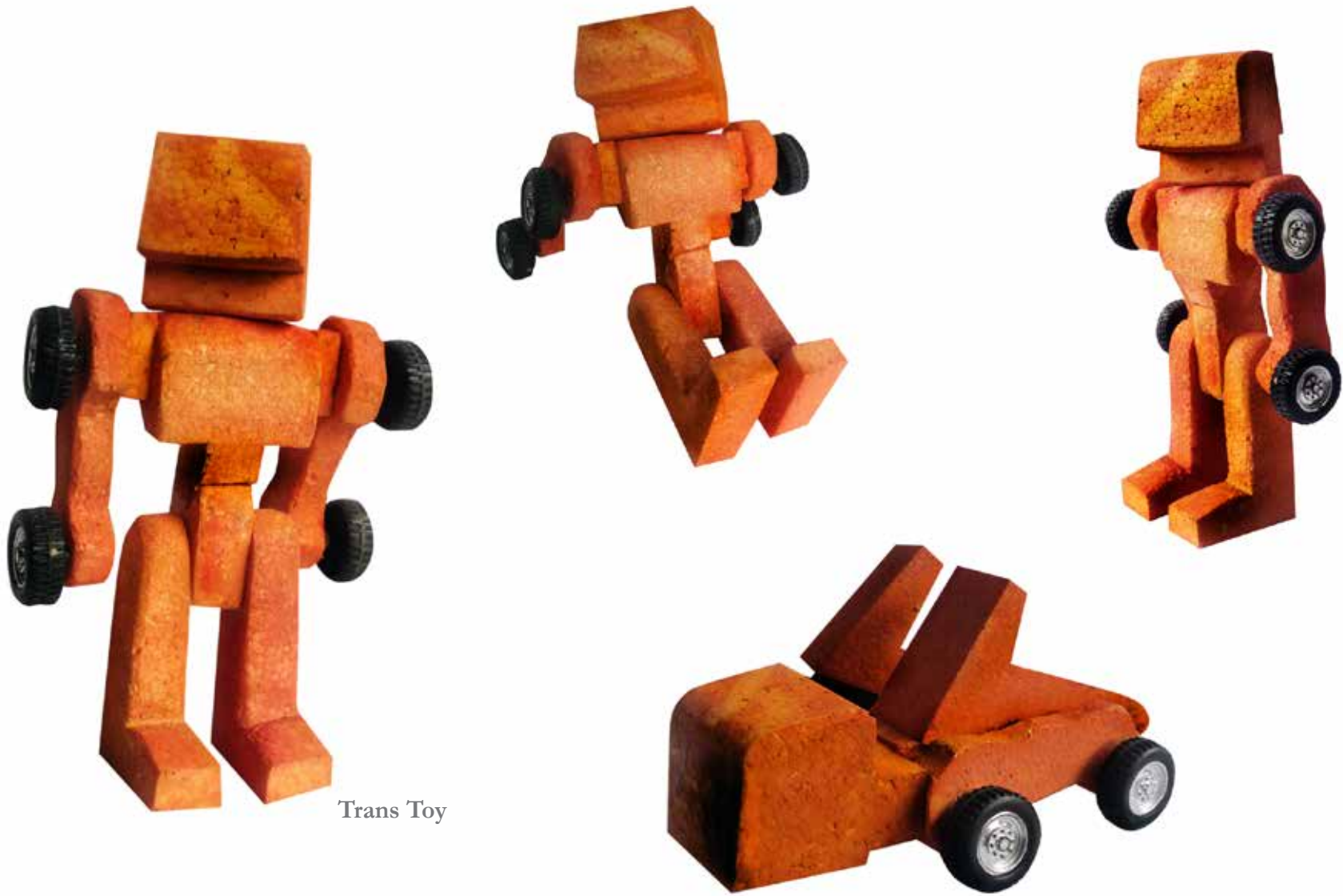
Fun lacing tree



Charactmotion toy



Construction car



Trans Toy

## Initial Concept Testing

After making the thermocol mock - ups and finishing them with acrylic colour, I visited the homes of my target user group and also invited some children to my house to observe them more closely.





## Initial Concept Testing

### Test 1

Dhiman : 3 years

#### A. Testing of toy - Matching blocks

He is matching the form and colours very sincerely and concentrated. He manages to do it on his own.

- The gap between three characters need to be wider
- The holes should be slightly bigger
- The child is able to use both hands at the same time

#### B. Testing of toy- Charactmotion toy

Here, he is pulling the toys and also put the balls on character's top and enjoying the motion of the toy.

- The balls should be slightly bigger

#### C. Testing of toy- Construction car

He is playing with construction car. He played with it and sometime moving the parts of the construction car.

- The car's movable parts should be easy to move
- The child is able to grip the car in hand

#### D. Testing of toy- Fun lacing tree

He was very sincere and studious and wanted to do the lacing on his own. The gap between the model's holes was small but still he managed to do the lacing and put elements on the tree without any help.

- The holes should be slightly bigger
- The child is able to use both hands at the same time to lace



## Test 2

Gauranga : 4 years

### A. Testing of toy - Matching blocks

He is matching the form and colour and plays with it very interestingly. He is very curious when matching the character blocks and able to put the characters on a proper way of direction.

- The child is able to use hand coordination and can match colour pattern at the same time
- The child can move the characters with car very simply

### B. Testing of toy- Charactmotion toy

Here, he is pulling the toys very easily.

- The child is very interested to play and see the character's motion when it was moving

### C. Testing of toy- Construction car

He is playing with construction car. He played with it and sometime moving the parts of car. He also moves the car holding the crane part of the car.

- The cars movable parts should be easy to move
- The child is able to move the car easily and can do up /down the crane part of the car.

### D. Testing of toy- Fun lacing tree

Gauranga was lacing and put elements on the tree without help from other. He is able to lace flowers and birds on the tree using of the whole.

- The holes need slightly bigger size of the toy
- The child is able to use both hands with proper coordination at the same time when lacing



### Test 3

Biman : 5 years

#### A. Testing of toy - Matching blocks

He is matching the form and colour and also moving the car with characters very easily. He plays with it very interestingly.

- The child is able to use both hands at the same time
- The child can play both matching colors and moves the car

#### B. Testing of toy- Charactmotion toy

Here, he is pulling the toys and find some funny when he played with the motionable toy.

- The child is very curious about to play and see the character's motion when it is moving

#### C. Testing of toy- Construction car

He is playing with construction car. He played with it and sometime moving the wheel parts of the construction car.

- The car movable parts should be easy to move
- Child is able to play with the car very easily
- Child creates some sound of the car (like bhowwwm.bhowwwm..) when he was playing

#### D. Testing of toy- Fun lacing tree

Biman was lacing and put elements on the tree without any kinds of help from other.

- Holes need slightly bigger size of the toy
- Child is able to use both hands with proper coordination at the same time when lacing





## Test 4

Nupur : 5 years

### A. Testing of toy - Matching blocks

Nupur can able to match the form and colour of the characters and set on their proper place. He plays with it very easily.

- The child is able to play easily and put the characters on the proper way
- The child can match with both characters

### B. Testing of toy- Charactmotion toy

Nupur is pulling the toys very fast and find playfulness on this motion toy. He likes the movement of the ball when it is moving.

- Child can play with this toy very easily and also run along with the toy when it was moving

### C. Testing of toy- Construction car

He is playing with construction car. He pull the car on its crane part and moving it from one to another place.

- Child is able to play with the car very easily
- Child can move the car from any side

### D. Testing of toy- Fun lacing tree

He was lacing and put elements on the tree very easy. He was able to lace the birds and flowers on the tree.

- When lace the birds and flowers, his total attention goes on it. He is able to coordinate both his eyes, hands and fingers in a same time





## Test 5

Nihar : 5 years

### Testing of toy - Trans toy

He is playing with the transkit very well. He is able to moving the body of the transformer and can modified it to a car well.

-The child is able to use the coordination of the both hand and also his brain when he is convert the transformer to a car

-The child can play with the transformer kit very intelligently and clearly. From this observation, found that he is very curious when he is playing with this kit





**User Interaction with the Toys**

## Colours and Colour palettes

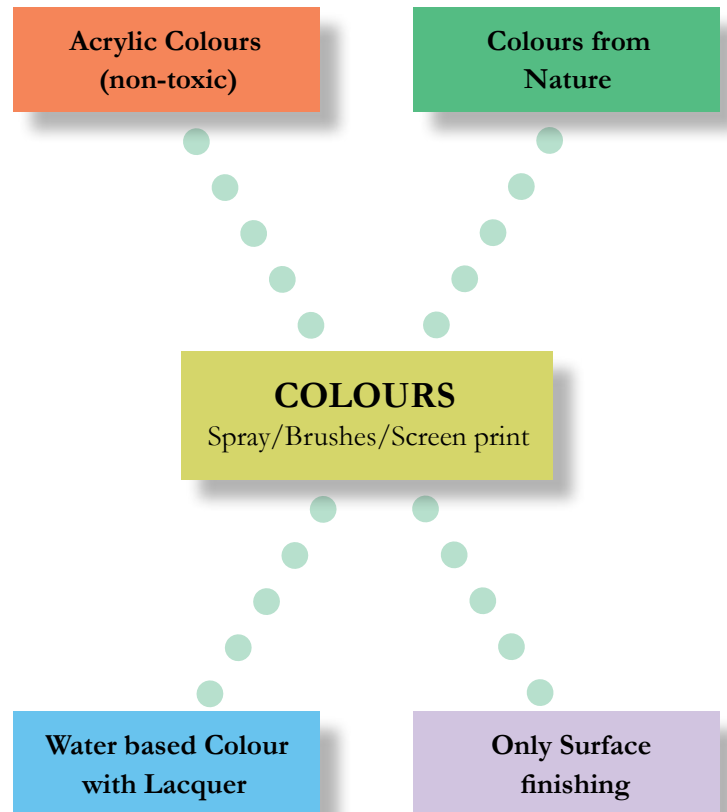
### Coloured finishing for the products

Colour is a big issue when it comes to Baktawng carpentry clusters, Mizoram. Baktawng artisan do not use any colour except polishing and for that too they used only Melamine polish and varnishes on their products. Sometimes they also use Lacquer as the final finish on the finished product.

Colours form an integral part of the experience of play and games and I wanted to use non-toxic colour. Another option would be leave the products as they are with only protective coating.

### Mood boards

I made a mood board for the colour palette. I used user's toys images, Baktawng carpentry's working images, nature, Mizoram's traditional apparel colour, user's different moods etc. as the elements of the mood board.



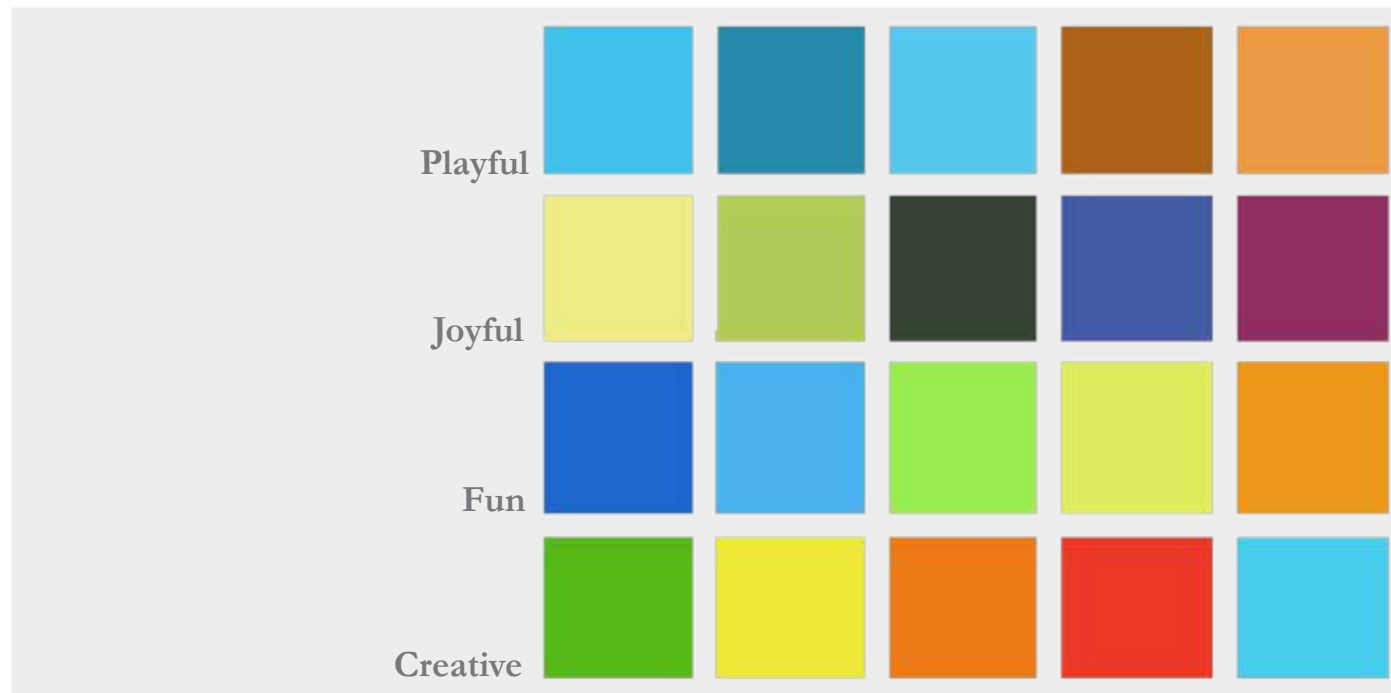
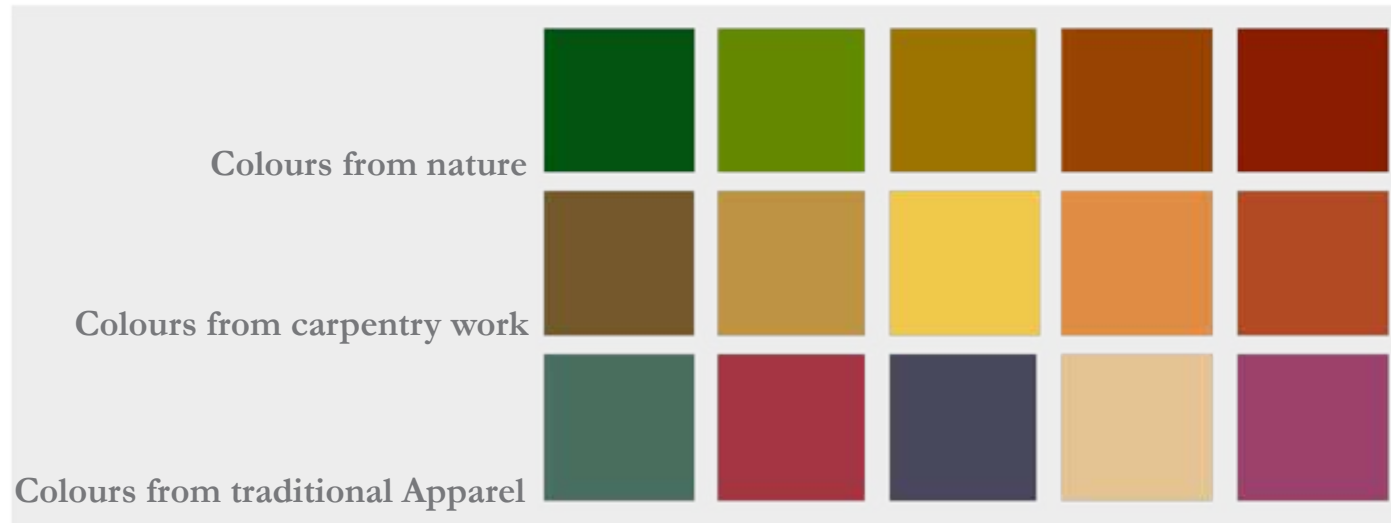


