BLENDING CRAFT AND TECHNOLOGY FOR SMART LIGHTING APPLICATIONS

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About the project

* This project is an exploration to look at how we can introduce new technology into the craft sector for its benefits.
* After looking at various craft forms in India Bamboo craft is chosen for exploration
* There are three important aspects that we deal with in this project; Craft, Technology, and Lighting.
* The focus of this project is to develop a new range of smart lighting products by combining craft and technology.

1. Craft

* A craft product is appreciated by its values.
* We cannot compare them with an industrial products and we should perceive them differently.
* In order to appreciate craft products we need to understand the values of them.

Value of Craft

* The human touch - They are made by hands.
* The amount of hard work and effort.
* Craftsmanship - The experience and skill set required.
* Minor irregularities and imperfections - Each piece will be unique and one of a kind.
* The cultural and traditional values, distinct style, and the indigenous techniques and knowledge of the use of materials.

Bamboo craft

* Bamboo is one of the commonly used materials for crafts in various parts of the country.
* North-eastern states of India are renowned for bamboo crafts, but it is also used in almost every other states in the country.
* Bamboo crafts were practiced since ancient times.
* Most of the traditional bamboo craft products were primarily utilitarian-oriented; suited to local requirements and required for day to day use.

Bamboo

* Bamboo has a unique aesthetic and structural characteristic.
* It is known as an eco-friendly material.
* It is also considered as a sustainable and renewable material due to its fast-growing nature.
* Bamboo is fairly an easy material to work with.
* Bamboo can be used in various forms. It used in its natural form, as strips, and also as laminated lumber form.
* Its durability against the moisture and fungal attacks can be improved by various simple treatment methods.

2.Technology

* Technology is a huge part of our daily life. We use technology in numerous ways to make our life simpler.
* By simple definition, technology is the application of scientific knowledge into any form of practical purpose.
* Technology is the collection of techniques, skills, methods, and processes used in the production of goods or services.

Technology in craft

* Technology can be incorporated in two ways in the craft.
* First way is to incorporate in the production process by the use of industrial processes and machines.
* The second way is to incorporate it within the product to make it more sophisticated.
* The first can bring in value of the product and the second will place the product into a new market segment.

3. Lighting

* Lighting is the use of light to illuminate a space or to create an aesthetic effect by an artificial or natural source of light.
* Based on this the lighting is categorized into natural lighting and artificial lighting; we are dealing with the artificial lighting.
* A lighting system comprised of three aspects; The light, controls, and services.

Smart lighting

* The concept of smart lighting is fairly new. The development of LEDs made it possible to create smart lighting solutions.
* By using LEDs we will be able to manipulate various aspects of lighting through multiple digital platforms.
* Lamps with multiple smart features like remote access through the internet, connectivity to smartphones or smart home devices, etc. are available in the market.
* Today most of these technologies are easily accessible to anyone and can be used as per their needs.

Smart lighting technologies

Some of the smart technologies for lighting are:

* We can control the colour and intensity of lighting.
* Wireless connectivity to various mobile devices.
* Mobile application for controlling lighting.
* Remote accessibility.
* Music reactive lighting, etc.

Components of smart lighting

* Smart lighting can be done using very minimal number of components.
* The minimum hardware requirements are:
  * Addressable LEDs
  * Single board microcontrollers
  * Power supply
* Depending on the additional functional requirements we can add more hardware if necessary.
* Apart from the hardware, we also need a development platform for writing the program. The most commonly used platform is Arduino IDE.

DESIGN BRIEF

Project statement

* The project is to design and develop a new range of smart lighting systems by combining craft and technology.

Objectives

* To design and develop new range of smart lighting systems by combining craft and technology.
* To explore new ways to create craft products using bamboo and by combining it with other materials like wood, metal, handmade paper, etc.

Scope

* To study and understand smart lighting using LED and various existing technologies associated with it.
* To design a range of products by combining these two aspects and optimize them for production.
* To develop a protocol for training the new designs and the technical aspects to a craft-person.

Targeted market segment

* Middle class and Upper middle class users
* Smart home users/ enthusiasts
* Craft product collectors/ enthusiasts
* Souvenirs/ Gifts

Opportunities

* Combining craft and smart lighting technology is a new area – Creating a new market for craft products
* Revival of craft sector and improving the craft person's livelihood.
* New employment opportunities
* Together technology and craft can create a more valuable product to the users - Both of them will work for each others advantage by adding values to one another.

DESIGN DIRECTIONS

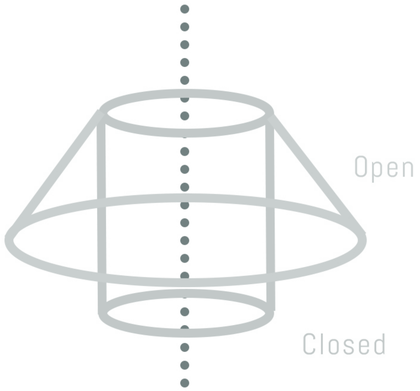
Initial directions

* Initial directions which were identified for the project were:
* Exploration in Bamboo craft by combining other materials like wood, metal, paper, etc.
* Combine a traditional art form with craft
* Exploration in Bidriware/ Dokhra craft

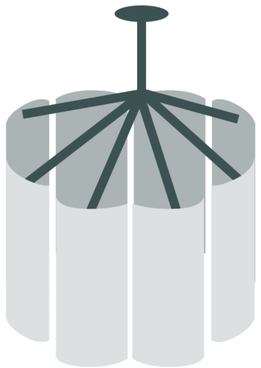
Lighting + Movement and visual harmony – Blooming Lamp