# Mood Boards For Colour Application On The Final Products

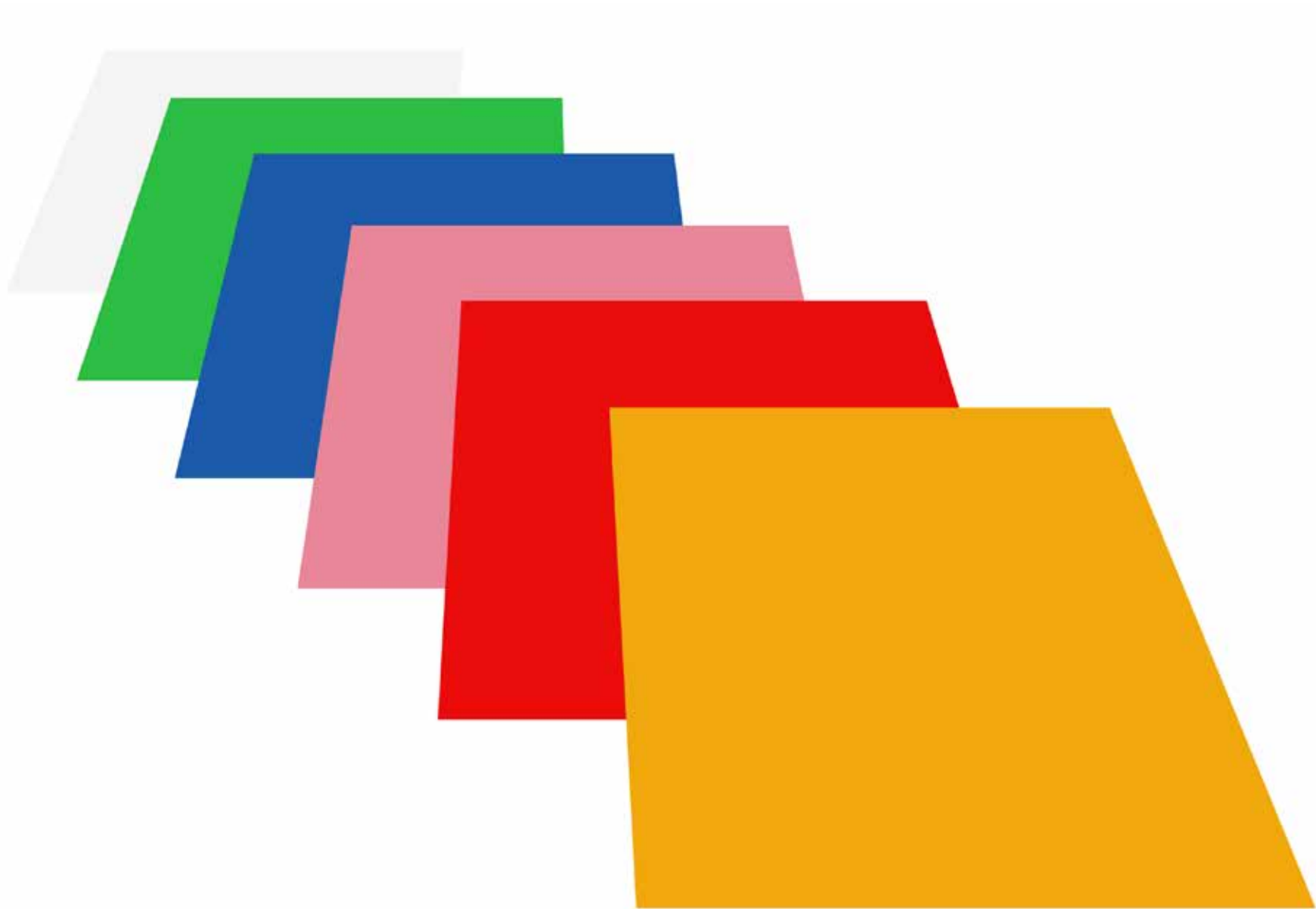




### Colour Palette Derived From Mood Board



## Colour Palette For Final Products



## Colours made from natural elements-

**Yellow colour** - Turmeric powder

**Saffron colour** - Pear tree bark

**Orange colour** - Onion skin

**Green colour** - Red onion skins, lily flower or mixing of  
Indigo and Turmeric powder

**Deep brown colour** - Walnut bark

**Blue colour** - Indigo plant or powder

**Red colour** - Hibiscus flower

(Note- Turmeric powder + vinegar (white), 1 tea spoon = Yellow colour

Indigo powder + vinegar(white), 1 tea spoon = Blue colour

Khoiar + vinegar (white), 1 tea spoon = Pinkish Red colour)

## Different Sources of Colour | Natural Finishes



Khoiar (kattha)



Indigo powder



Turmeric (haaldhi)



## Colour Applied On Wooden Surfaces



Turmeric with vinegar=Yellow colour



Khoiar with vinegar(white)



Indigo with vinegar(white)=Blue colour



Surface finishing

## Artificial Non - Toxic Colours



Acrylic colours



Water colours

## Acrylic And Water Colours Finish On Wooden Surfaces



Water colour



Acrylic colour

## **Preparation techniques of the natural colours for wooden surfaces**

Yellow dye is made by boiling the herbs (mentioned in the table) until they reach the desired yellow colour. To make orange and green dyes, use 3 to 4 handfuls of the herb and boil it until it reaches the desired colour. When making deep brown or blue, soak the ingredients overnight and then boil the water in the morning. Every dye needs white vinegar 1 tbs. as vinegar is the acid that helps set the dye on natural fibers such as wood. (Note- Paint the wood with the natural dye by applying as many coats as necessary. But each coat has to be dried first before applying the next coat)

### **Acrylic paints**

Acrylic paints are non toxic. It can be used as colour for the toy design of the finished product.

### **Water colour**

This paint finish is water soluble. The method is to apply the coats over and over again till get desired stained look. Toys painted with water colours should be sealed to keep the colour fast for a longer time as they have the tendency to fade quickly.

### **Surface finishing**

Wooden surface can finished by sanding, polishing and can use lacquer as the final coat. After surface finishing, the grain and textures of the wood are can be seen clearly.



# Phase- 4

## Finalized Concepts

Hill Toy Set  
Traditional Toy Set  
Trans Toy Set

## **Finalized Concepts**

The feedback I got from the experts and guide, helped in the selection of the concepts for further detailing and refinement. The initial testing with the children was also very critical in getting an understanding about the overall dimensions and critical features of the concept. I mixed up some initial design ideas on some of my final products.

I made three different toy sets for the range. They are-

**HILL TOY SET**

**TRADITIONAL TOY SET**

**TRANS TOY SET**

## Hill Toy 1

Children can drive their car from the top to the bottom of the hills through the houses and buildings. It was designed to enhance 'Role - play'. Moreover, it can be played both indoor and outdoor.



## Hill Toy 1- Concept Explorations



Drawing of Mizo hills as inspiration



Abstraction for the Design Concept



### Hill Toy 1- Concept Explorations



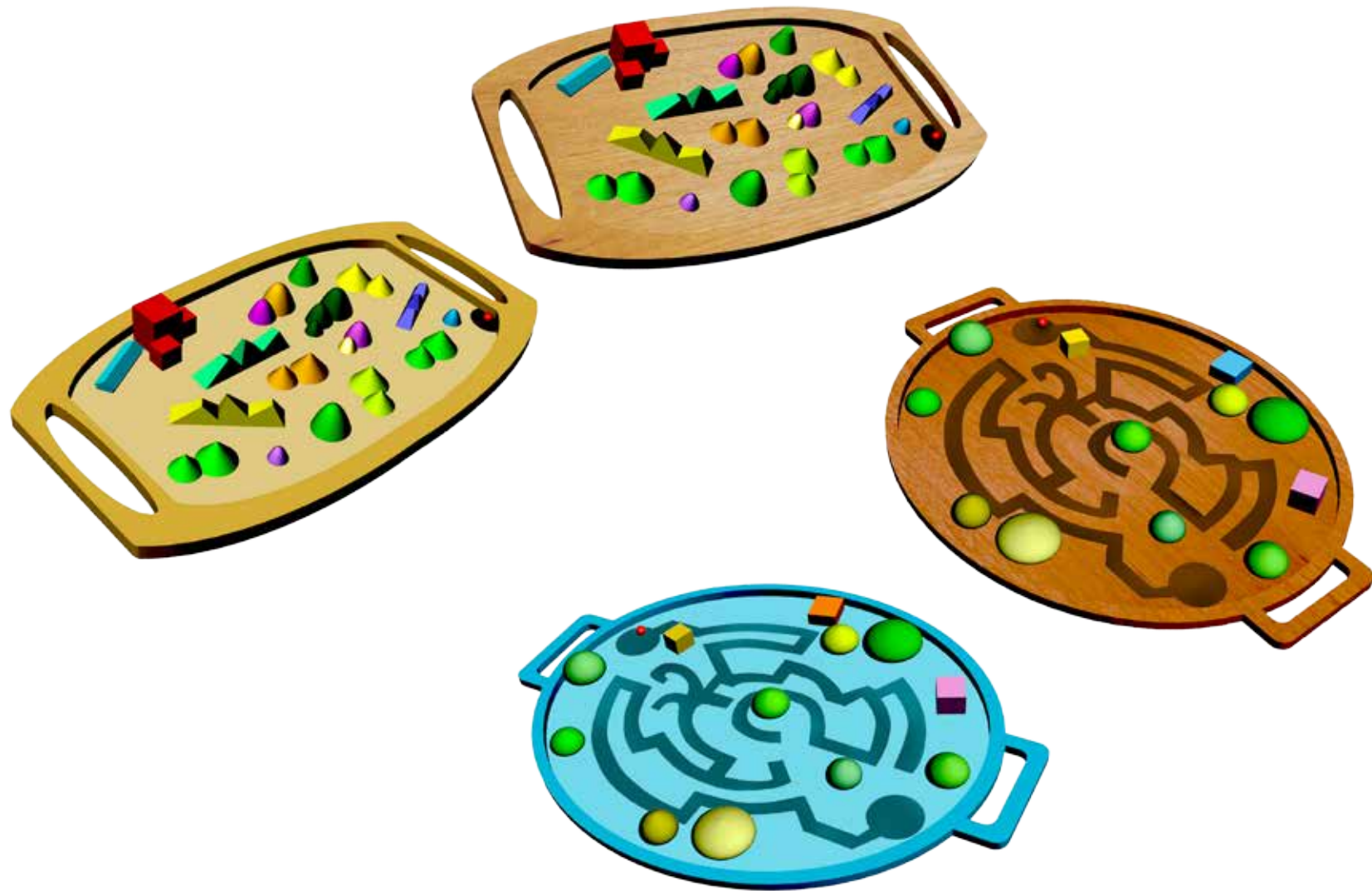
## Hill Toy 2

In this concept children have to move the ball from one place to another by moving between houses and the hills. When Target User is group playing with this toy, he/she will concentrate to move the ball by moving the play board and coordinate with their eyes.

It will help in developing their hand-eye coordination, imagination and decision making.



## Hill Toy 2- Concept Explorations



### Character Toy 1

The idea was to integrate the traditional with the contemporary. It would help the child develop better hand-eye coordination, motor function, decision making without losing its charm as a toy.

### Character Toy 2

This is a variation of the first concept with a different character on top.





## Character Toy 1- Concept Explorations

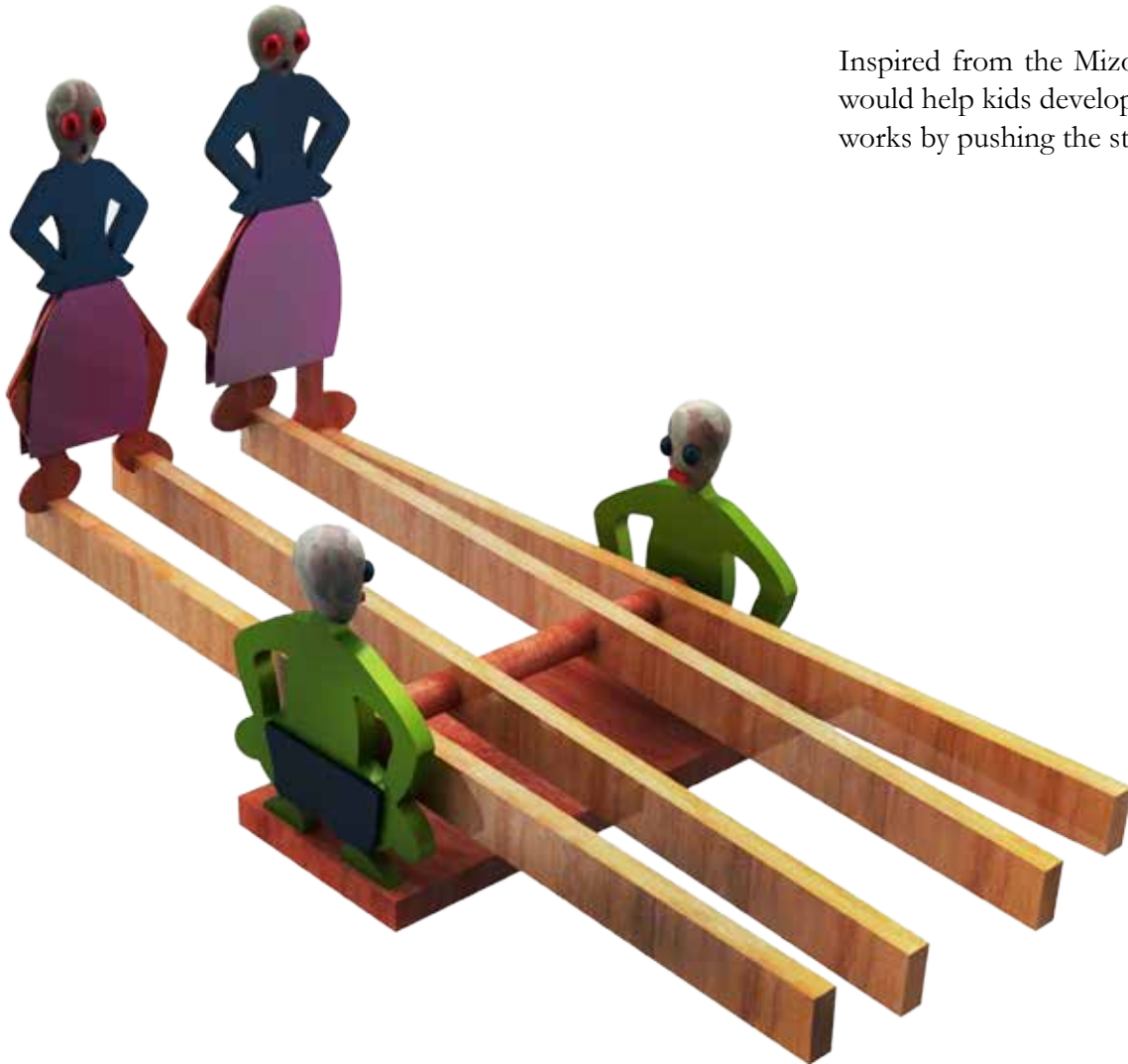


## Character Toy 2- Concept Explorations



## Mizo Dance

Inspired from the Mizo bamboo dance and further explored it to develop a toy that would help kids develop finger and eye coordination and finger manipulation as well. It works by pushing the sticks like a piano reed.





## Mizo Dance Concept Explorations



Mizo bamboo dance and its toy form

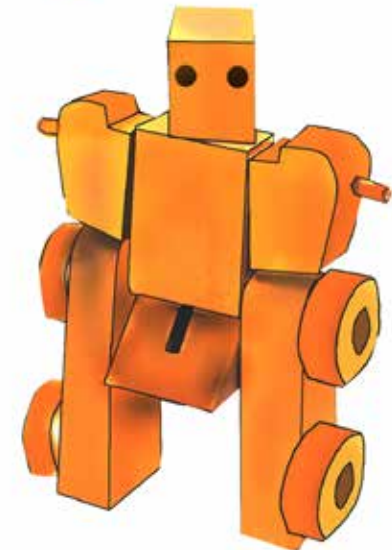
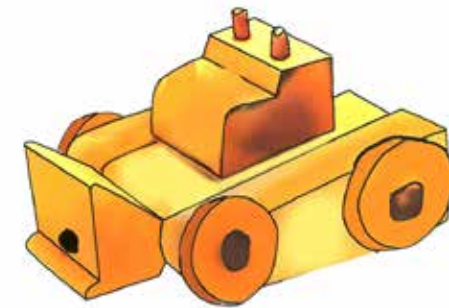
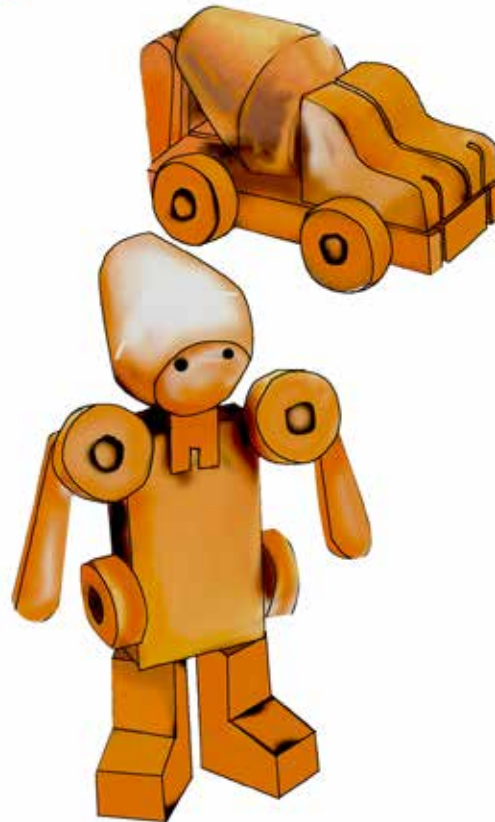
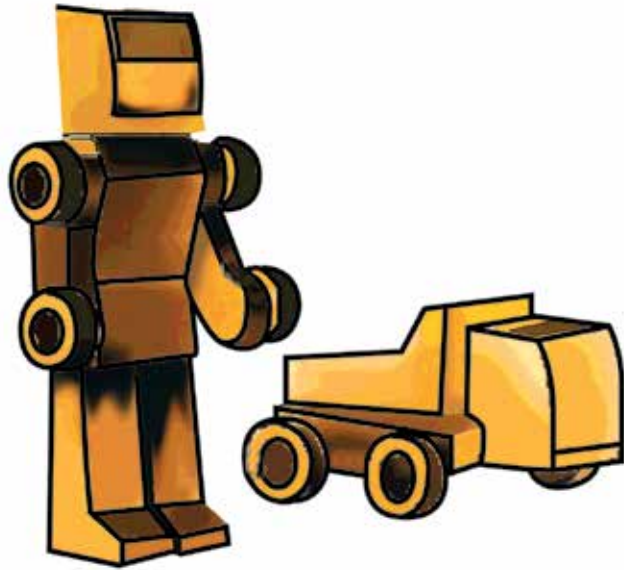