Bud

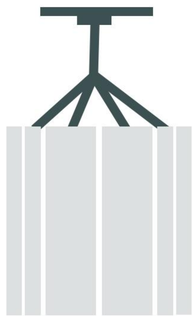
Bloom



Schematic Diagram



Schematic Lamp form



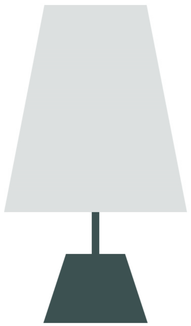
Closed position

Open position

Blue-sky ideations

Lighting + Sound + Traditional Artwork

Ceiling

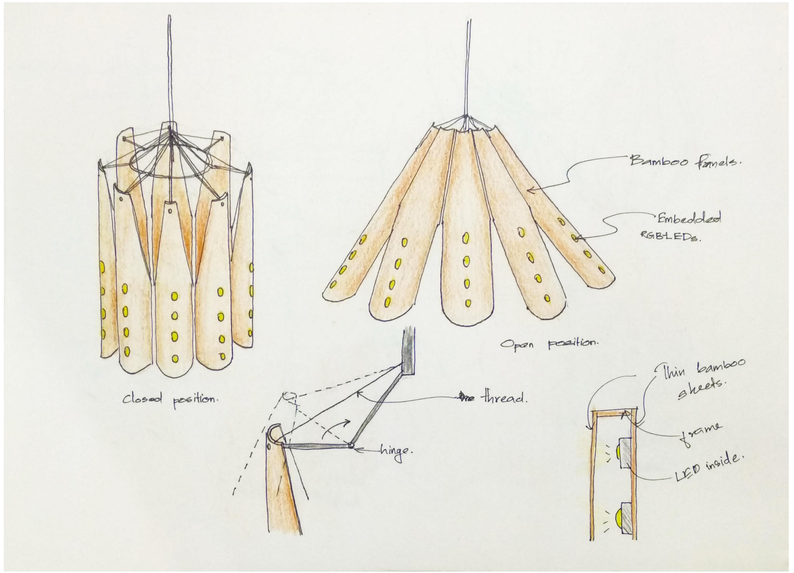


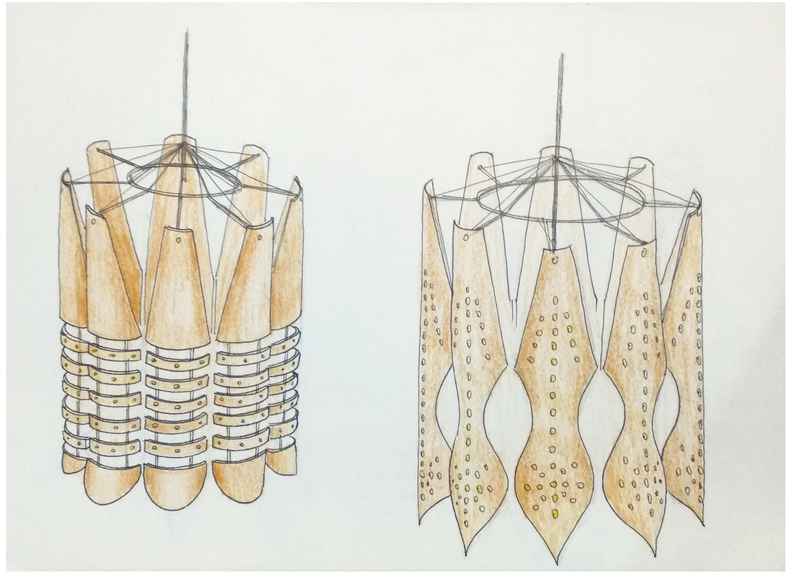
Table

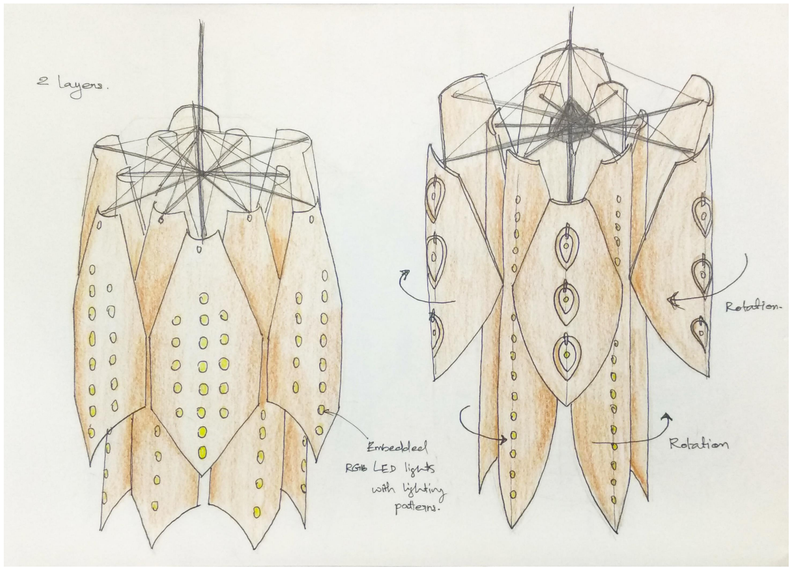
Floor

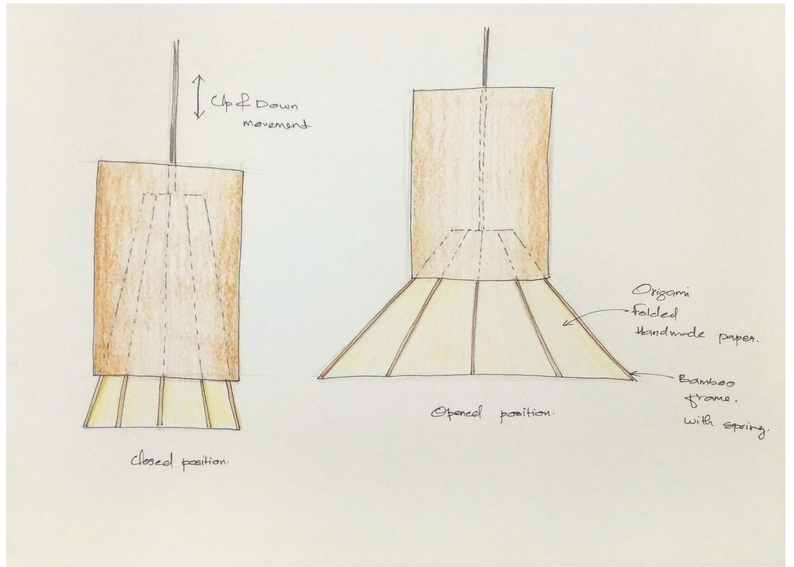
Blue-sky ideations

DESIGN IDEATIONS









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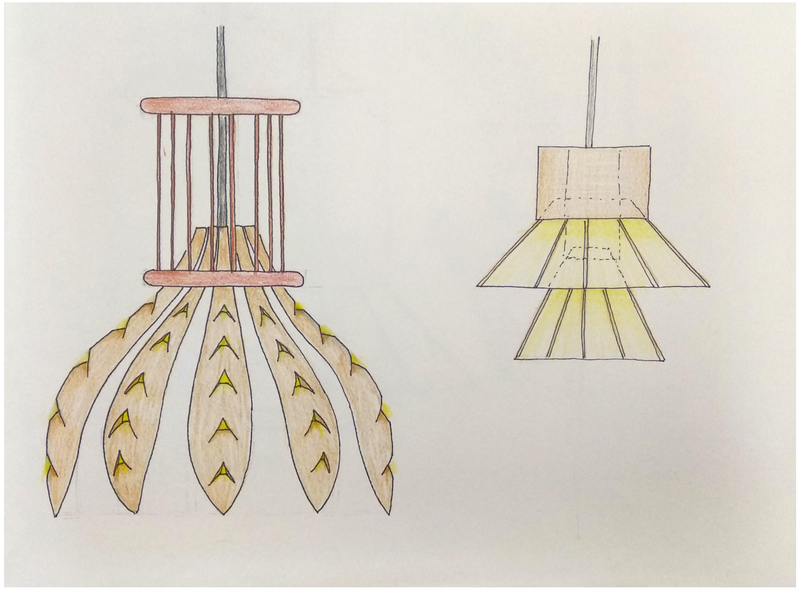

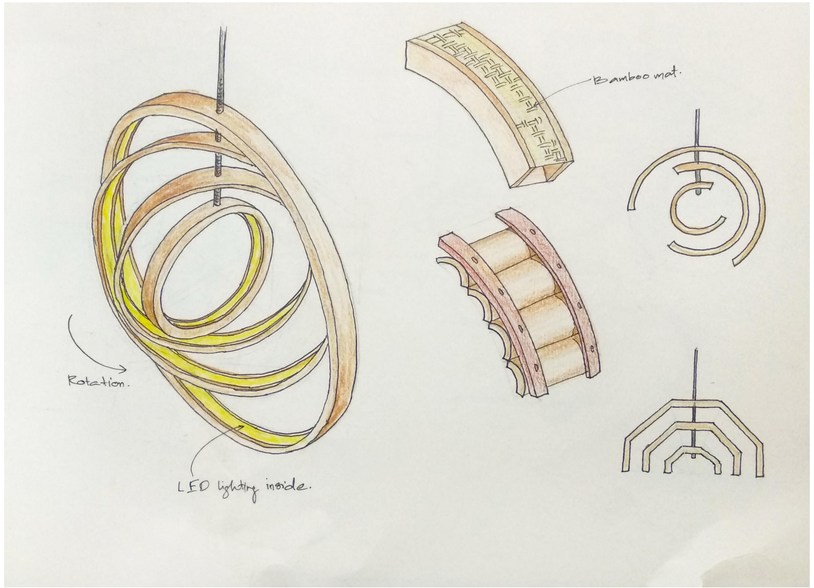

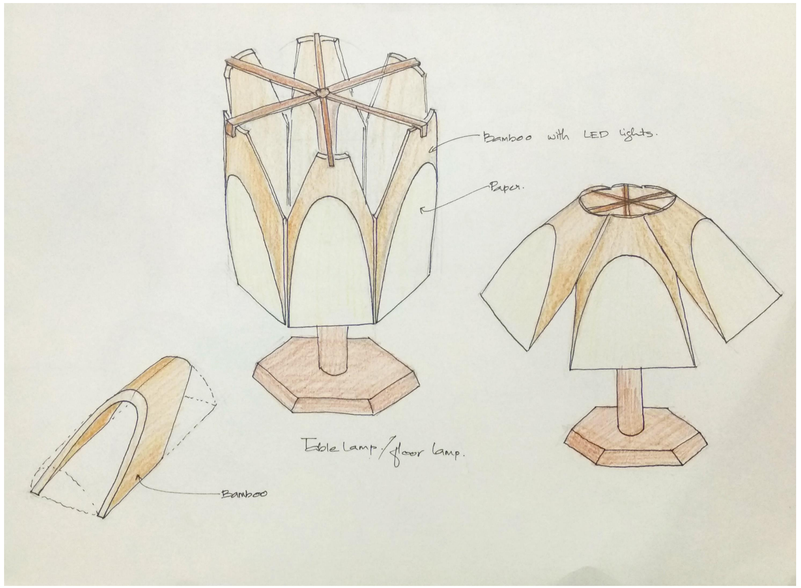

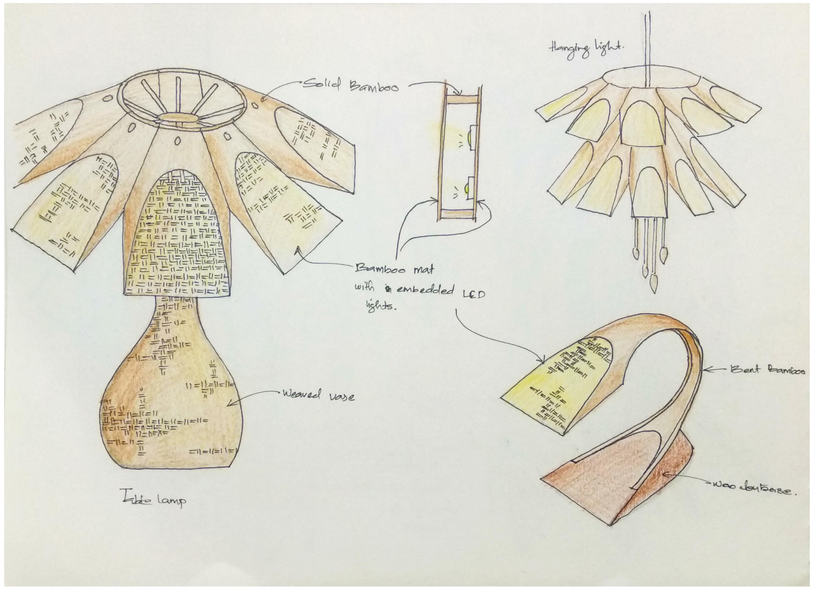

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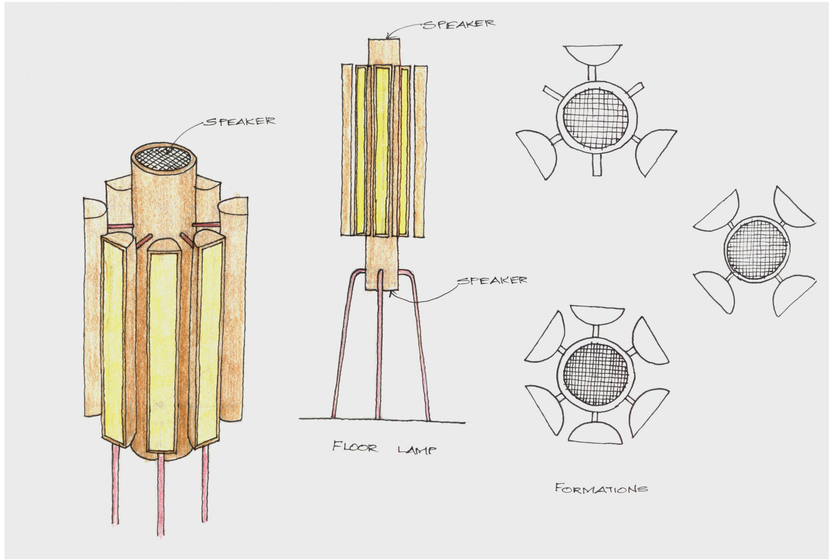