# Mizo Dance Concept Explorations

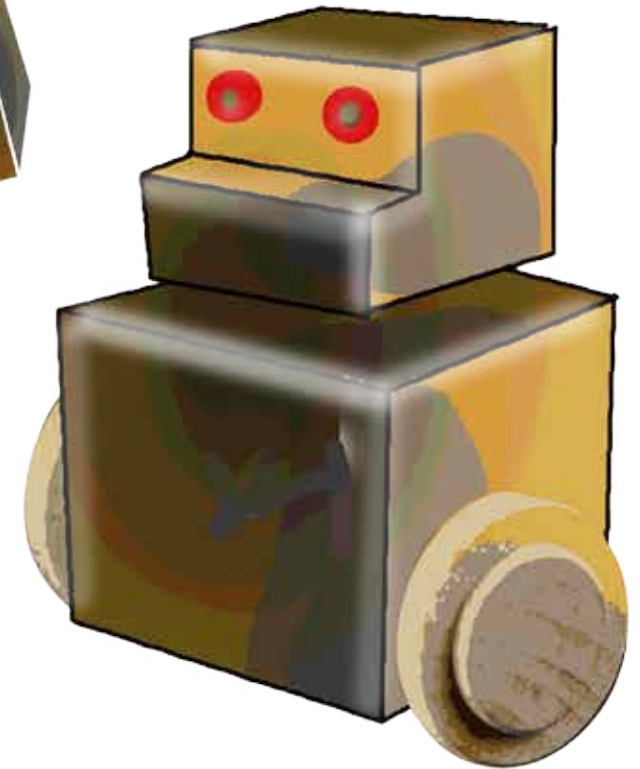


## Trans Toy Concept

The concept was to incorporate multiple characters in a single toy. The idea has come both from the user's likeness of robot and construction cars. The robot can be modified and converted into a construction truck and back with little movements. User will use their creativity to play with this toy. This will also help kids to develop creativity and imagination and also enhance role play. Moreover, it can be played both indoors and outdoors with friends or alone.



## Trans Toy Concept Explorations



## Trans Toy Concept Explorations





## Trans Toy Concept Explorations



# Phase- 5

## Making Prototypes & Process

Tools  
Process Of Prototypes Making  
Technical Details



## Tools

The following tools and machines were used by the craftsmen to make the prototypes.

### 1) Lathe Machine

The lathe is the main tool used by the craftsman. It is a machine on which a rapidly rotating piece of wood is shaped with a chisel or tool bit to create objects with rotational symmetry such as cones, cylinders, spheres etc. The material is held in place by either one or two “centers”, at least one of which can be moved horizontally to accommodate varying material lengths. The lathe may be a motorized (driven by an electric motor).

### 2) Circular Saw

This is a table-mounted metal disc or blade with saw teeth on the edge as well as the machine that causes the disk to spin. It is used for cutting larger wood into smaller pieces. Today they are almost exclusively powered by electricity.

### 3) Jig Saw

A jigsaw is a tool used for cutting arbitrary curves, such as stenciled designs or other custom shapes, into a piece of wood, metal, or other material. It can be used in a more artistic fashion than other saws, which typically cut in straight lines only. In this way, it is similar to the rasp and the chisel. Although a jigsaw can be used to cut arbitrary patterns, making a straight cut freehand is difficult even with a guide.

### 4) Power Drill

Power Drill machine are used for drilling on prototypes. Different sizes of drill bit are used for drilling.

### 5) Angle Grinder

Angle Grinder (small size) are used for grinding on the surfaces of prototypes. It also helped to buff and sand on wooden surfaces of the prototype.

### 6) Table Grinder

Table Grinder are also used for finishing on the surfaces of the wooden prototype. This tools are powered by electricity.

### Other tools for prototype making

Other tools like Hack-saw, different kinds of file (round file, flat file, triangle file), hammer, cutter, chisel are used in making and finishing the prototypes. Finally sand paper is used to get a much smoother surface before the product is taken for painting.





## “Character Toy 1” Making Process



Character Toy 1 - turning on Lathe



Character Toy 1 - wheels cutting on Lathe



Character Toy 1 - sanding on Lathe



Character Toy 1 - wheels sanding on Lathe

## “Character Toy 1” Making Process



Character Toy 1 - stick turning on Lathe



Character Toy 1 - hand cutting on Lathe



Character Toy 1 - stick sanding on Lathe



Character Toy 1 - hand finishing on Lathe



## “Character Toy 2” Making Process



Character Toy 2 - sanding on Lathe



Character Toy 2 - sanding on Lathe



Character Toy 2 - cutting on Zig Saw



Character Toy 2 - ball Varnishing

## “Mizo Dance” Making Process



Mizo Dance - cutting on Zig Saw



Mizo Dance - body parts for assembling



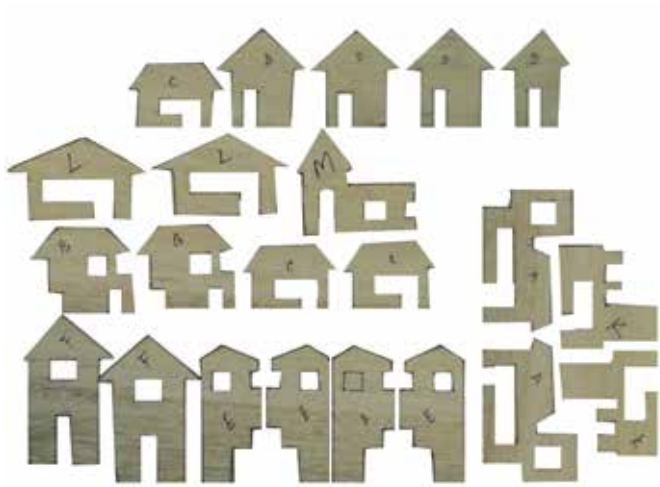
Mizo Dance - cutting on Zig Saw



Mizo Dance - details of Zig Saw's cutting



## “Hill Toy 1” Making Process



Hill Toy 1 - drawings of the wooden pieces



Hill Toy 1 - body parts ready for varnishing



Hill Toy 1 - cars after final finishing



Hill Toy 1 - body parts ready for assembling

## “Hill Toy 2” Making Process



Hill Toy 2 - cutting on Zig Saw



Hill Toy 2 - body parts after Varnishing



Hill Toy 2 - cutting on Zig Saw

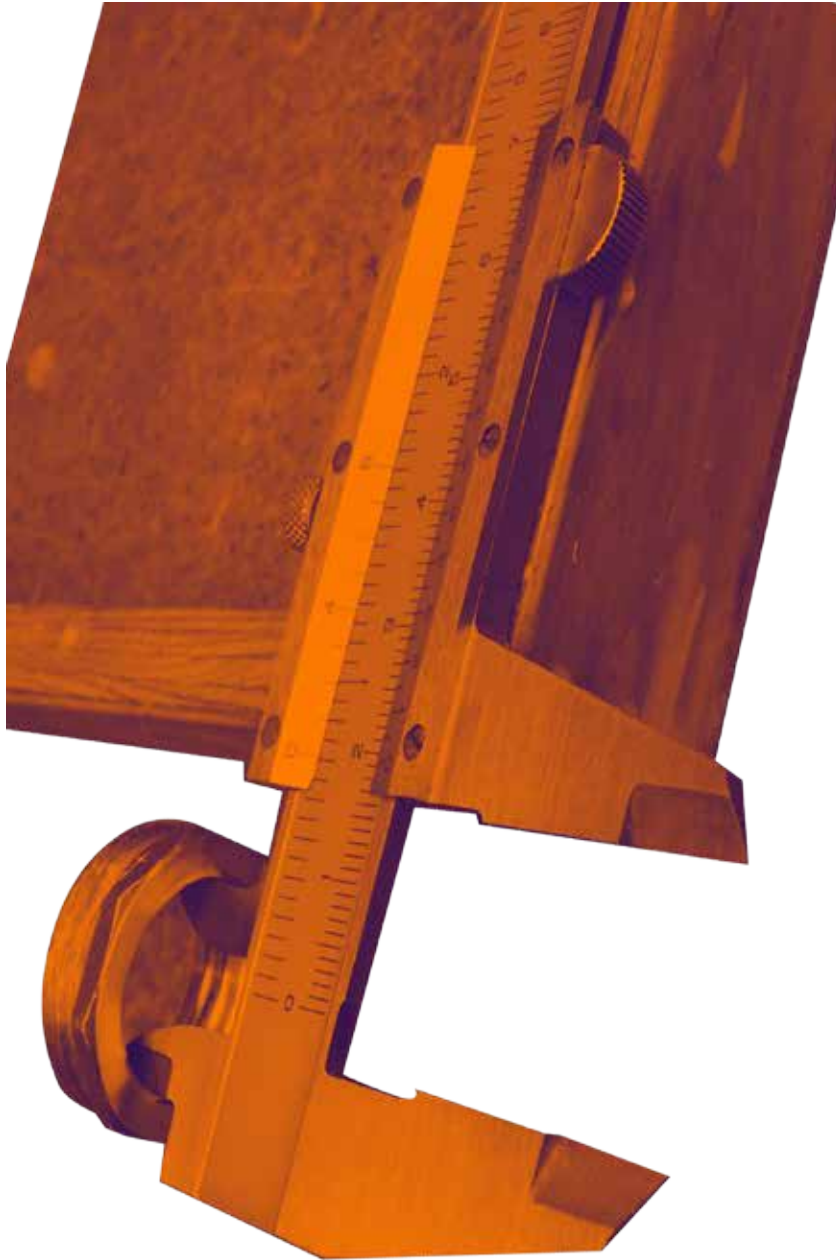


Hill Toy 2 - body parts ready for assembling

### Final Finishing (colouring) of the prototypes

The main problems arose while finishing the prototypes. I chose natural colours as the final finish for the prototypes but the problem with this kind of colour is that its difficult to apply. But that was fixed by deeping the colours and applying them by layer and layer. The colours were obtained from natural sources like herbs and flowers.



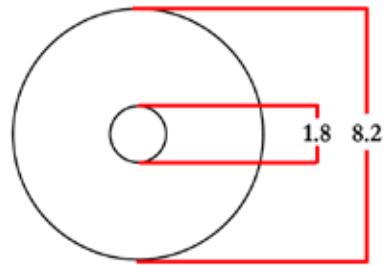


### Technical Details

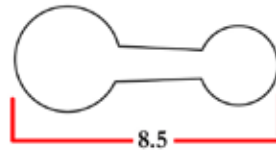
Technical drawings are not only important for making of the prototypes but its also important for the purpose of batch production or mass manufacturing. After the finishing of the prototypes, these drawings have to be provided to the craftsmen for them to produce the products without the presence of the designers or any other kind of supervision.



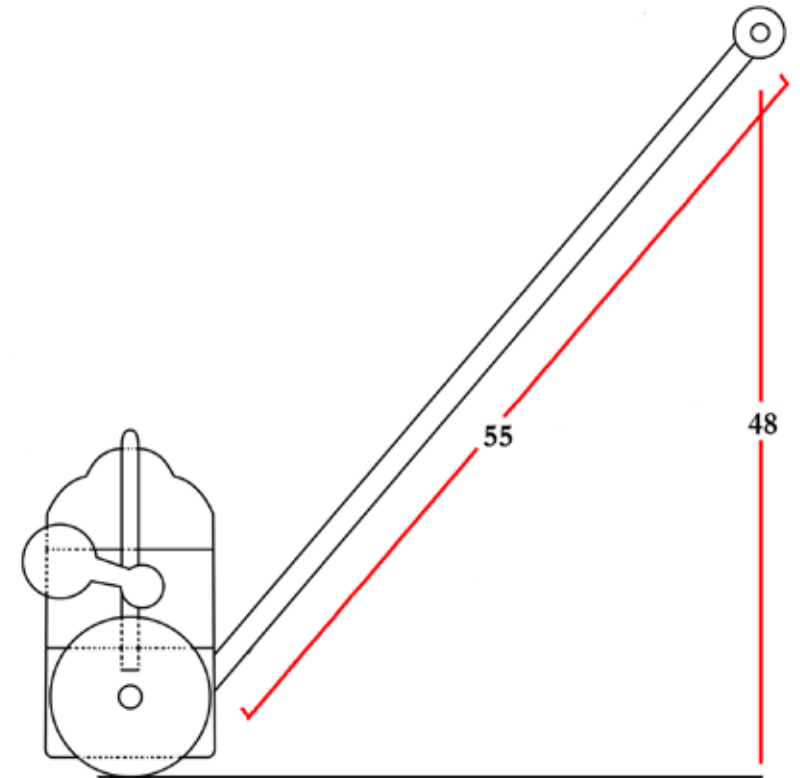
## Character Toy 1- Technical Drawings (Dimension In Centimeters)



TOP VIEW



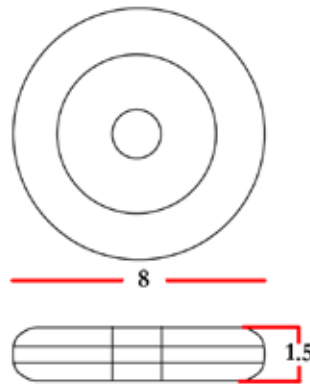
TOP VIEW OF THE HAND



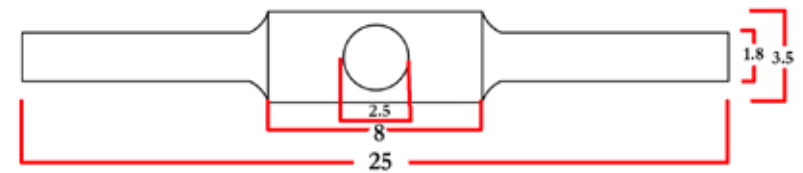
SIDE VIEW OF THE CHARACTER TOY 1



FRONT VIEW OF THE BODY

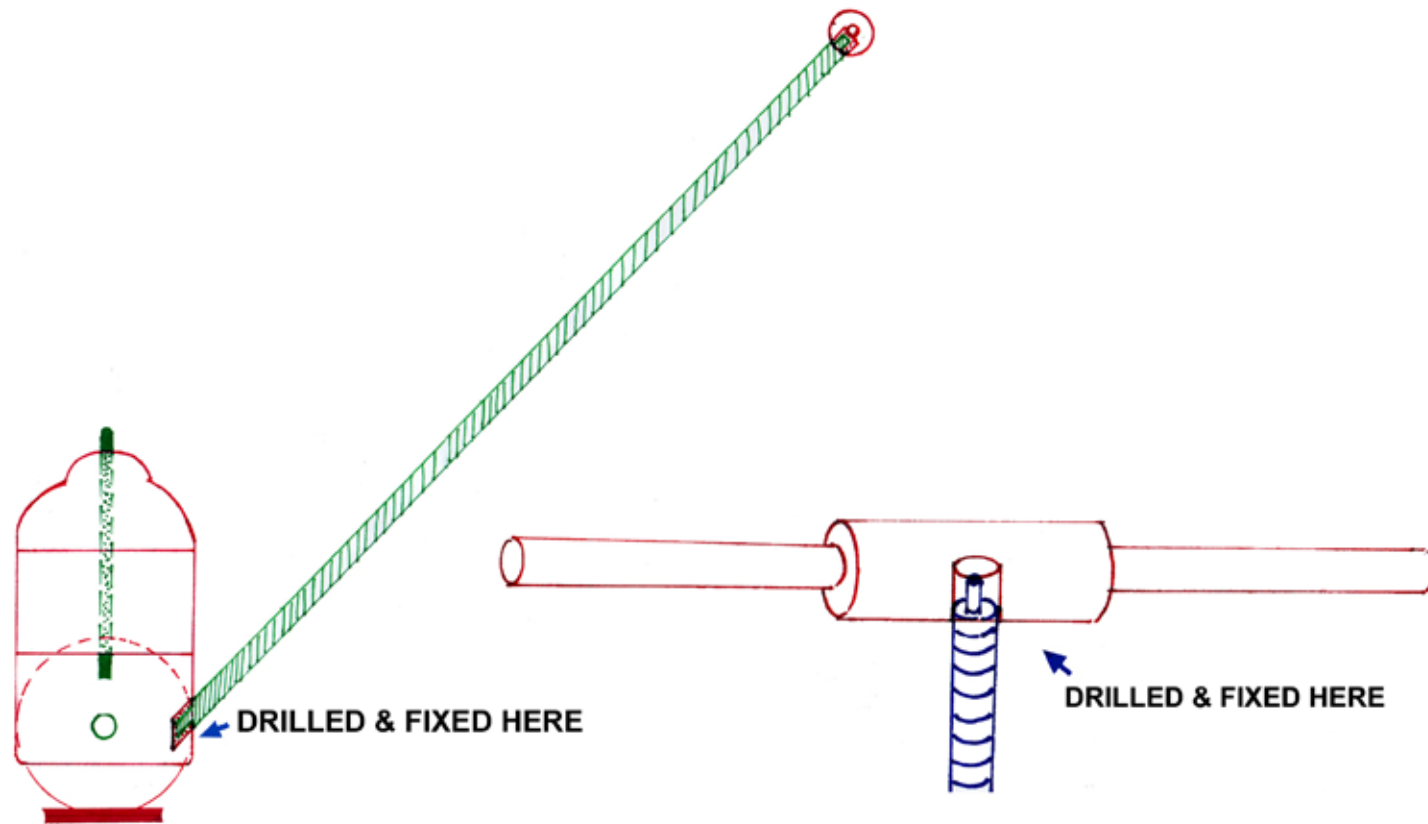


TOP & FRONT VIEW OF WHEELS

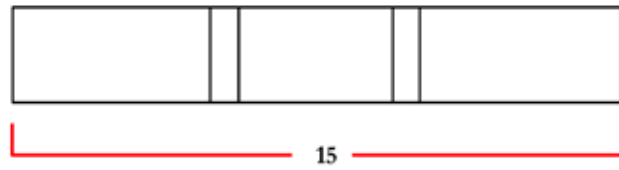


FRONT VIEW OF THE HANDLE OF THE PUSHING ROD

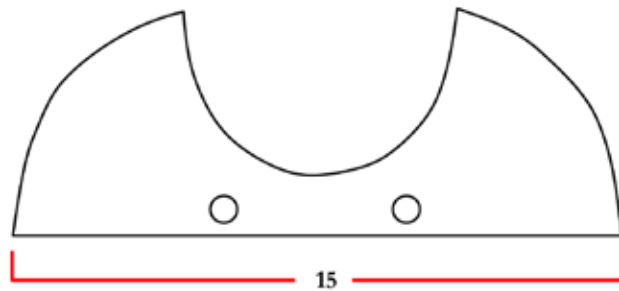
## Character Toy 1- Joineries



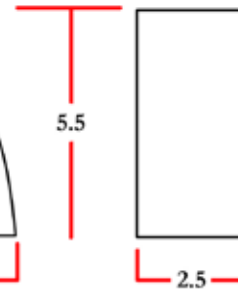
## Character Toy 2- Technical Drawings (Dimension In Centimeters)



TOP VIEW OF THE BODY



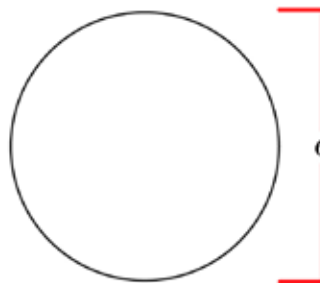
SIDE VIEW OF THE BODY



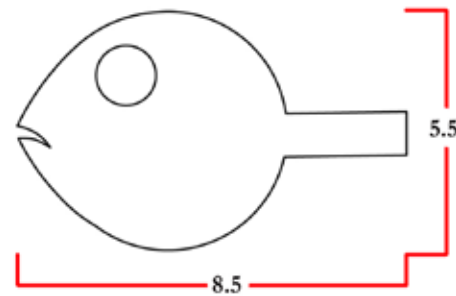
BACK VIEW OF THE BODY



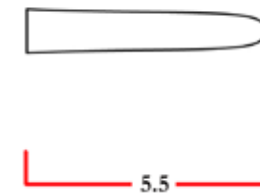
TOP & SIDE VIEW OF THE WHEELS



THE BALL

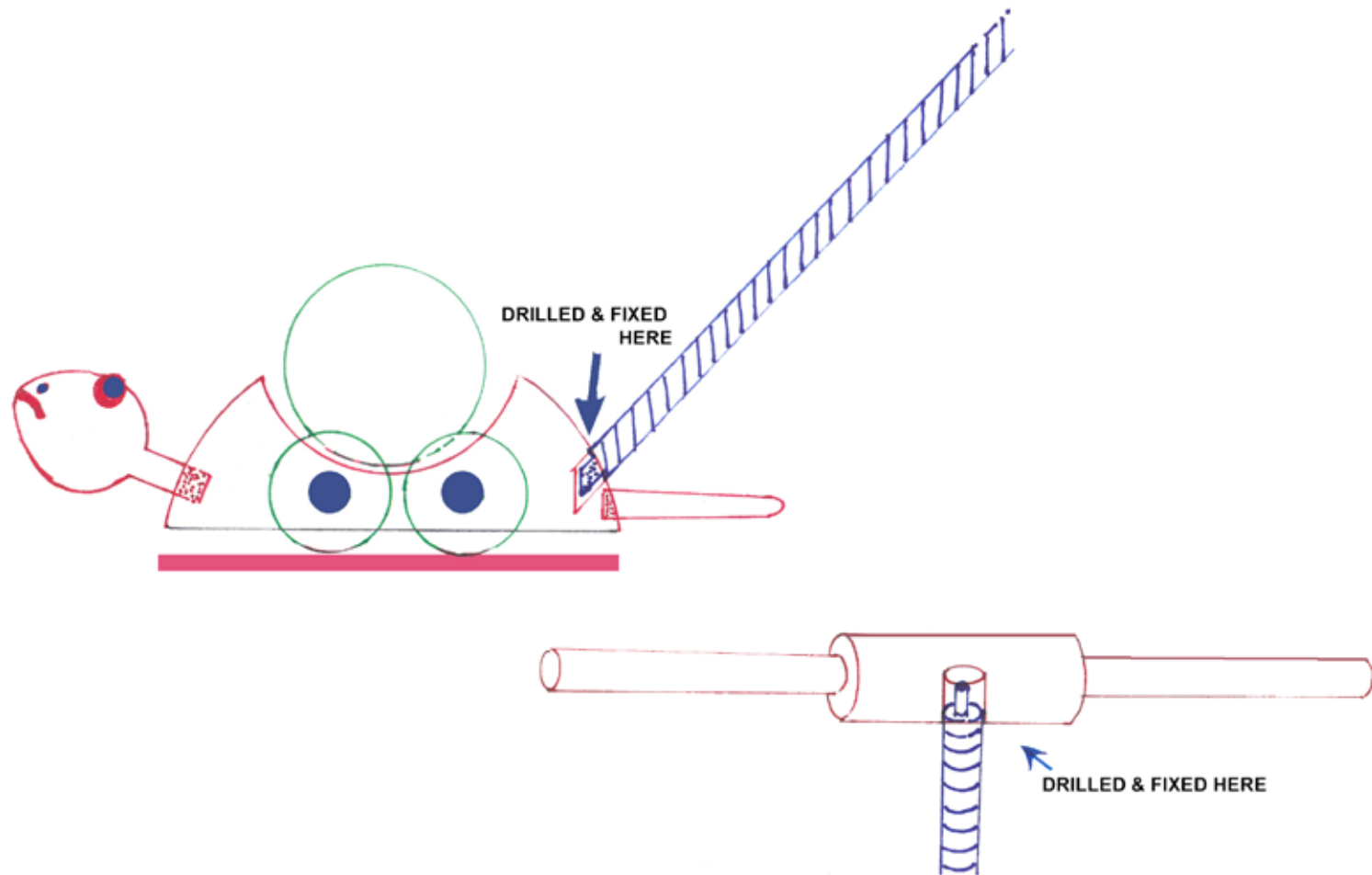


SIDE VIEW OF THE HEAD



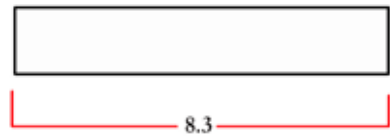
SIDE VIEW OF THE TAIL

## Character Toy 2- Joineries

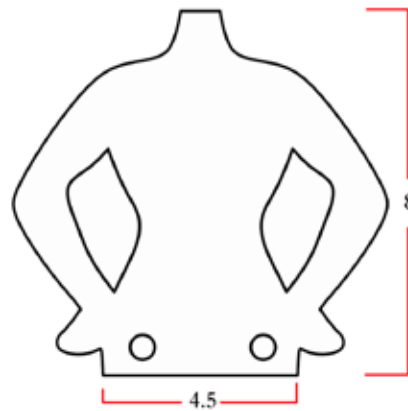




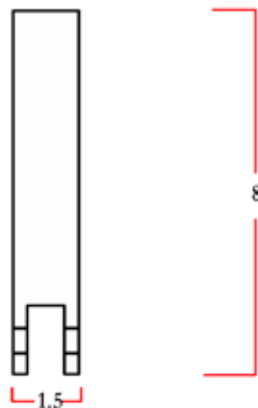
## Mizo Dance- Technical Drawings (Dimension In Centimeters)



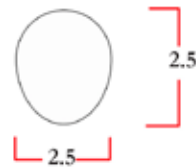
TOP VIEW OF DANCING GIRL'S BODY



FRONT VIEW OF DANCING GIRL'S BODY



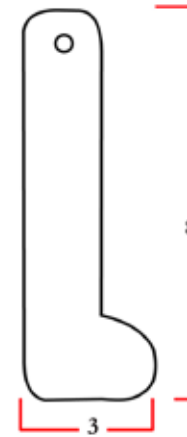
SIDE VIEW OF DANCING GIRL'S BODY



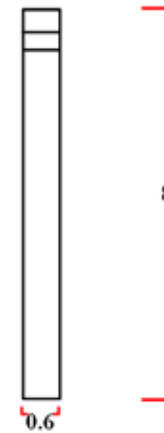
FRONT VIEW OF DANCING GIRL'S HEAD



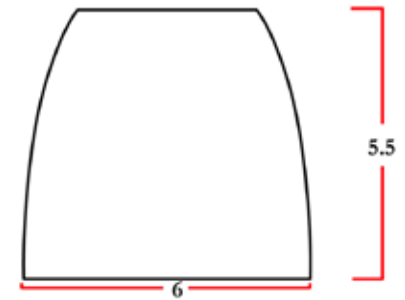
SIDE VIEW OF THE DANCING GIRL'S HEAD



FRONT VIEW OF LEGS ON DANCING GIRL

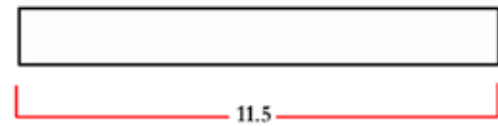


SIDE VIEW OF LEGS

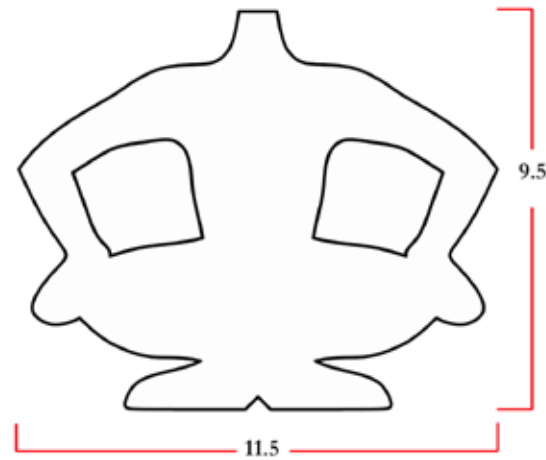


CLOTHS ON DANCING GIRL

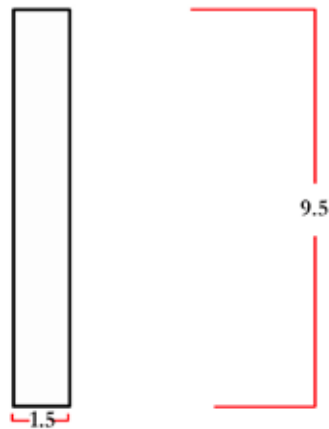
## Mizo Dance- Technical Drawings (Dimension In Centimeters)