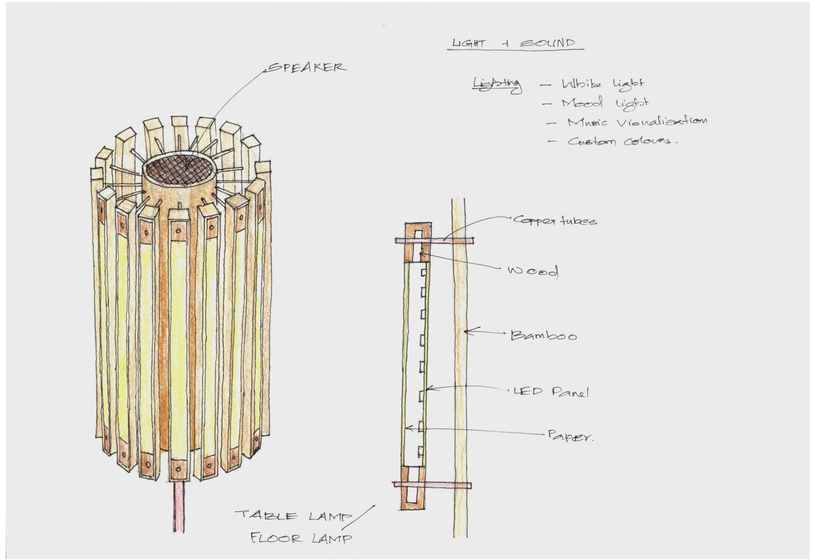

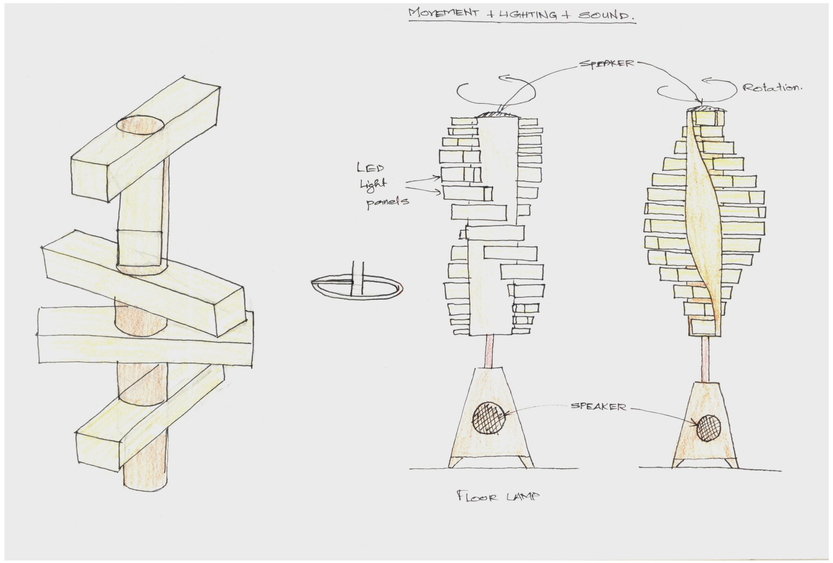

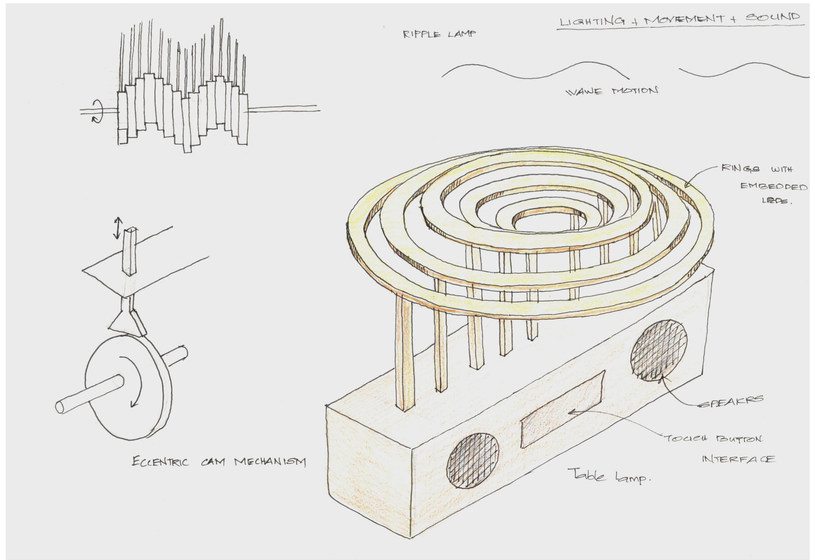

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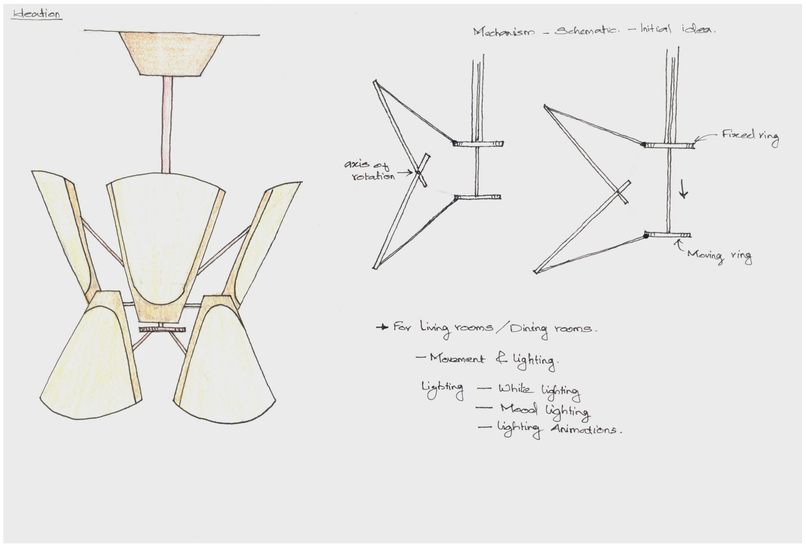
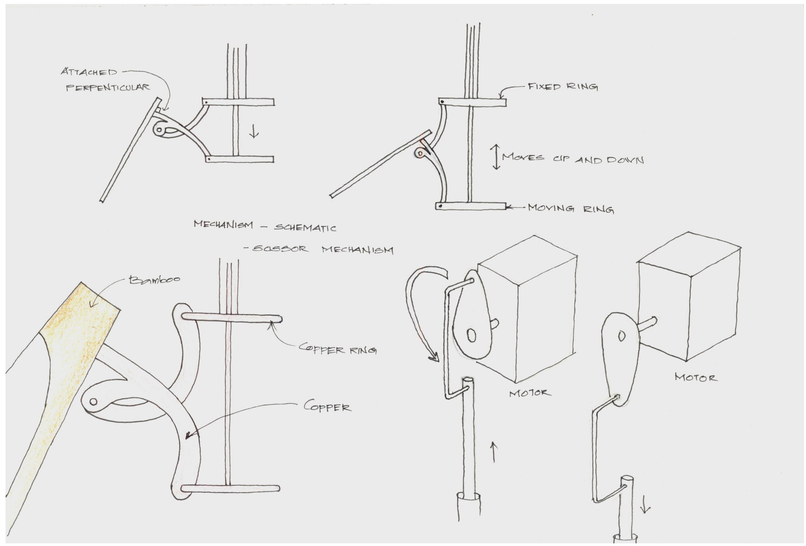
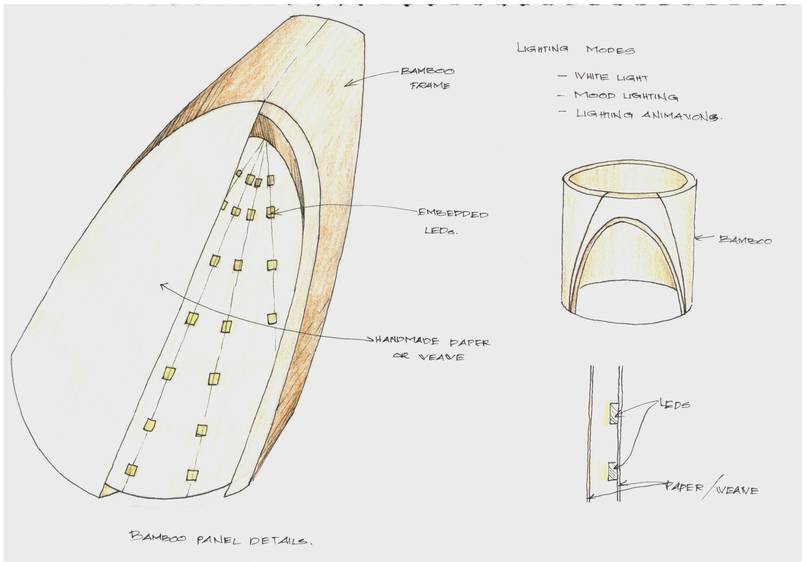
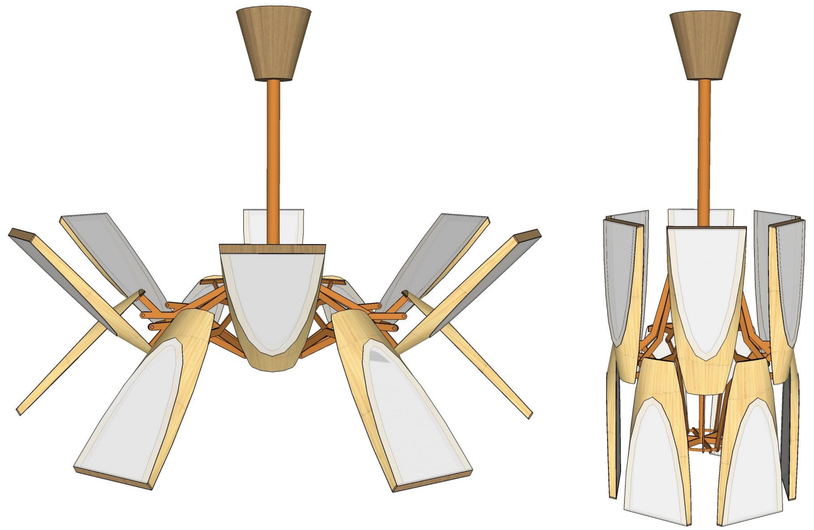