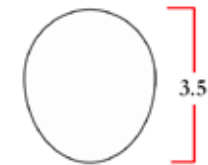
TOP VIEW OF SITTING POSTURE



FRONT VIEW OF SITTING POSTURE



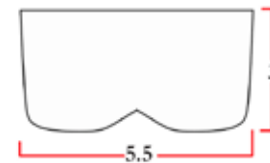
SIDE VIEW OF SITTING POSTURE



FRONT VIEW OF SITTING POSTURE'S HEAD

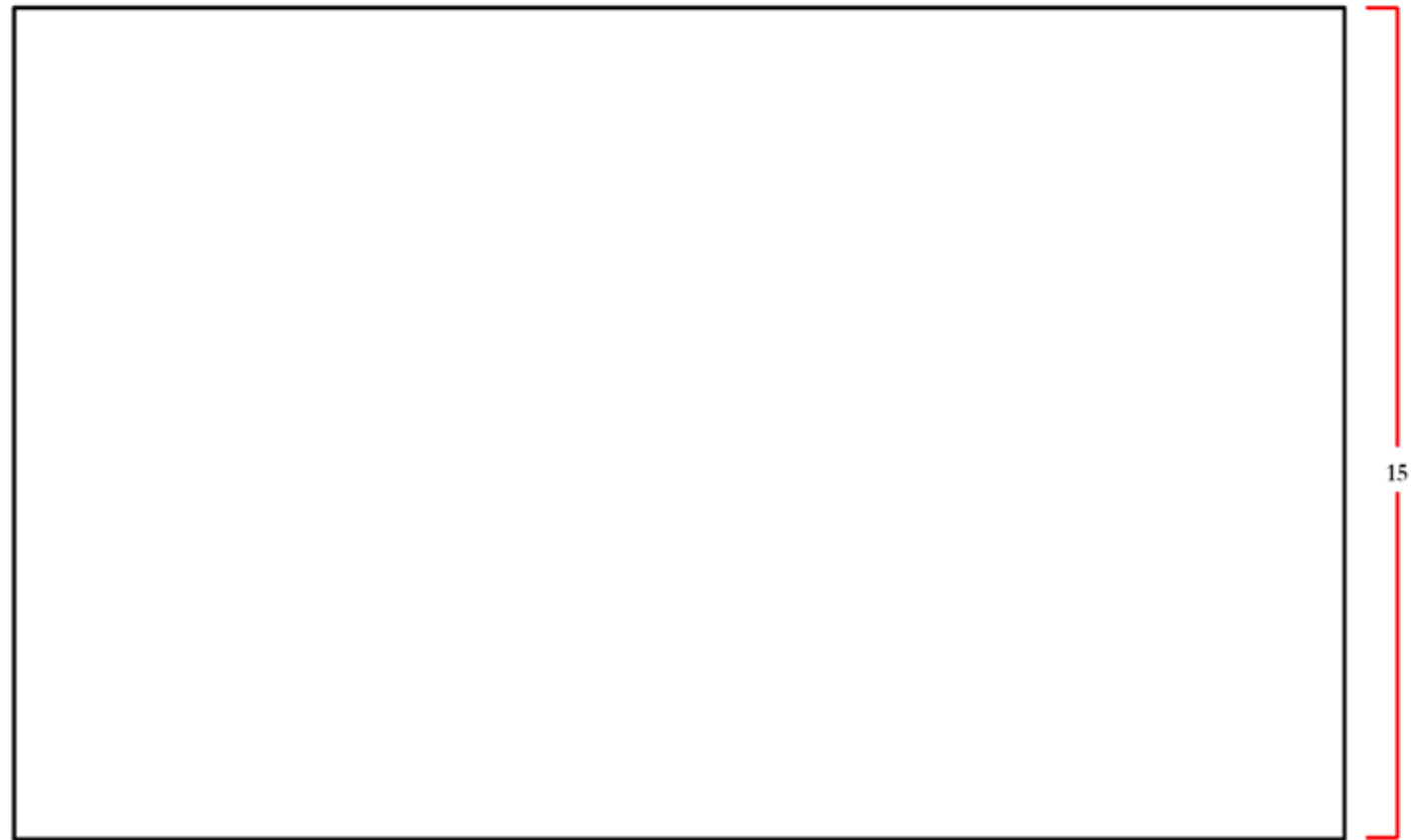


SIDE VIEW OF SITTING POSTURE'S HEAD

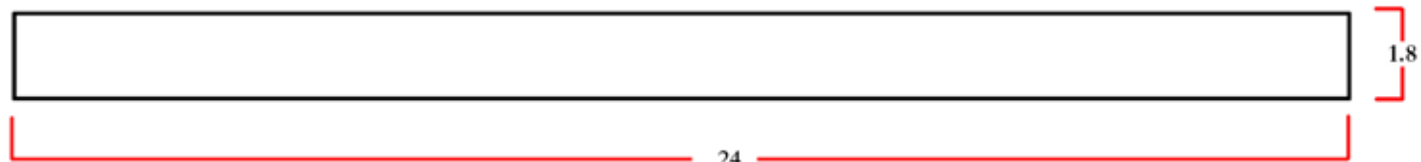


CLOTHS OF THE SITTING POSTURES

## Mizo Dance- Technical Drawings (Dimension In Centimeters)

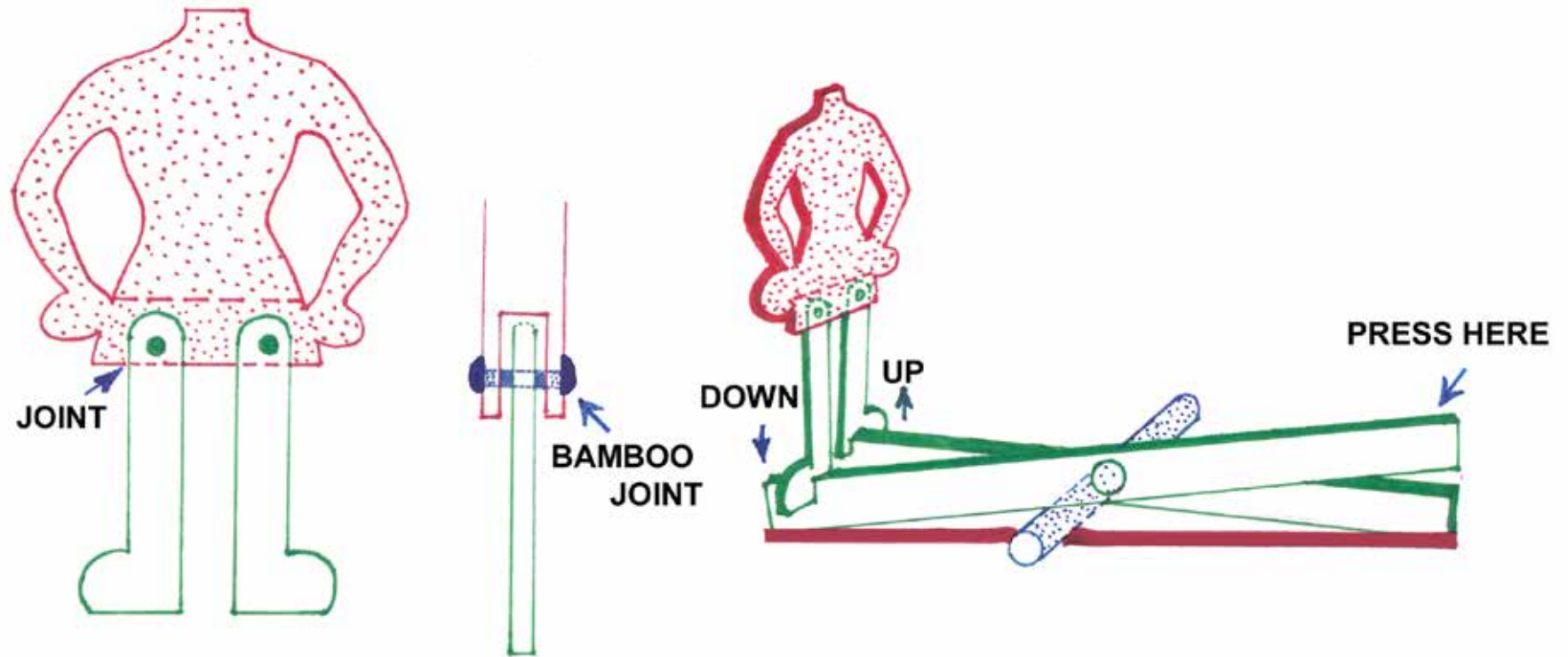


TOP VIEW OF THE BASE



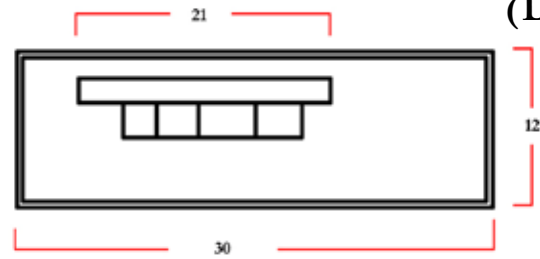
FRONT VIEW OF THE BASE

# Mizo Dance- Joineries

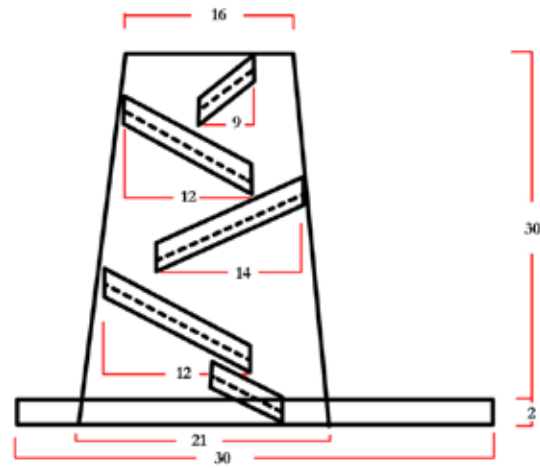




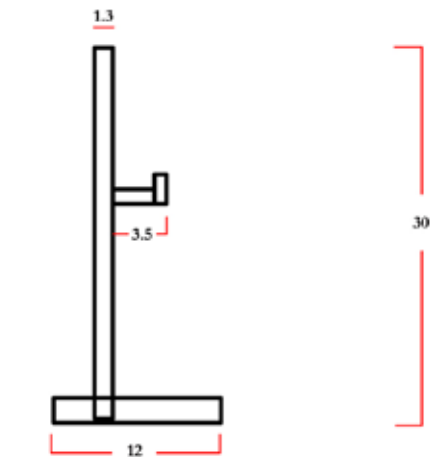
# Hill Toy 1- Technical Drawings (Dimension In Centimeters)



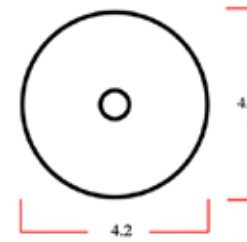
TOP VIEW OF THE HILLS



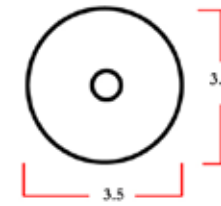
FRONT VIEW OF THE HILLS



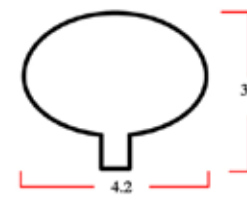
SIDE VIEW OF THE HILLS



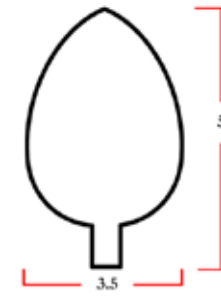
TOP VIEW OF THE TREE



TOP VIEW OF THE TREE

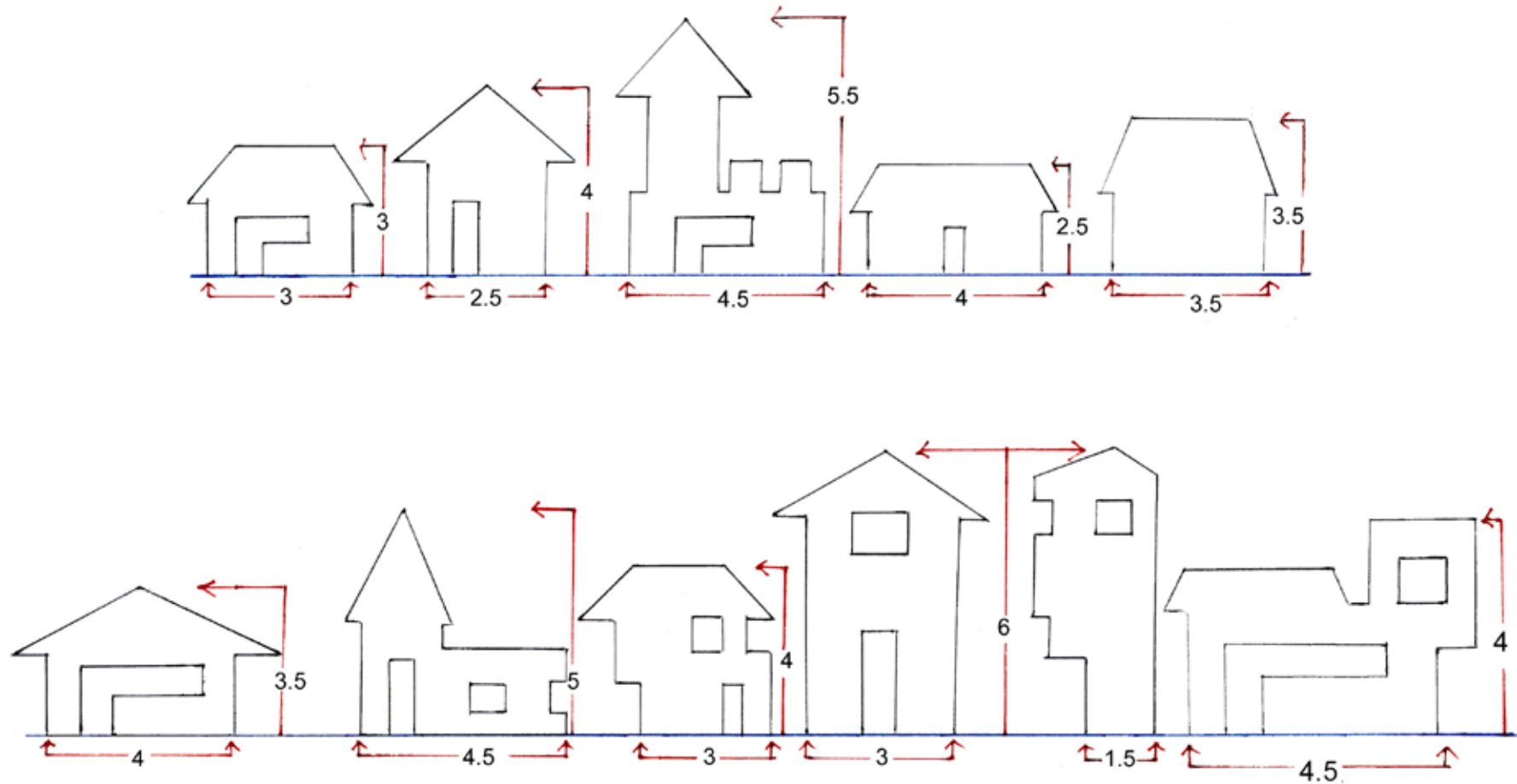


FRONT VIEW OF THE TREE



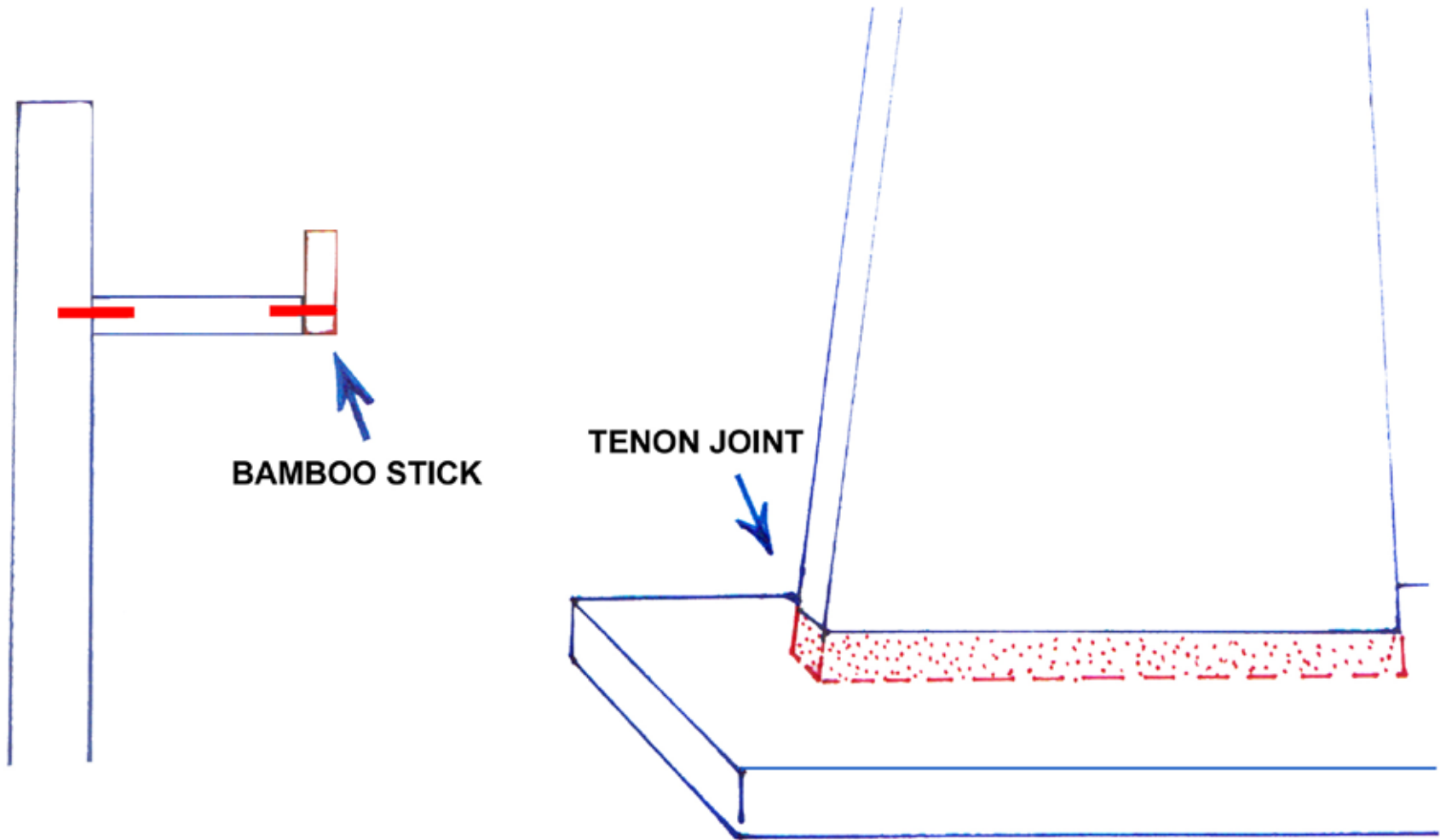
FRONT VIEW OF THE TREE

### Hill Toy 1- Technical Drawings (Dimension In Centimeters)

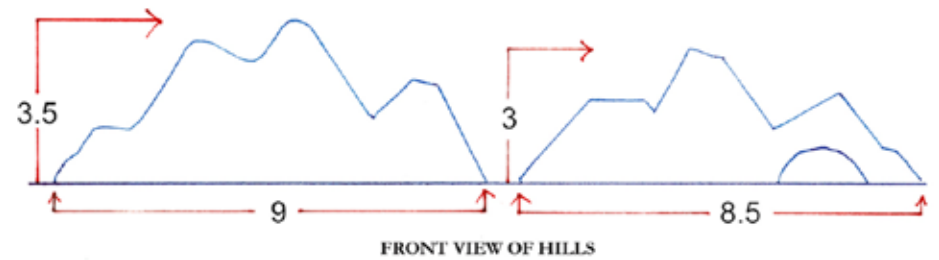
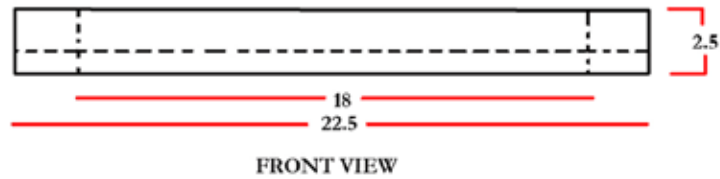
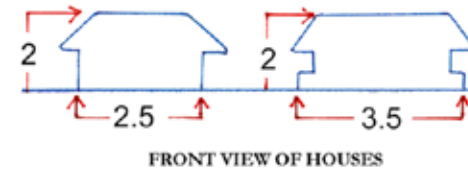
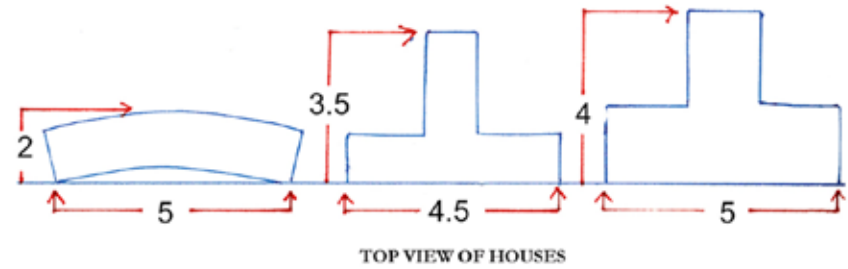
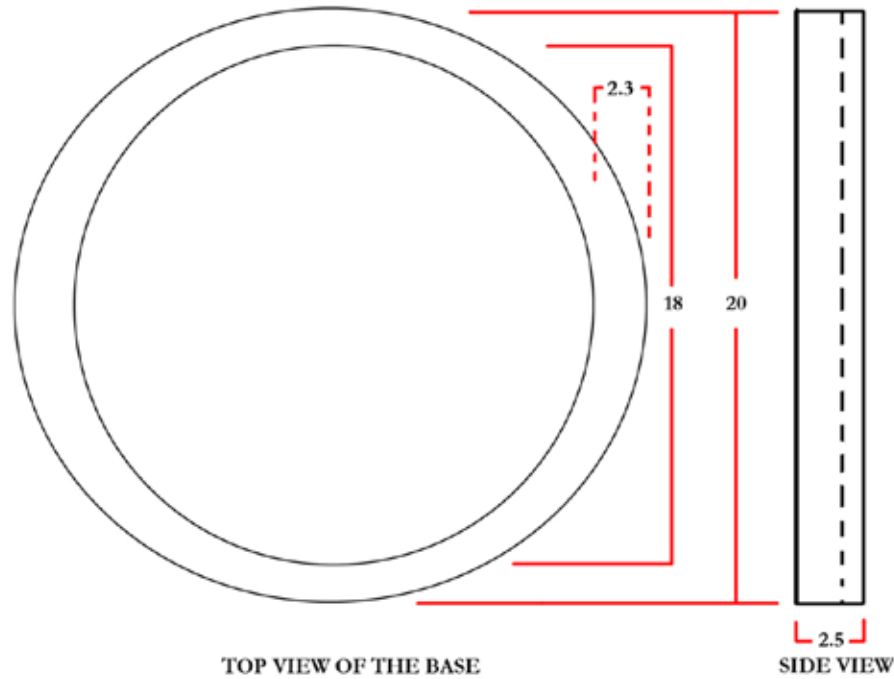