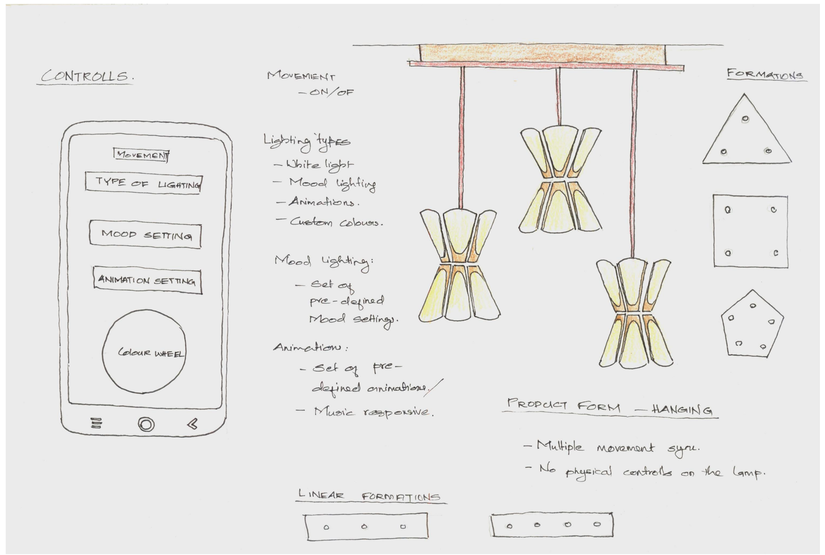


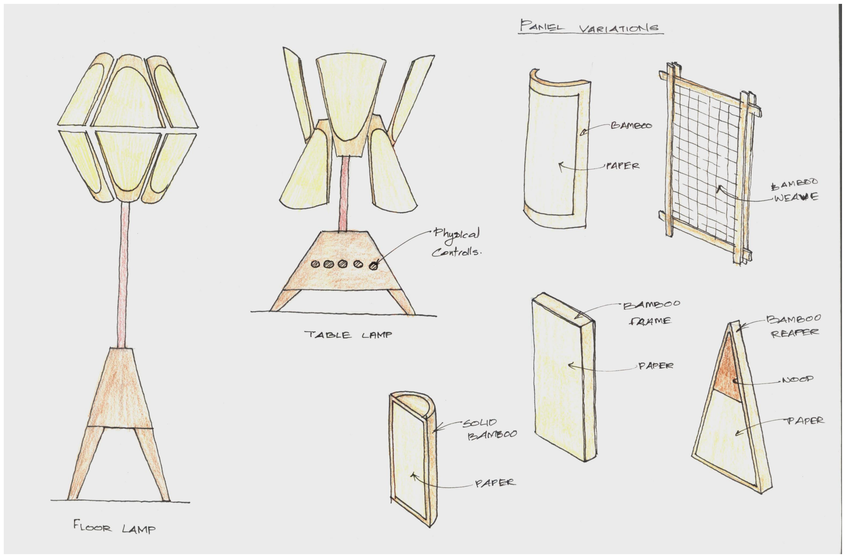


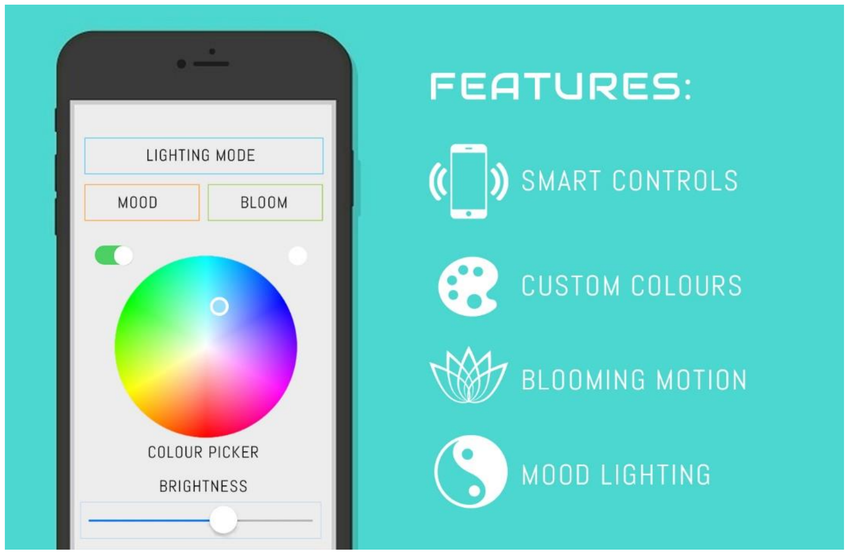




Initial Concepts







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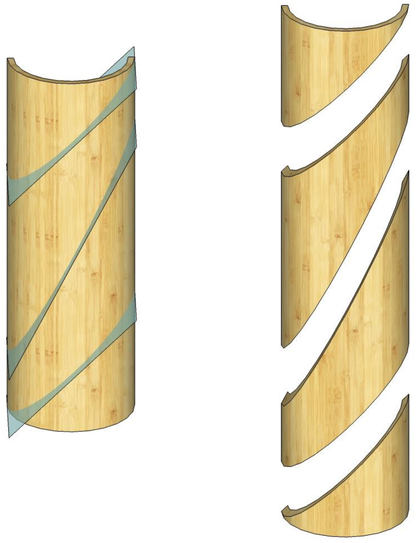
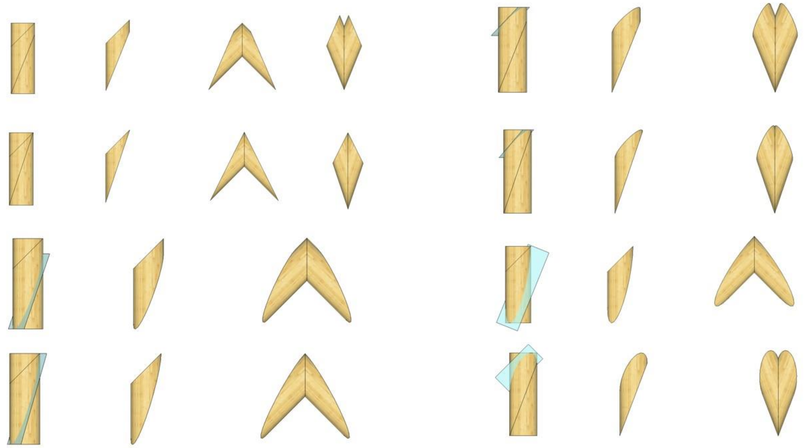
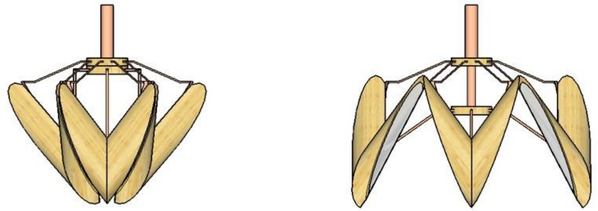
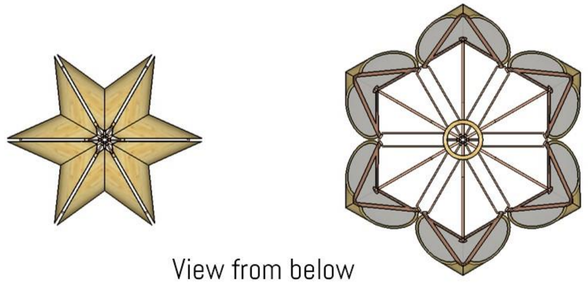




Ideation - Modularity



Elevations



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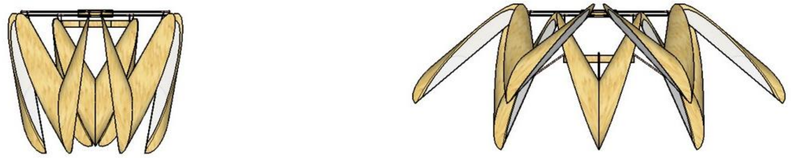

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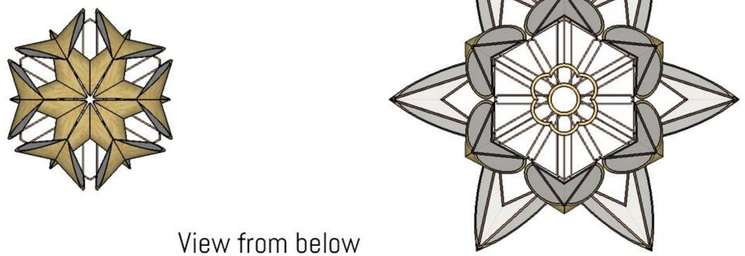
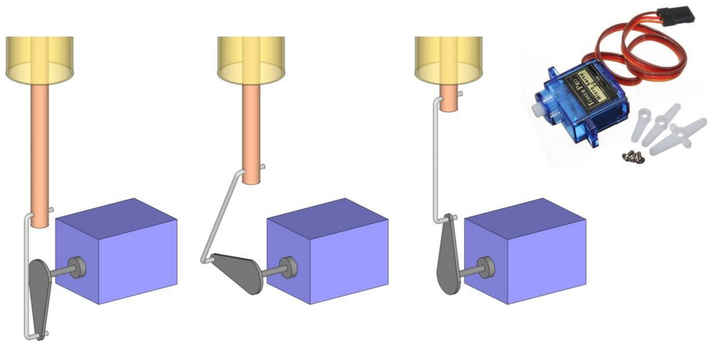
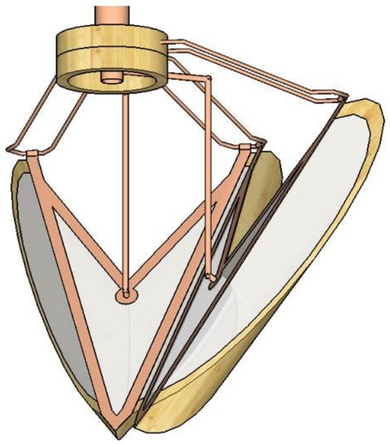
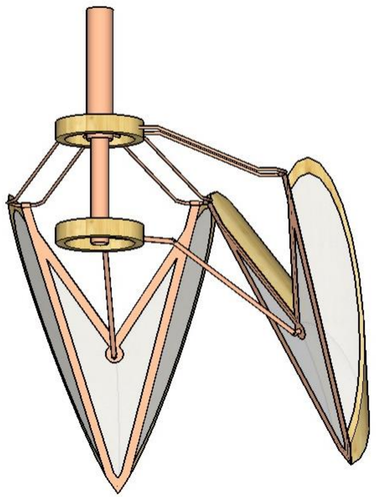


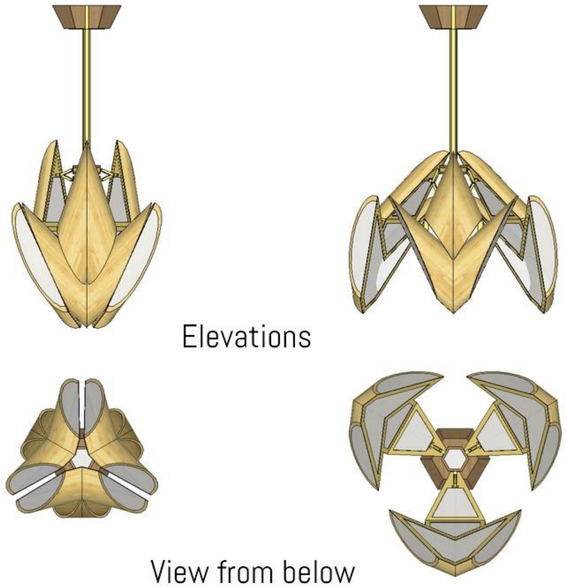
View from below

Concept 2









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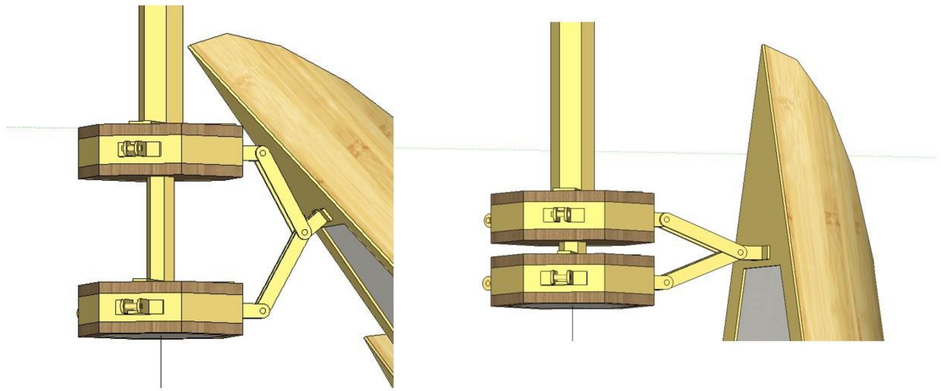
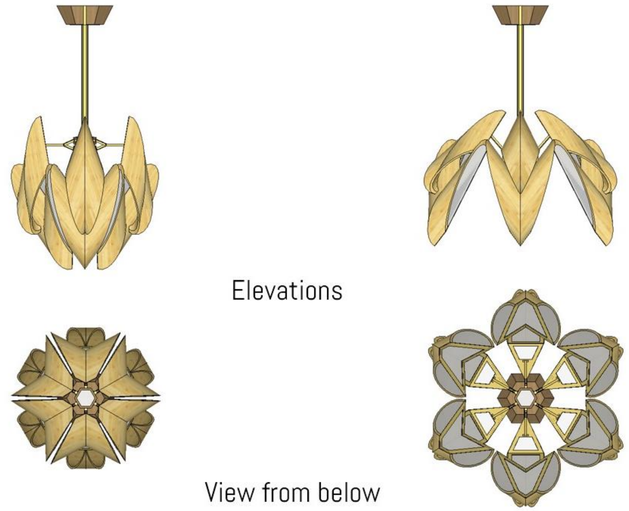