ELEVATION OF HOUSES

# Hill Toy 1- Joineries

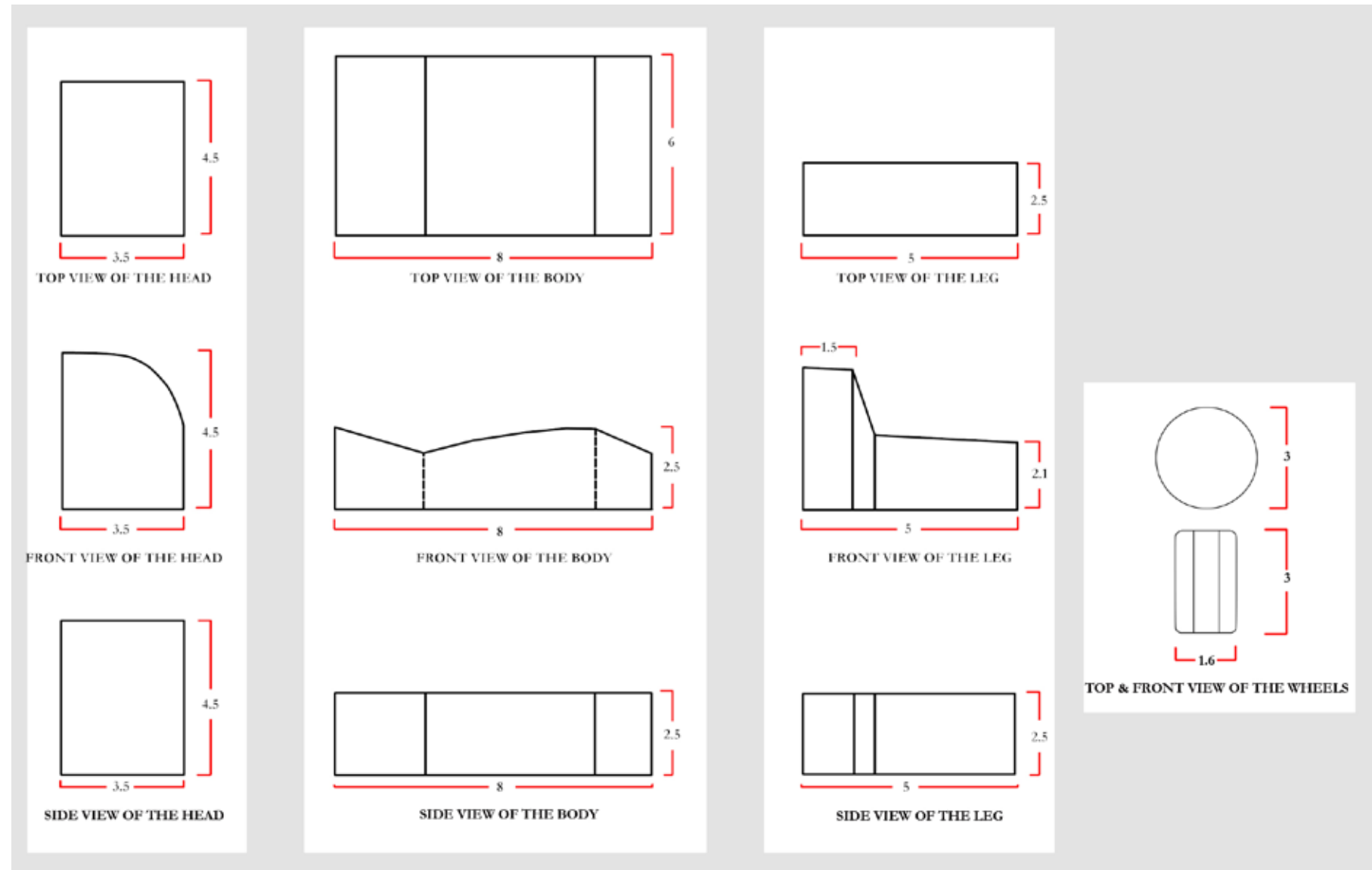


### Hill Toy 2- Technical Drawings (Dimension In Centimeters)

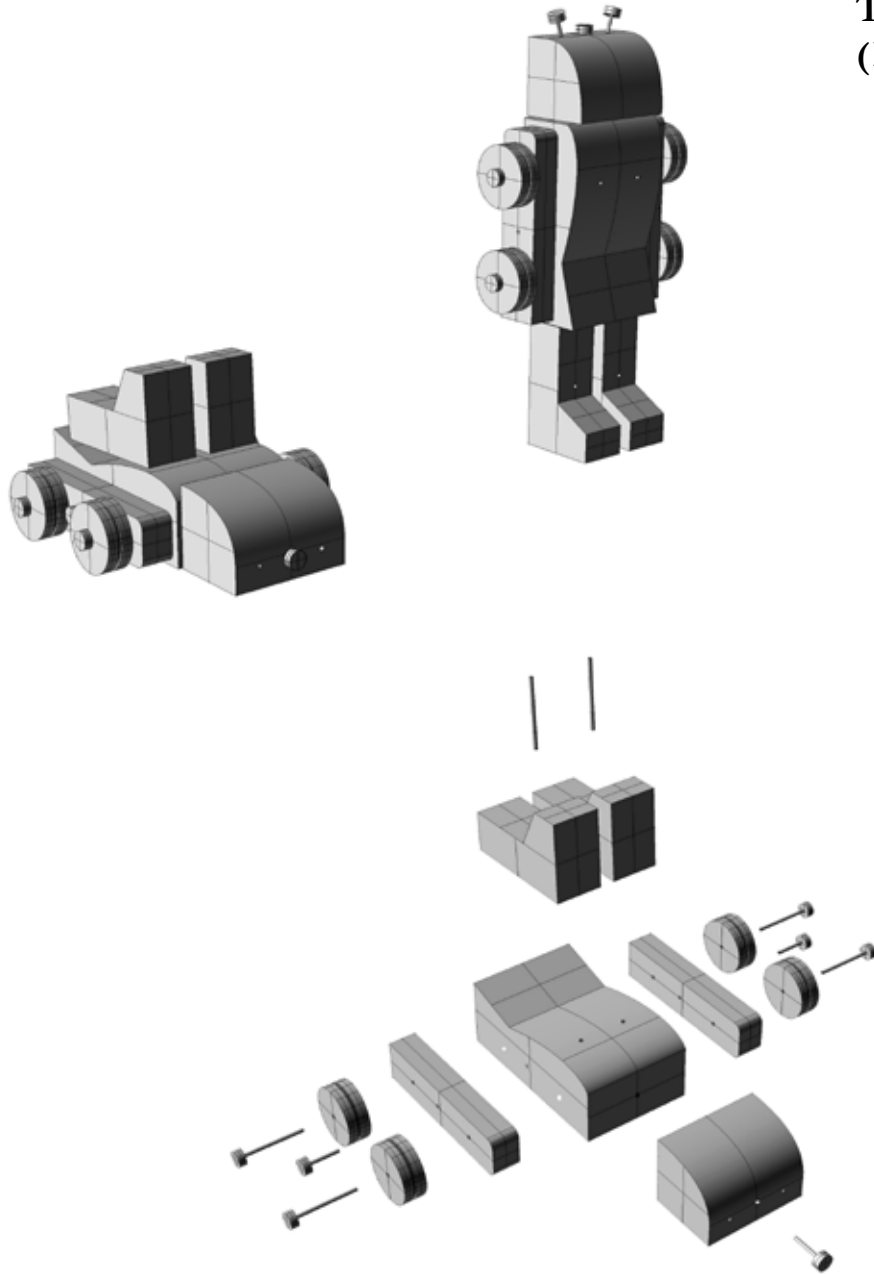




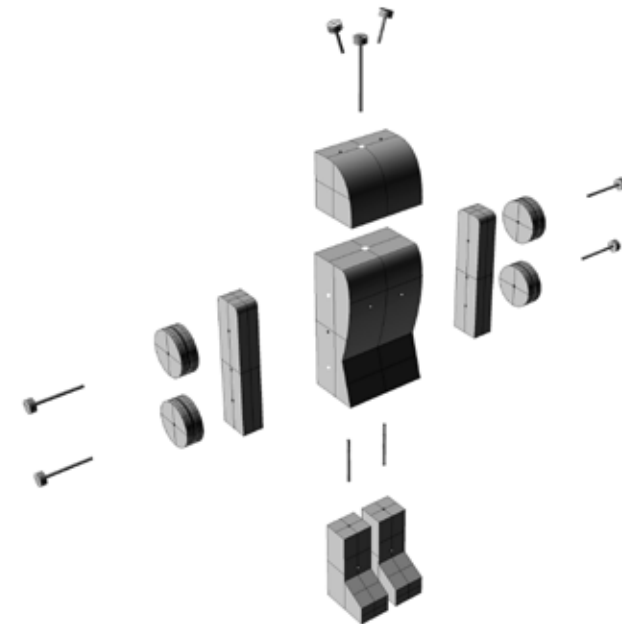
## Trans Toy 1- Technical Drawings (Dimension In Centimeters)



## Trans Toy 1- Technical Drawings (Exploded View)

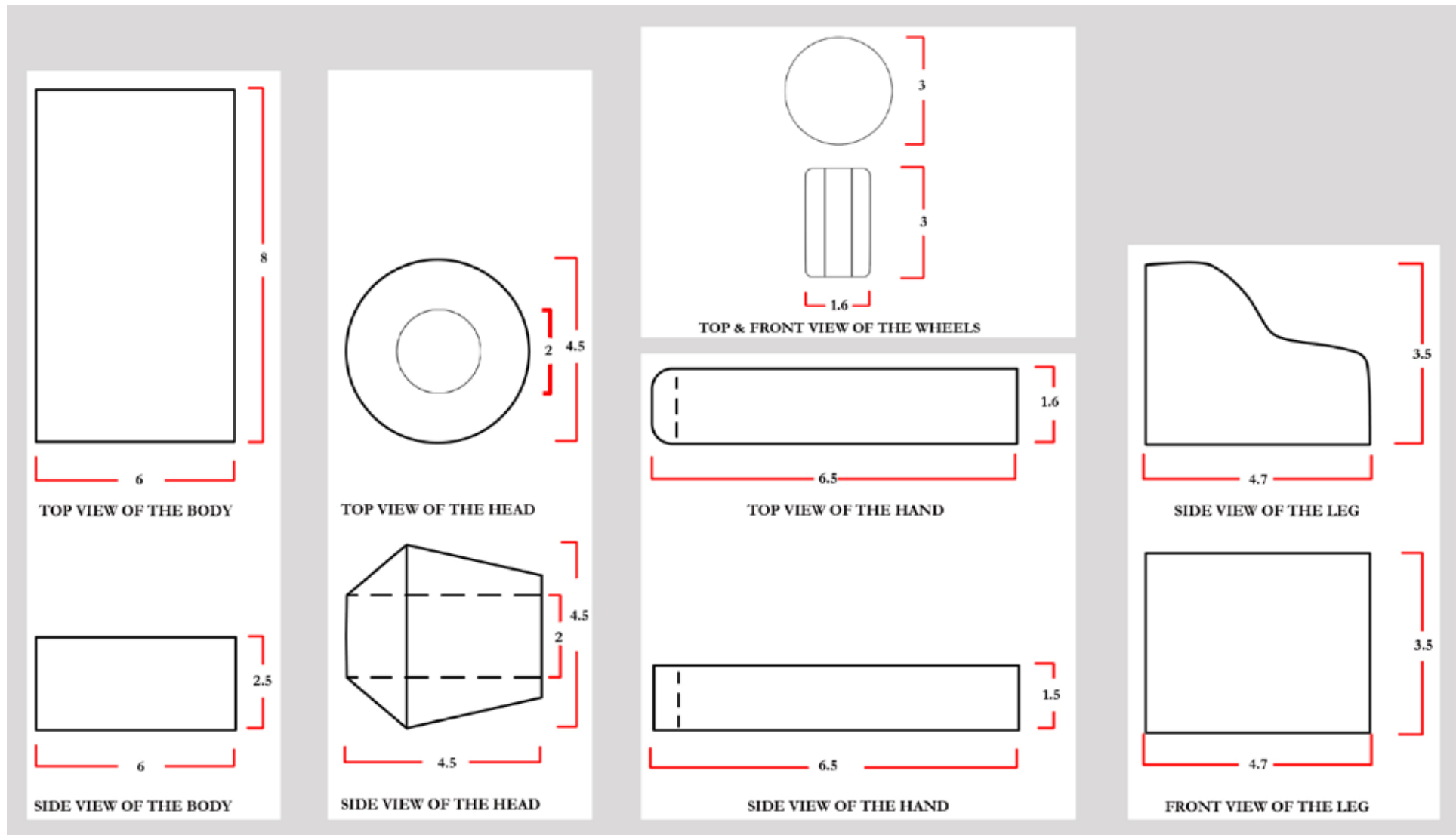


Exploded view of the car

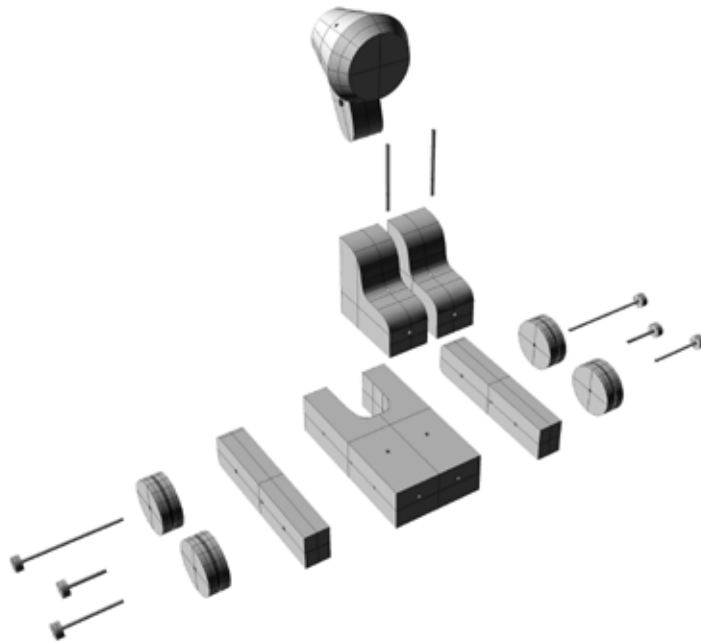
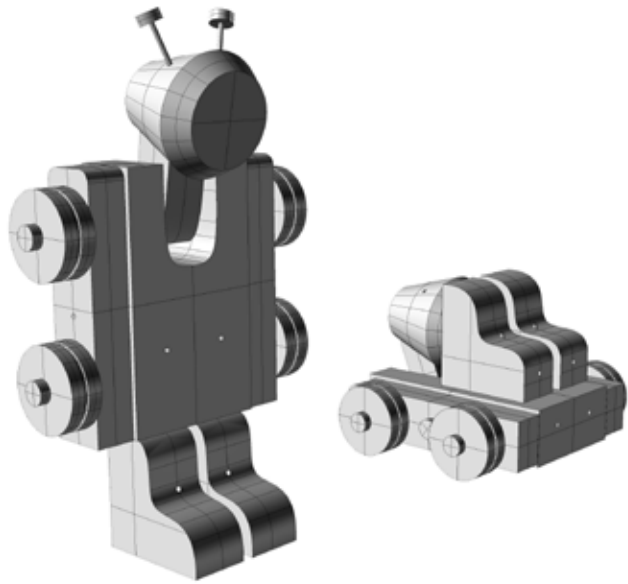