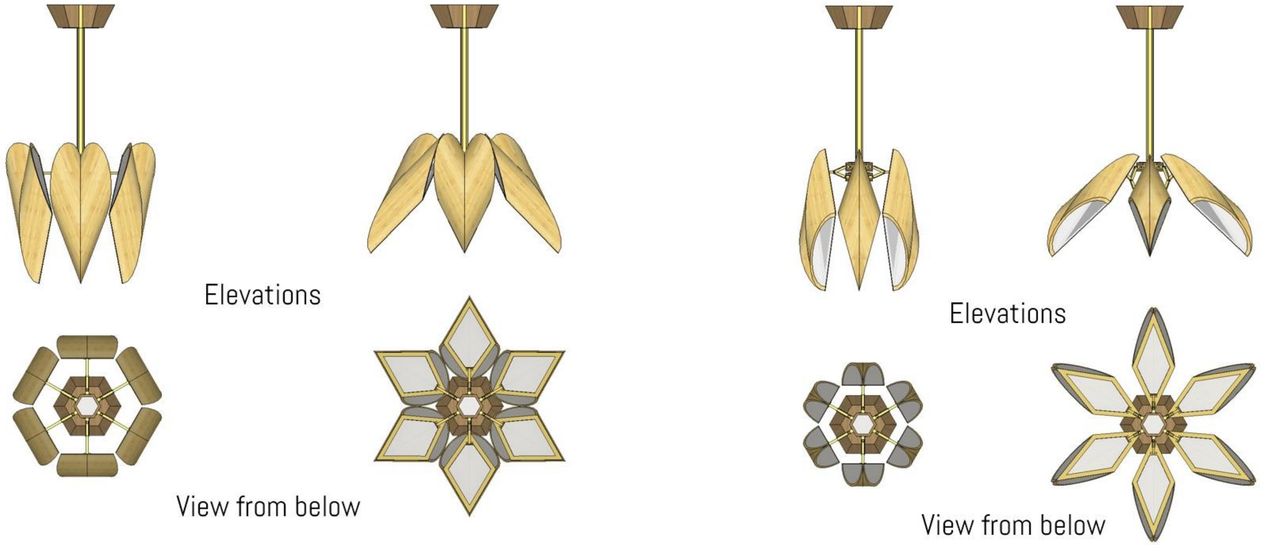


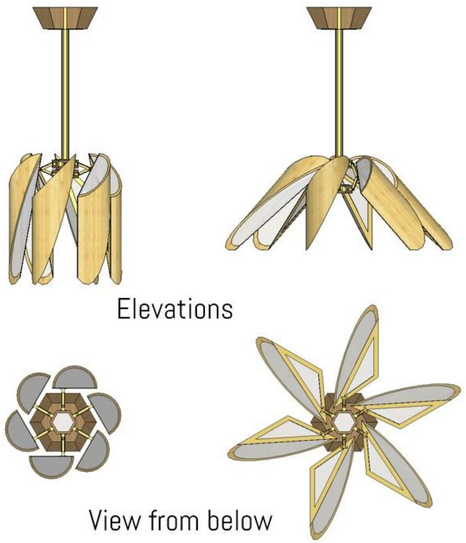
Elevations

View from below

Concept 2

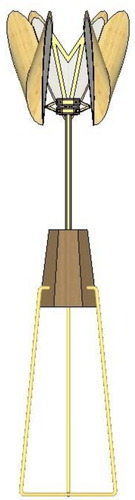
Chandeliers

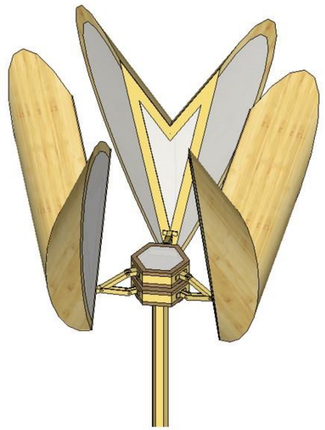


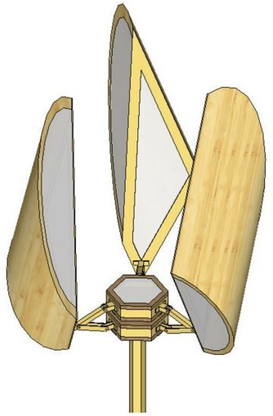


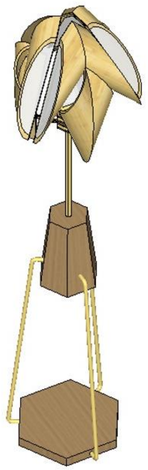
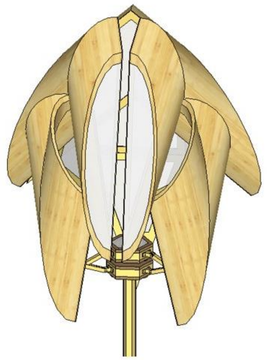
Concept 2