Exploded view of the robot

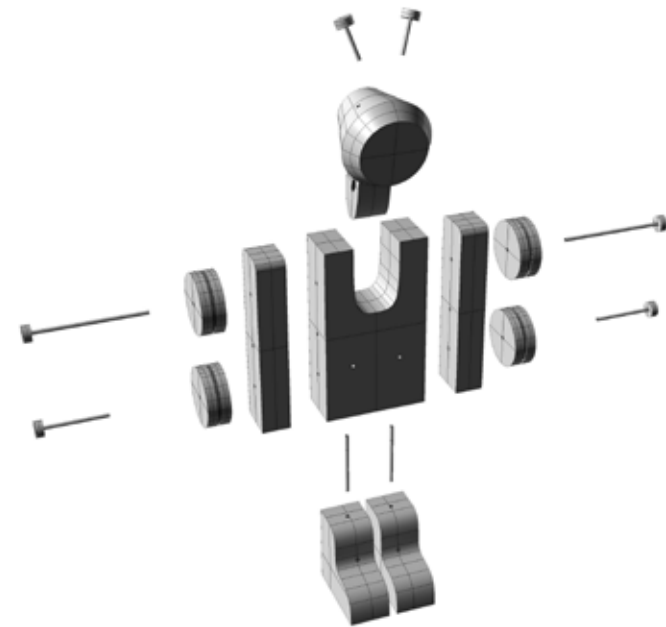
## Trans Toy 2- Technical Drawings (Dimension In Centimeters)



# Trans Toy 2- Technical Drawings (Exploded View)



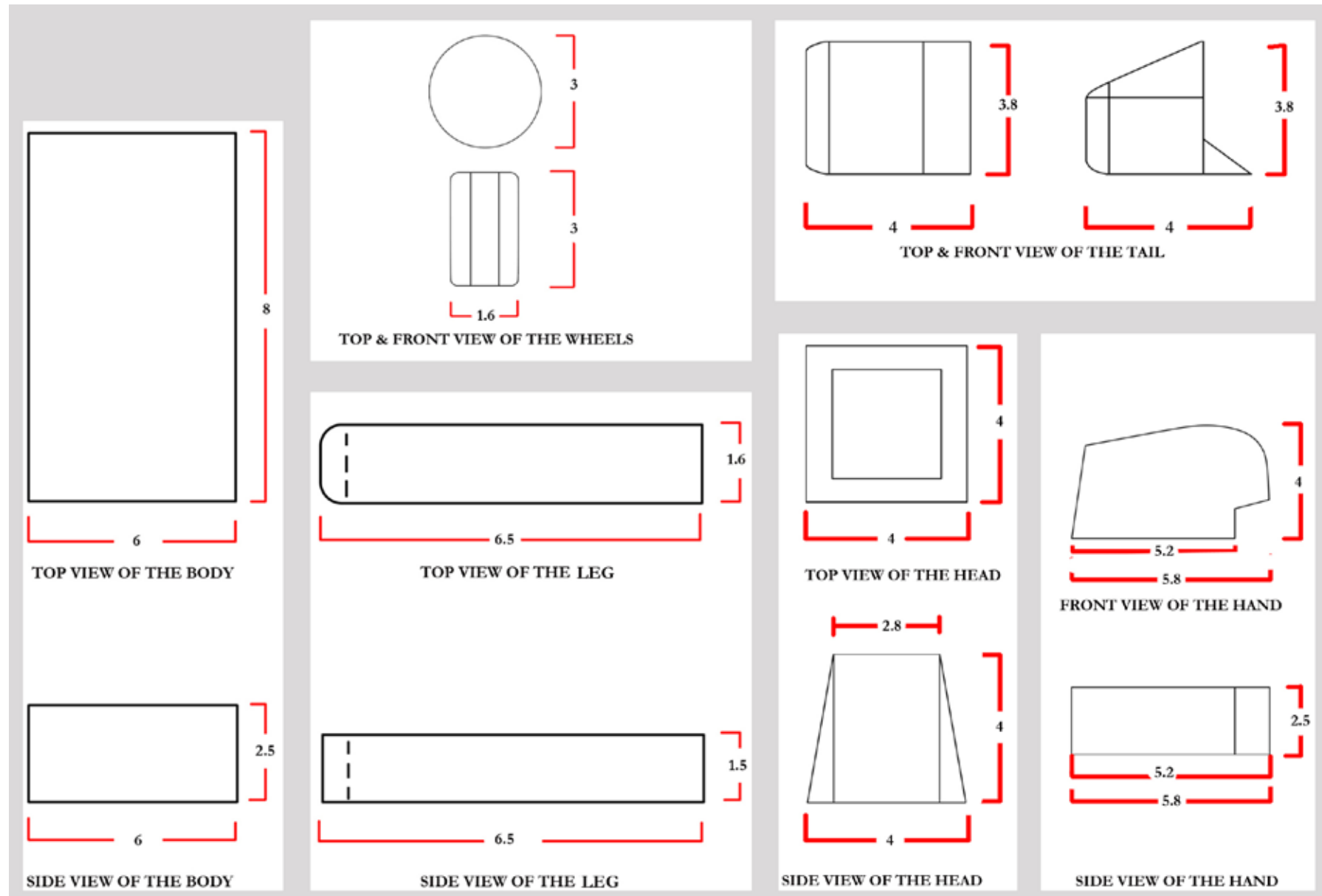
Exploded view of the car



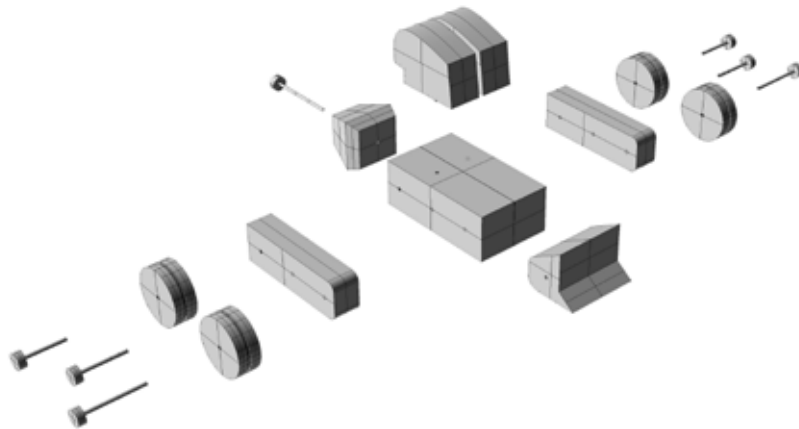
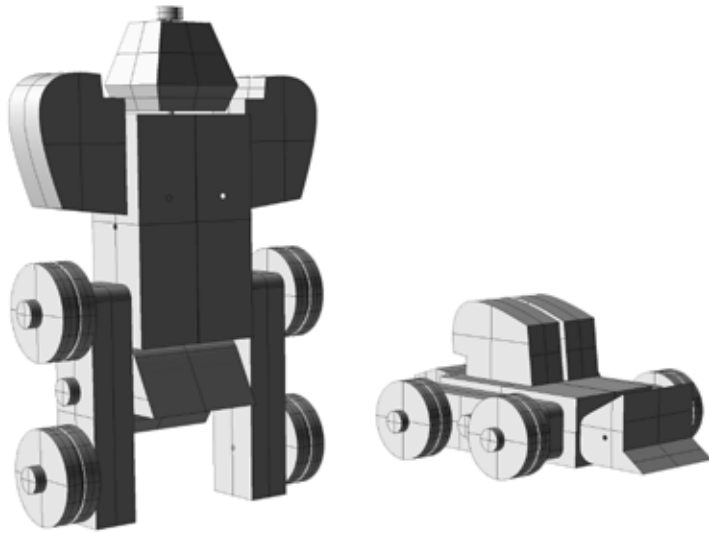
Exploded view of the robot



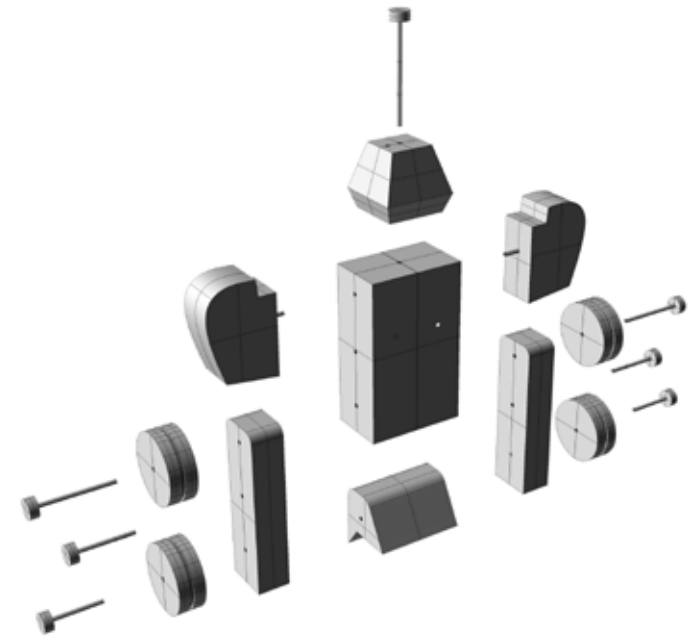
## Trans Toy 3- Technical Drawings (Dimension In Centimeters)



## Trans Toy 3- Technical Drawings (Exploded View)



Exploded view of the car



Exploded view of the robot

# Phase- 6

Final Products

Testing Of Products With User's Feedback



## Final products

I made three sets for each of the product and each set has a minimum of two toys.

- First one is “TRADITIONAL TOY”, which combines both traditional and the contemporary elements into the product.
- Second one is “HILL TOY”.
- Third one is “TRANS TOY”.

**“TRADITIONAL TOY”** set has three toys.

- CHARACTER TOY 1
- CHARACTER TOY 2
- MIZO DANCE

**“HILL TOY”** set has three toys.

- HILL TOY 1
- HILL TOY 2

**“TRANS TOY”** set has three toys.

- TRANS TOY 1
- TRANS TOY 2
- TRANS TOY 3



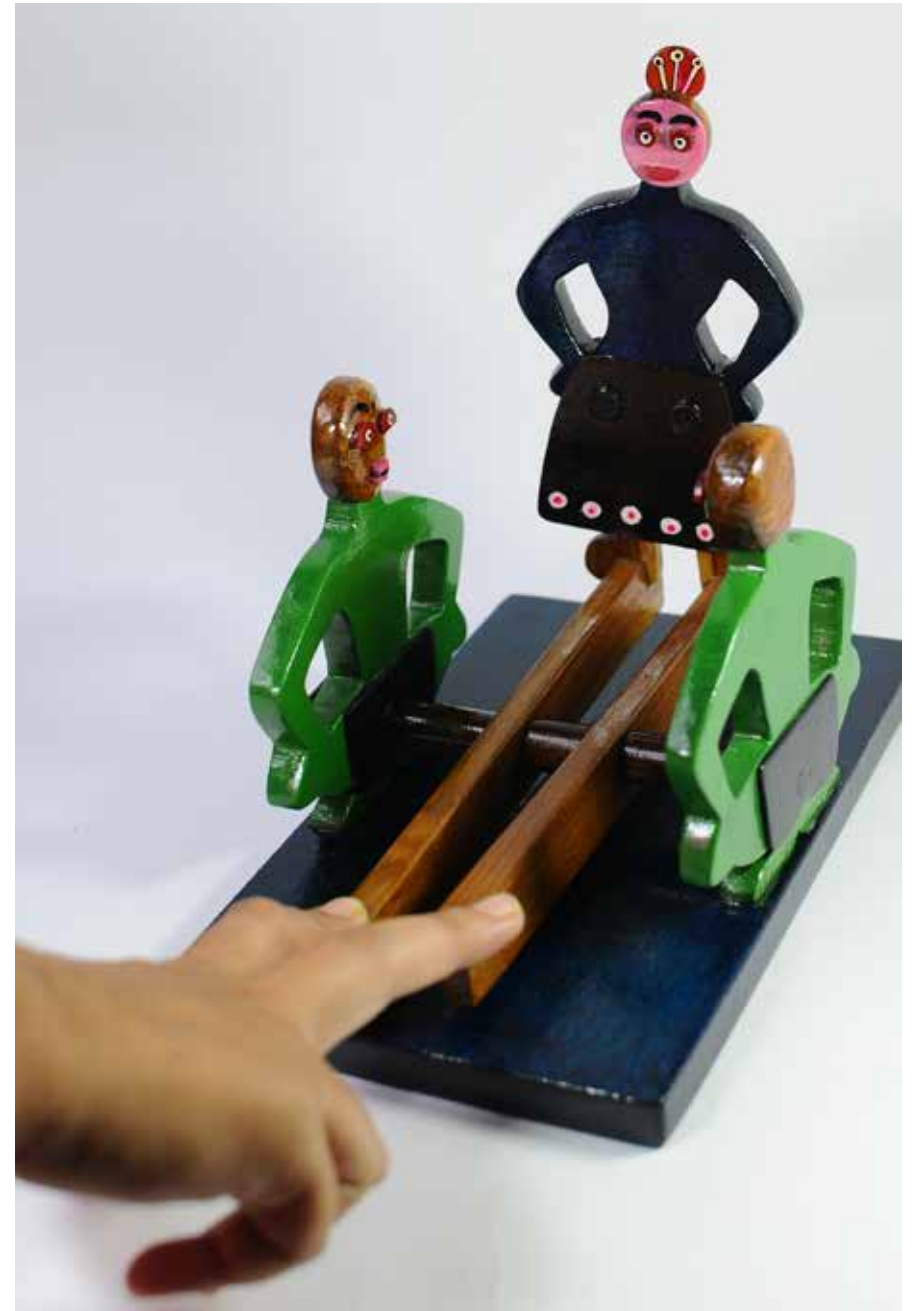
## Character Toy 1



## Character Toy 2



## Mizo Dance



## Hill Toy 1





## Hill Toy 2



## Trans Toy 1





## Trans Toy 2







### Trans Toy 3





### **Points to be taken care of during production**

Due to the time frame of the project, I could not properly implement some of the things which I would have liked to. For example, the colouring is not of very high quality in the prototype. One of the main reason is that, wood absorbs moisture quickly and it becomes difficult to get a smooth even finish. During the time of making of the prototype, it was raining and the weather was very humid, as a result it took a very long time for the toys to dry up which affected the overall finish of the final prototype. So! during manufacturing, its necessary that the final finishing (colouring) should be carried in dry weather.





### Testing of the products with user's feedback

I tested my toys with 2-3 children of different age groups ranging from 3-5 years. The overall feedback was quite positive. The children were attracted by these toys and enjoyed playing with them. There were some differences between the way in which the toy was played by 3 years and the 5 years age group.

Users between 3 to 4 faced little difficulties to construct the 'Trans Toy' series but kids of age 4 or above able to manipulate between the two forms of "Trans Toys" quite easily. Thus this toy was recommended for the age group 5-7, not in 3-5 years. "Hill toy 2" and "Hill Toy 1" were well received by kids of all ages groups. They were able to move the ball in "Hill Toy 2" easily.

In case of "Character Toy", it appealed all the kids in both the age group 3-5 years and 5-7 years.

Dhiman



## Hill Toy 1

### User 1 (Dhiman : 3 years)

He enjoyed to putting the car on hilly road of the toy.

He loved to see the car racing down and captivated by its motion.

### User 2 (Aayush : 4.5 years)

He was very precise in placing the car on the road and see it come down from top to the bottom of the hill.

He likes being in control of the car.

### User 3 (Mann : 5 years)

He liked the drama associated with the car racing down the hill.

He was very careful and precise in placing the car in the right position.

Aayush



Mann





Dhiman



## Hill Toy 2

### User 1 (Dhiman : 3 years)

He was able to easily move the ball between hills, houses and successfully managed to get the ball in the required final position. The weight of the toy board was also appropriate for Dhiman.

### User 2 (Aayush : 4.5 years)

He was able to move the ball between hills, houses and successfully maneuver to the goal. He preferred playing with this toy while sitting.

### User 3 (Mann : 5 years)

He was able to move the ball between hills, houses and successfully finish the game by maneuvering the ball to its final position. He preferred to play with this toy while standing.

Aayush



Mann





## Character Toy 1

### User 1 (Dhiman : 3 years)

He was enjoyed pushing the toy around.

He was also able to change the characters by matching their colour.

The height and length of the pushing rod was also appropriate.

### User 2 (Aayush : 4.5 years)

Aayush was able to push the toy and also able to change the characters by matching the colours of the product.

The height of the pushing rod was perfect in size for him.

### User 3 (Mann : 5 years)

He was easily able to push the toy and also able to change the characters by matching the colours of the product.

The height of the pushing rod is perfect in size for him.