Floor Lamps





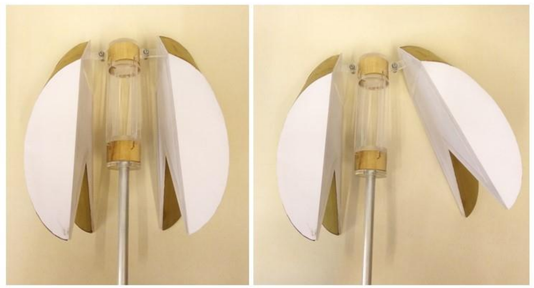



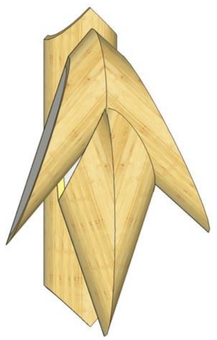



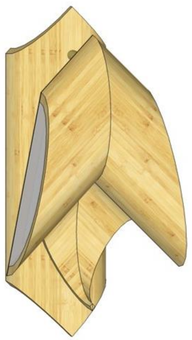
Concept 2

Table and Wall lamps

Concept 2



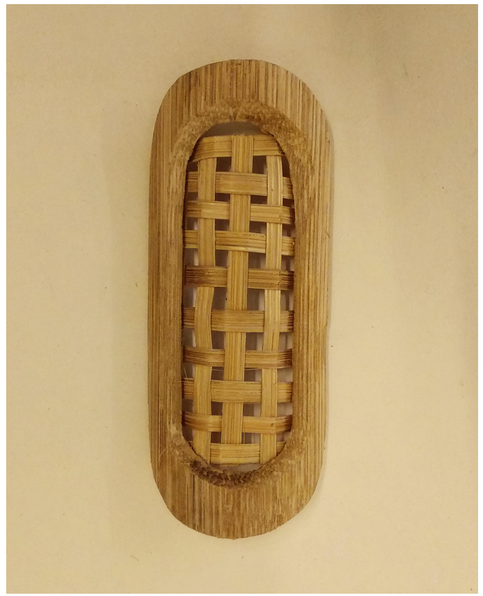




INITIAL PROTOTYPES

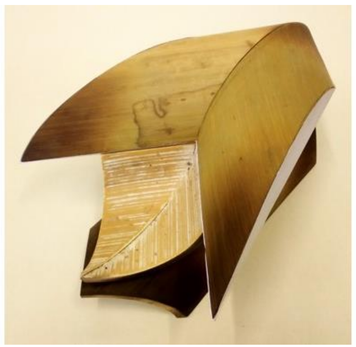
Initial Prototypes of the panels

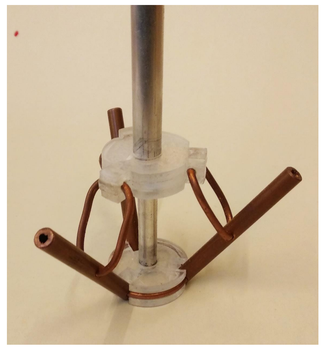


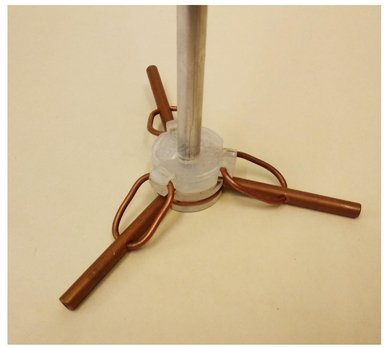



Initial prototypes

Concept 2 prototypes

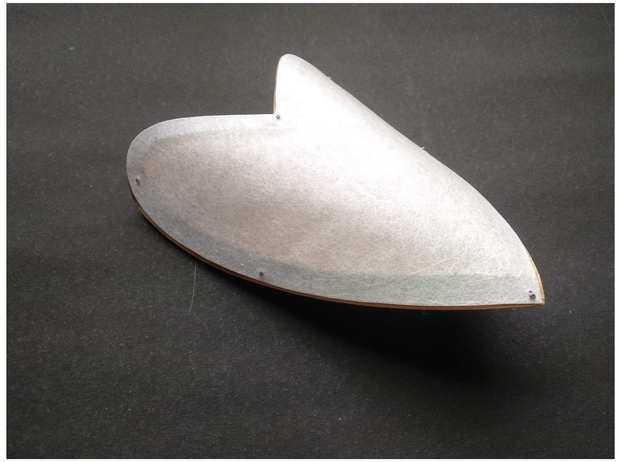






Initial prototypes

CONCEPT REFINEMENT



Refinement of panel form






Table lamp concepts






Table lamp concepts



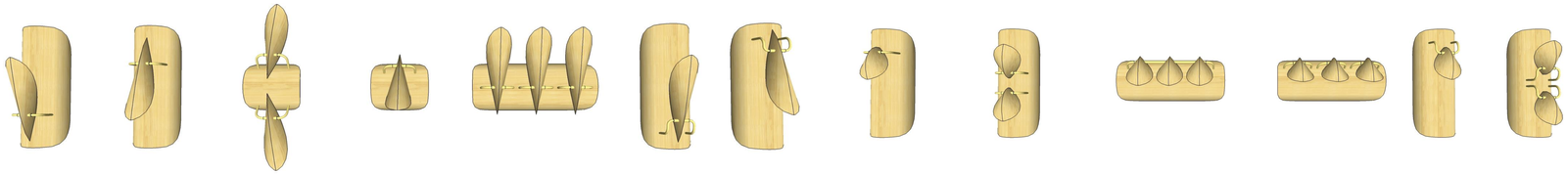


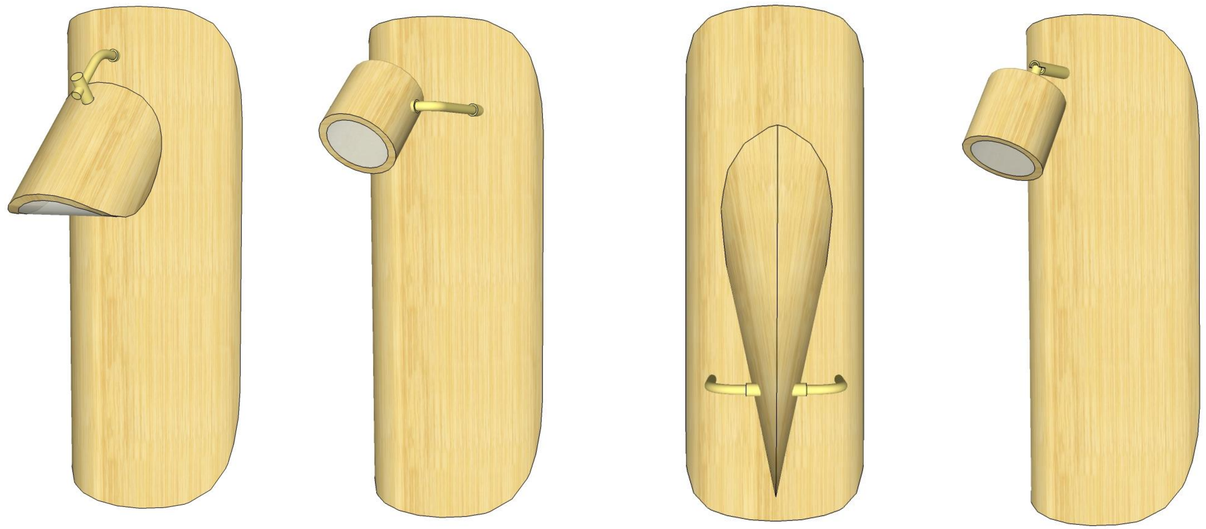

Wall lamp concepts

Prototypes

Prototypes

FINAL CONCEPTS





Concept refinement

Final concepts – Table lamp 1

Final concepts – Table lamp 2

Final concepts – Table lamp 3

Final concepts – Table lamp 4

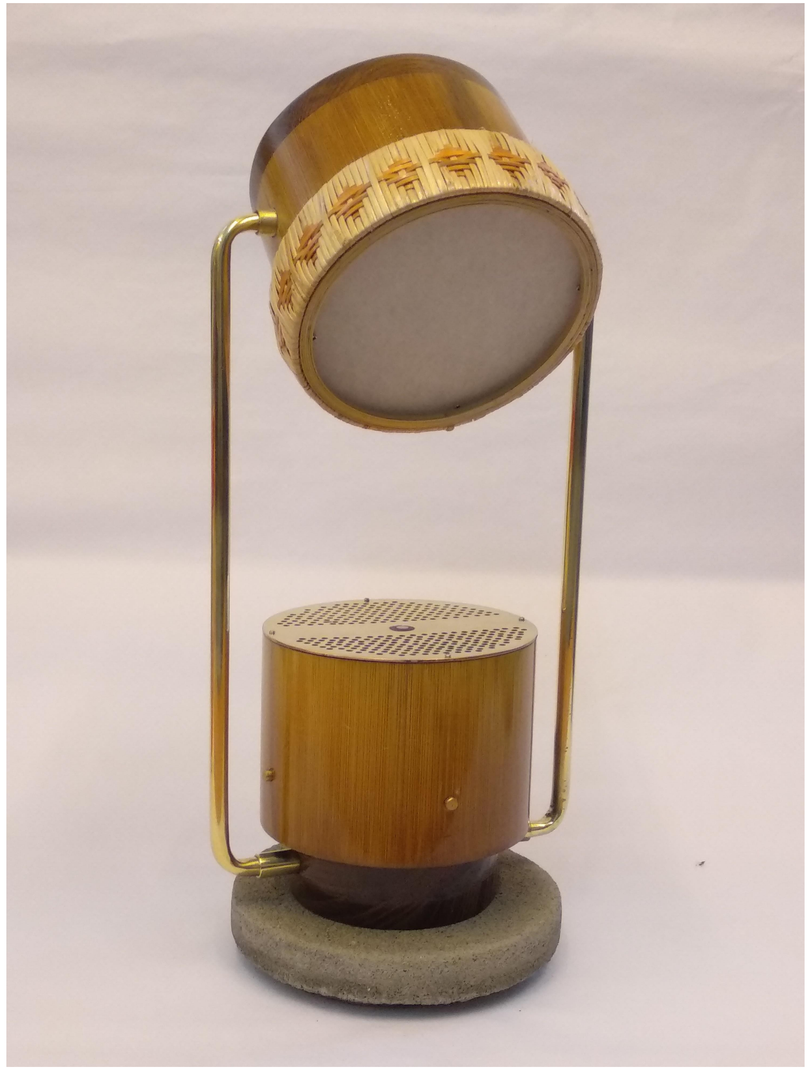
Final concepts – Table lamp 5

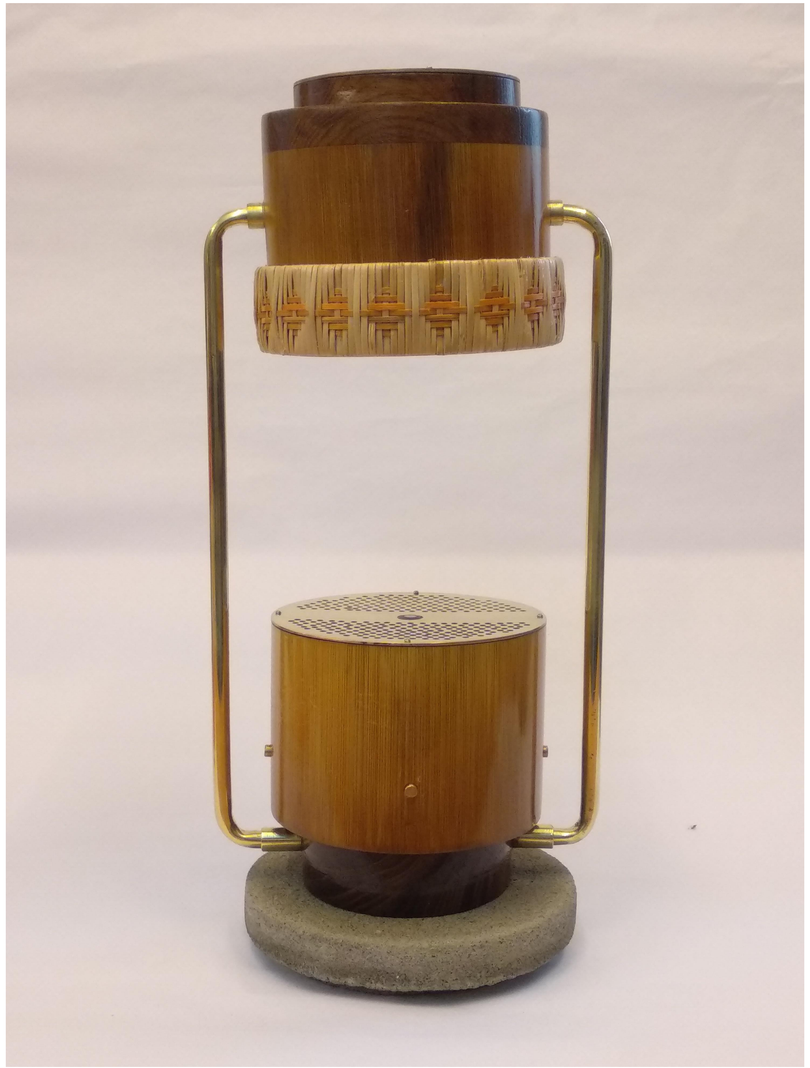
Final concepts – Table lamp 6

Final concepts – Table lamp 7

Final concepts – Wall lamp

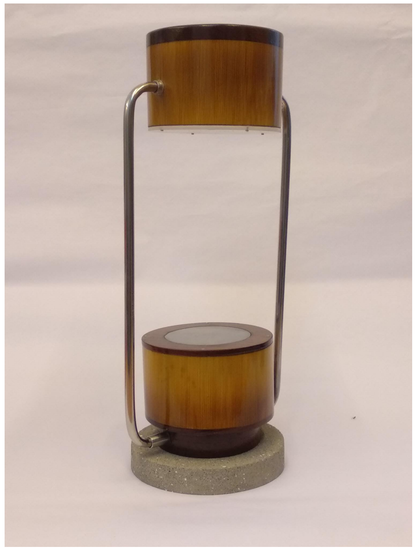
FINAL PRODUCTS





Final products





Final products

Final products – wall lamp range

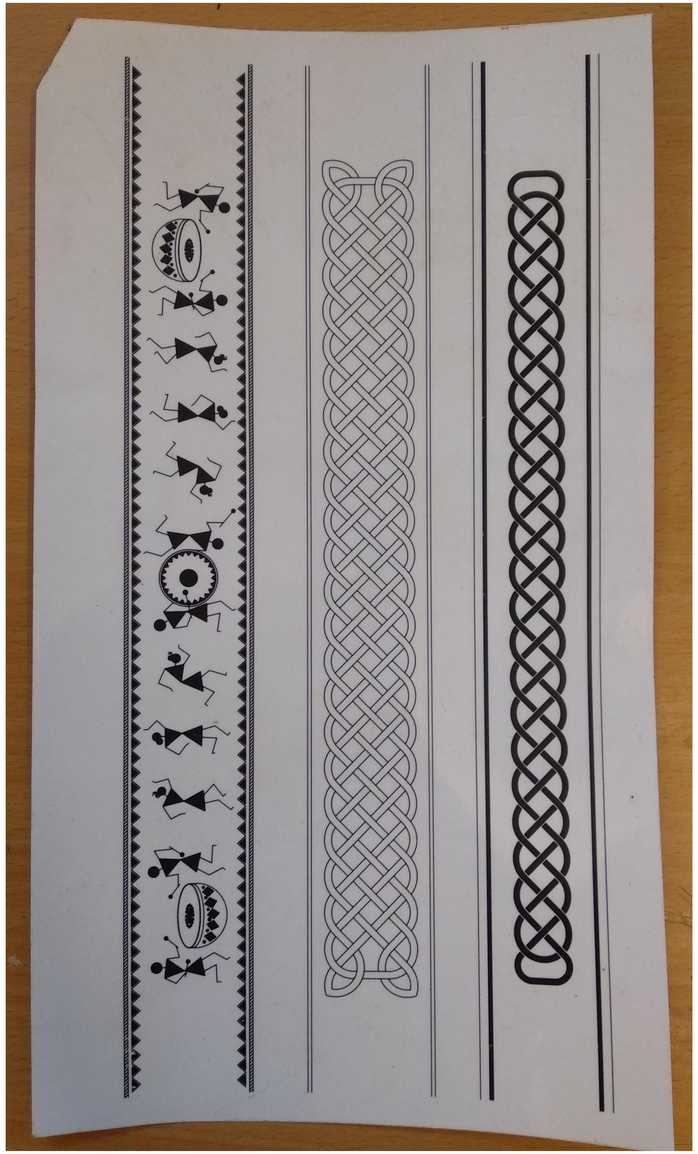
Bamboo Smart Lamp

- Main Light
- Candle Light
- Sunset
- Twilight
- Northern Light
- Rainbow

Lamp features

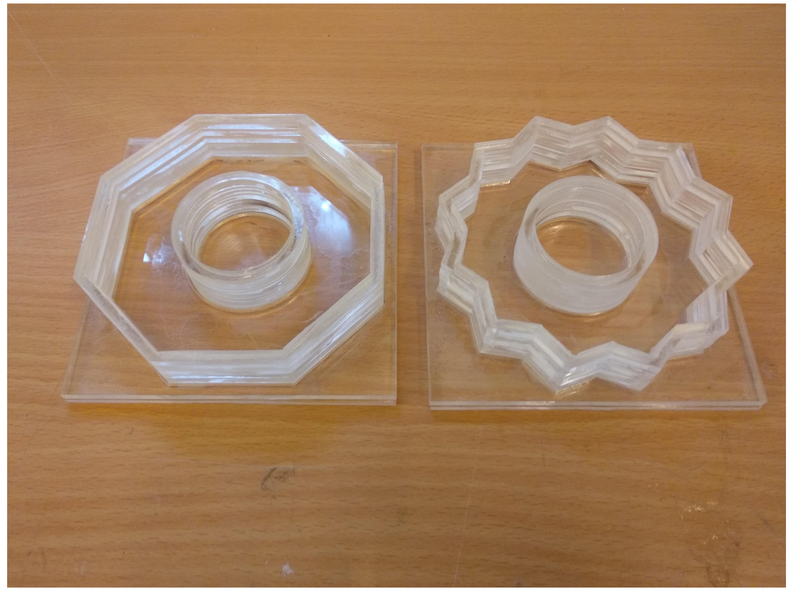
EXPLORATION OF DETAILS

Laser Etching



Sticker

Vacuum forming



Casting

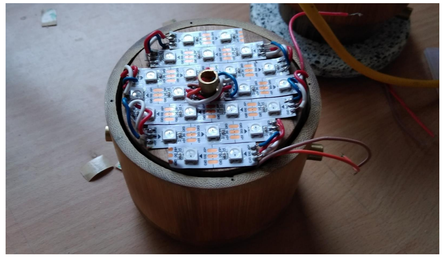
Woven Rings

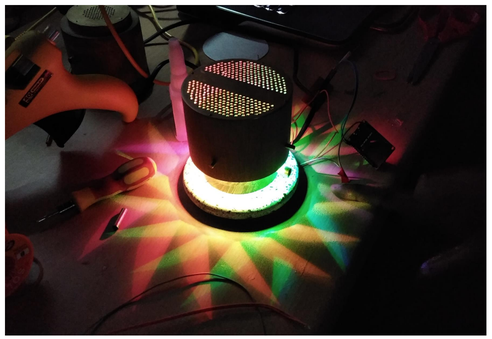
PRODUCTION MANUAL

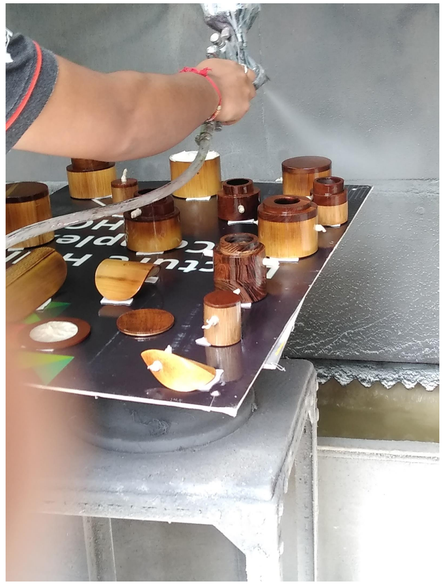




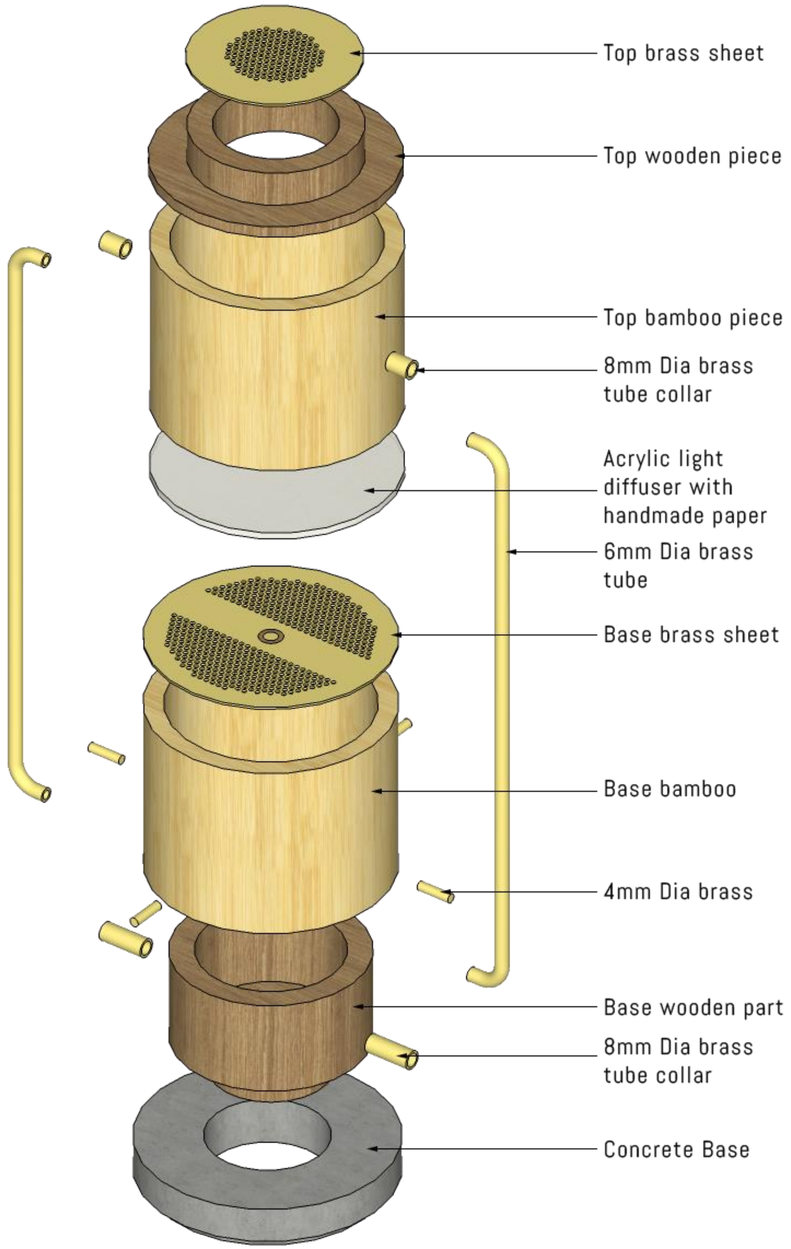


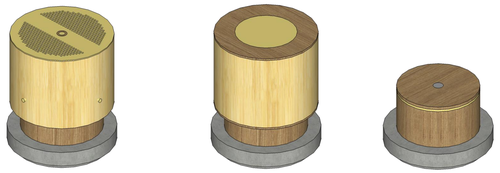



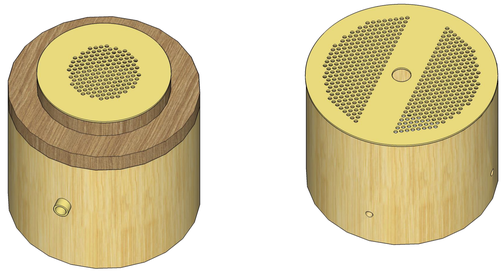


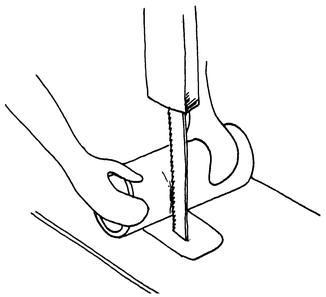


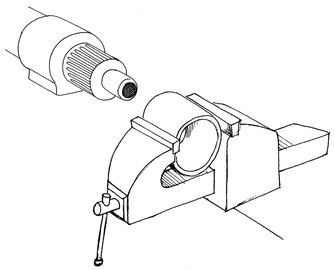
Process documentation











Production Manual

Thank you