Dhiman



Aayush

## Character Toy 2

### User 1 (Dhiman : 3 years)

He was able to push the character toy and able to put the medium sized ball on character's top.

He found the movement of the ball on top of the character very interesting.

### User 2 (Aayush : 4.5 years)

He was able to push the character toy and able to put the medium sized ball on characters top.

He liked to playing, and while doing that he imagined it as his scooter.

### User 3 (Mann : 5 years)

He was able to push the character toy and able to put the medium sized ball.

He liked pushing around this toy in his courtyard.



Mann



Mann

Dhiman



## Mizo Dance

### User 1 (Dhiman : 3 years)

He quickly learned to play with this toy like a piano reed and was easily able to interact with it.

### User 2 (Aayush : 4.5 years)

He was able to play with the toy like a piano reed by his finger and found the movement of the dancing characters very interesting.

### User 3 (Mann : 5 years)

Mann very easily became comfortable playing with this toy. And his interest level increased when he saw the characters moving according to the actions of his fingers.

Mann



Aayush





Dhiman



Mann



## Trans Toy 1

### User 1 (Dhiman : 3 years)

He was able to convert the Robot into a Trailer vehicle easily.

He required a little help in the first time while transforming the toy, but was easily able to do himself in the second time.

### User 2 (Aayush : 4.5 years)

Aayush could easily convert the Robot and Trailer vehicle into one another without any difficulty.

### User 3 (Mann : 5 years)

Mann was able to make robot and also convert it to a trailer vehicle.

Dhiman



Aayush



Aayush



Dhiman



## Trans Toy 2

### User 1 (Dhiman : 3 years)

He loved play with this robot-concrete mixer vehicle.

He also used to do role play using this toy and got quite attached to it.

He could easy transform the toy from one character to another.

### User 2 (Aayush : 4.5 years)

He liked to play with this robot-concrete mixer vehicle.

He was also able to transform it without any difficulty.

### User 3 (Mann : 5 years)

Mann liked to play with this robot-concrete mixer vehicle.

He was also quite comfortable transforming one character into the other without any difficulty.

Aayush



Mann





Dhiman



### Trans Toy 3

#### User 1 (Dhiman : 3 years)

He was also able to convert the Robot into a Bulldozer without any difficulty.

#### User 2 (Aayush : 4.5 years)

Initially during the first try, there was a little difficulty, but he became quite comfortable playing with this toy as he interacted with it.

#### User 3 (Mann : 5 years)

He liked to play with this Robot-Bulldozer toy.  
He was also able to transform it without any difficulty.

Aayush



Mann



# Phase- 7

## Branding & Costing

Branding

Keywords For Brand Name

EARTHSONG- The Logo Explorations

EARTHSONG- The Logo Detailing And  
Tags On Toys



### **Branding**

Branding is an important feature for marketing. “EARTHSONG” seemed to be an appropriate name because it has a new look to promote the Baktawng wooden carpentry craft clusters with new opportunities.

### **For market**

I want to use this logo titled “EARTHSONG”, with a thread by tied on the products which would also help me promote the products in a new look for market. This logo will contain instructions in a simple way how to play with the toys, also mention the product cost and age group.

## Some Keywords For Brand Name

SIMPLE LIFESTYLE

HILLS

MORNING/EVENING CLOUDS

NICE PEOPLE

DAILY PRAY TO GOD

CONTINUOUS WORK ON WOOD

GREEN FORESTS

RHYTHM AND BEAUTY

NOSTALGIC ATMOSPHERE

**EARTHSONG**

(Titled For Logo)

ZIG- ZAG ROADS

STEP HOUSES ON THE HILLS

NATURE

FINE FINISHED WORK

MOUNTAINS

PEACEFUL LIFE

LIFE FAR AWAY FROM THE CITY



**Finally, I selected the keywords for the Brand name**

All these keywords I used to make my logo (EARTHSONG)

**-CONTINUOUS WORK ON WOOD**

**-FINE FINISHED WORK**

**-MORNING/EVENING CLOUDS**

**-NOSTALGIC ATMOSPHERE**

**-NATURE**

**-MOUNTAINS**

**-HILLS**

## EARTHSONG- the logo explorations (process)

In order to design the logo, I had to think about the characteristics which I wanted to highlight-

-The logo has nature, hills and nostalgic look and feel.

-“EARTHSONG” is a good metaphor for looking at new opportunities. The visual could also have the look and feel of the nature and rhythm of hill life of Baktawng along with their wooden carpentry craft.

-The colour of the logo had to be both contemporary as well as sensitive, hence green, blue and white.

-In the ‘O’ of the word ‘SONG’, I have tried to show the hills and trees of Baktawng.

## EARTHSONG- Logo colour specifications

### Green colour-

CYAN (C) =39

MAGENTA (M) =0

YELLOW (Y) =98

KEY (K) =0

### Blue color-

CYAN (C) =73

MAGENTA (M) =12

YELLOW (Y) =4

KEY (K) =0



## EARTHSONG - Logo Explorations 1



# EARTHSONG - Logo Explorations 2





## EARTHSONG - The Logo Detailing And Tags

A grey logo variation of 'earth Song'. The word 'earth' is in a lowercase, rounded font above 'Song'. The letter 'o' in 'Song' is replaced by a circular icon with a blue top half and a green bottom half, with a white teardrop shape inside.A medium-sized logo variation of 'earth Song' in blue and green colors. The word 'earth' is in a lowercase, rounded font above 'Song'. The letter 'o' in 'Song' is replaced by a circular icon with a blue top half and a green bottom half, with a white teardrop shape inside.A small-sized logo variation of 'earth Song' in blue and green colors. The word 'earth' is in a lowercase, rounded font above 'Song'. The letter 'o' in 'Song' is replaced by a circular icon with a blue top half and a green bottom half, with a white teardrop shape inside.A medium-small-sized logo variation of 'earth Song' in blue and green colors. The word 'earth' is in a lowercase, rounded font above 'Song'. The letter 'o' in 'Song' is replaced by a circular icon with a blue top half and a green bottom half, with a white teardrop shape inside.

Size variations

A small-sized logo variation of 'earth Song' in blue and green colors. The word 'earth' is in a lowercase, rounded font above 'Song'. The letter 'o' in 'Song' is replaced by a circular icon with a blue top half and a green bottom half, with a white teardrop shape inside.The final logo for 'earth Song'. The word 'earth' is in a lowercase, rounded blue font above 'Song'. The letter 'o' in 'Song' is replaced by a circular icon with a blue top half and a green bottom half, with a white teardrop shape inside. The word 'Song' is in a large, rounded green font.

Final Logo (visual identity)

## Logo With Tag Used On Toys



Front view



Back view



### Tag specifications:

Tag size- 1.70 inch X 4.00 inch

#### Colours used on Tag-

##### Blue colour

CYAN (C) =73

MAGENTA (M) =12

YELLOW (Y) =4

KEY (K) =0

##### Green colour

CYAN (C) =39

MAGENTA (M) =0

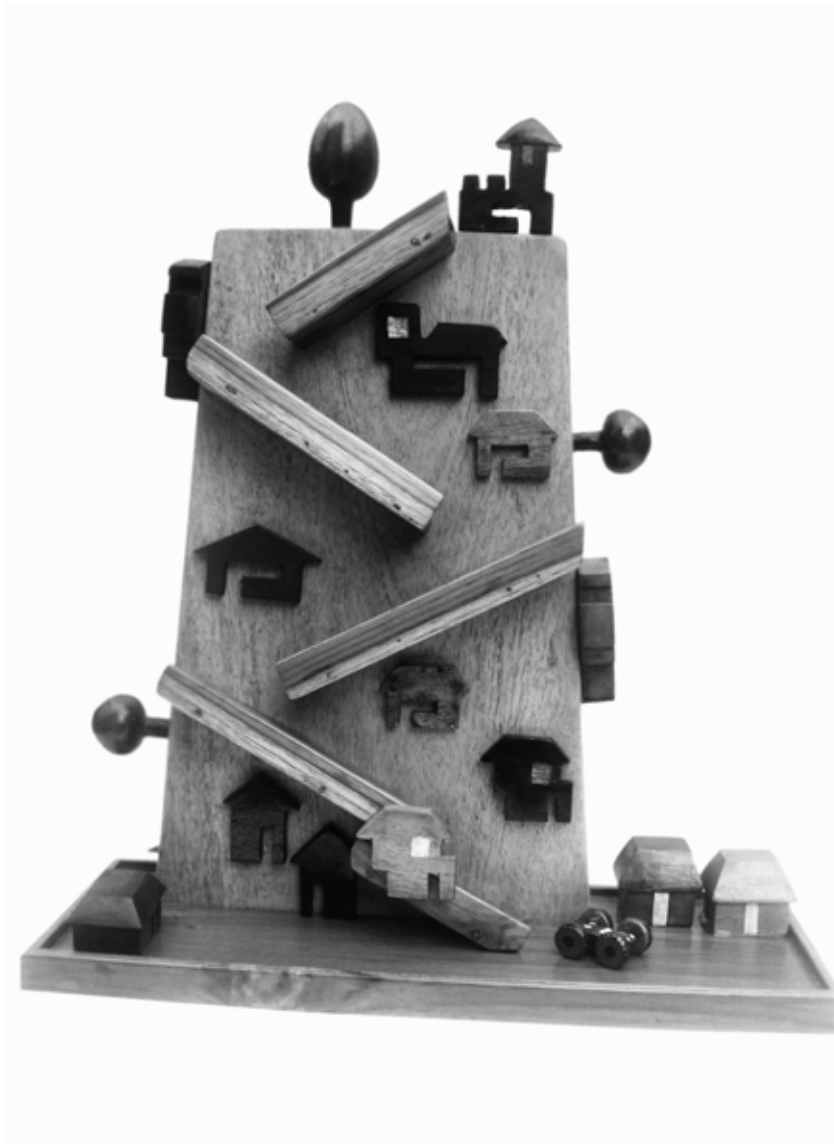
YELLOW (Y) =98

KEY (K) =0

## Logo With Tag Used On Toys







## Costing

Products costing is a one of the important part of the design process and its production. I made some costing lists for the product ranges.

### Hill Toy 1

Wood used (2 feet)	=	60.00	(30.00 RS X 2)
Labor charges	=	100.00	
Jigsaw cutting	=	60.00	
Burnishing charges	=	50.00	
Carriage charges	=	100.00	
Miscellaneous	=	30.00	
<b>Grand total</b>		<b>= 400.00/-</b>	<b>Rs.</b>

(1 KB WOOD =144 inch X 4 inch X 3 inch; price of the 1 KB wood, teak = 350/- Rs.)

If extra charges of selling are Rs. 50/- add, then price of one product is  
 $400.00 + 50.00 = 450.00/-$



## Hill Toy 2

Wood used (1 feet)	=	30.00
Labor charges	=	100.00
Jigsaw cutting	=	50.00
Burnishing charges	=	30.00
Carriage charges	=	100.00
Painting charges	=	30.00
Miscellaneous	=	40.00
<b>Grand total</b>	<b>=</b>	<b>380.00/- Rs.</b>

If extra charges of selling are Rs. 50/- add, then price of one product is  
 $380.00 + 50.00 = 430.00/-$



## Character Toy 1

Wood used (2 feet 4 inch)	=	75.00
Labor charges	=	100.00
Jigsaw cutting	=	20.00
Burnishing charges	=	30.00
Carriage charges	=	100.00
Lathe machine charges	=	25.00
Miscellaneous	=	50.00
<b>Grand total</b>	<b>=</b>	<b>400.00/- Rs.</b>

If extra charges of selling are Rs. 50/- add, then price of one product is  
 $400.00 + 50.00 = 450.00/-$



## Character Toy 2

Wood used (2 feet 4 inch)	=	75.00
Labor charges	=	100.00
Jigsaw cutting	=	20.00
Burnishing charges	=	30.00
Carriage charges	=	100.00
Lathe machine charges	=	25.00
Miscellaneous	=	40.00
<b>Grand total</b>	=	<b>390.00/- Rs.</b>

If extra charges of selling are Rs. 50/- add, then price of one product is  
 $390.00 + 50.00 = 440.00/-$

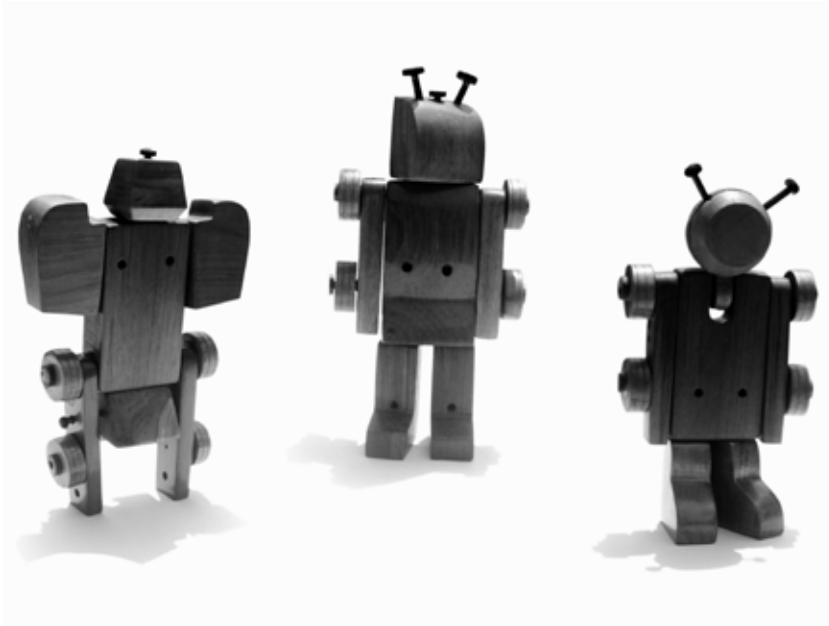




## Mizo Dance

Wood used (1 feet)	=	30.00
Labor charges	=	150.00
Jigsaw cutting	=	50.00
Burnishing charges	=	30.00
Carriage charges	=	100.00
Miscellaneous	=	30.00
<b>Grand total</b>	=	<b>390.00/- Rs.</b>

If extra charges of selling are Rs. 50/- add, then price of one product is  
 $390.00 + 50.00 = 440.00/-$



### Trans Toy series (per product)

Wood used (1 feet)	=	30.00
Labor charges	=	100.00
Jigsaw cutting	=	50.00
Burnishing charges	=	30.00
Carriage charges	=	100.00
Miscellaneous	=	30.00
<b>Grand total</b>	=	<b>340.00/- Rs.</b>

If extra charges of selling are Rs. 50/- add, then price of one product is  
 $340.00 + 50.00 = 390.00/-$

The total cost of making the prototype along with the extra charges of selling add Rs. 50/-, then all products approximately cost are between 380 to 450/- Rs.

It is expected that if these toy are batch produced, the process cost will come down. Also, the material cost will be slightly less. If these toy are batch produced in a lot of 30 pieces, the cost could come down to Rs. 390/- per toy (where carriage charges decrease 70/- Rs. and wood cost less towards Rs. 320/- are slightly less down, then  $450.00 - 60.00 = \text{Rs. } 390.00 \text{ INR}$ )

# Phase- 8

Experience

Conclusion

Bibliography

## Experience

The value of this project was very great for me as it was my diploma project, and it would aid me in building up myself as a designer in the coming years. A diploma project is like a bridge between the student life and the future work in the industry and outside in the field. All the learning that I could have gathered from this project would enrich me for my future endeavours as a designer. Therefore, all that I have learnt from this project would be of utmost importance for my work in the field.

Working with wooden carpentry craft clusters was a very different experience for me as compared to the previous projects done with the classroom projects (including System Design project) and with Puppets of Nalbari District, Assam (the Craft Documentation course). The experience that I got from here was positive and negative, sweet and sour at the same time.

My experiences about the atmosphere (working and natural both) are very different than other parts of India. Being a small village, Baktawng is well-developed and advanced. The wooden carpentry craft is also well established and the craftsmen were also well-educated and hard working.



## Conclusion

The entire project was a very good learning experience for me. I also found that there is a lot of difference between working with industries and with the craftsmen. The openness, creativity and unstructured way of working of craftsmen was both a strength and a limitation. I also realized how important it was to pay attention to detail and finishing.

Any project can not happen without team work. Since I was not working in an industry, it was difficult in the beginning but gradually I learnt to collaborate and connect with people around me. Connecting with experts, guardians, craftsmen along with the feedback from my guide became very important in decision making at each stage and moving forward. It helped me to solidify my belief how Designers are one of the most driving forces in the development of our country and how blessed we are.

In the near future, I would like to work with crafts people and make modern toys with new innovative ideas. I think, this project was a small step towards my next journey.....

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Indian Institute of Entrepreneurship (IIE), Guwahati, Assam  
Indian Institute of Entrepreneurship (IIE), Aizawl, Mizoram  
Mizoram State Library, Aizawl, Mizoram

### Museum -

Assam State Museum, Guwahati, Assam  
Purba-Bharati, Nalbari, Assam  
Mizoram State Museum, Aizawl, Mizoram

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**Thank You**