

# Report of Summer Internship



**Anirban Maiti** | 156130003  
3rd Semester | Master of Design (ID)  
Industrial Design Centre  
Indian Institute of Technology, Bombay, IN



# Report of Summer Internship

under the guidance of  
**Shahnavas M S | Gauthier Raguin**



**Anirban Maiti** | 156130003  
3rd Semster | Master of Design (ID)  
Industrial Design Centre  
Indian Institute of Technology, Bombay, IN





Regd Office:  
TEQZO Retail Products Pvt.Ltd  
No. 410, CMR Road, Kalyan Nagar,  
Bangalore - 43, Karnataka, INDIA  
Tel : +91 80 4121 8823, +91 80 4165 5487  
Email : [enquiry@teqzo.com](mailto:enquiry@teqzo.com)  
URL : [www.teqzo.com](http://www.teqzo.com)

An ISO 9001:2008 Company

31 May 2016

To Whomsoever Concerned

SUB : Internship / Experience Letter

This is to certify that Mr. Anirban Maiti, residing in # 33B, Tangra Road, Kolkata-700015 joined us as an Industrial / Product Design Intern on 2nd May 2016. His main responsibilities were in the area of Product Design and Development. He is relieved from all duties and responsibilities at TEQZO as on 31st May, 2016, completing his four weeks internship.

He worked on several research and development projects at TEQZO as a team member during various stage of product development. We found him to be sincere, diligent and creative. We appreciate his contributions to the organisation and wish him the best in future.

For TEQZO Retail Products Pvt Ltd

Shanavas M.S  
Director.  
DIN : 02447843





## Contents

### Company Profile

#### TEQZO

Innovative Design Concepts for AARNA Fans  
Research on Different Washing Processes for Unilever  
Design Concept generation for Project OYE  
Design Concept generation for Fill Valve  
Playsolar Sticker

#### GEMKLIP

Decorative Fluorescent Tubelight Cover  
Ideation fo Modular Shelf  
Gemklip Store Shelf Pattern  
Gemklip Motto Callouts  
Gemklip Store Inauguration Poster  
Gemklip Store Inauguration Flyer  
Gemklip T-shirt  
Interactive Calendars

Sketching Sessions





## Company Profile

Teqzo Retails Products is an ISO 9001:2008 company based in Bangalore. It has two wing namely Teqzo Consulting India - 10+ year old Innovation & Design Consulting firm offers Industrial Design & Product Development services across the globe and Teqzo Environments - works in the area of ultra modern, state of art and human centric control rooms & consoles and Furniture Solutions.

It has one sister company namely Gemclip also - which works on simple cool independent innovative projects like Jumbo Gemclip, Jaari, Cripto etc.

**TEQZO**

gemclip.com

**TEQZO CONSULTING**  
An Innovation and Design Consulting Firm.

**TEQZO Environments**

Ultra Modern, State-of-Art and Human Centric Control Room Furniture Solutions

### TEQZO Retail Products Pvt Ltd

An ISO 9001: 2008 company  
410, CMR Road, Kalyan Nagar, Bangalore - 43, Karnataka, IN  
Tel : +91 80 4121 8823 Email : enquiry@teqzo.com



### Shahnvas M S

Director  
Teqzo Retail Products Pvt. Ltd.



### Gauthier Raguin

Director  
Gemclip



## Introduction

Designing of Ceiling Fan for AARNA within the given domain with minimal change in the process line to create new aesthetical style to revive their position in the current competitive market.

## Company Profile of AARNA

AARNA is not at the first class group of ceiling fan manufacturer but just after renowned ceiling fan manufacturer like Havells, Orient, Usha, Standard etc.

This company is more or less in the same category of Polycab Fans etc.

Technically meant to serve affordable ceiling fans in the middle class population of India.



## Target Market and Users

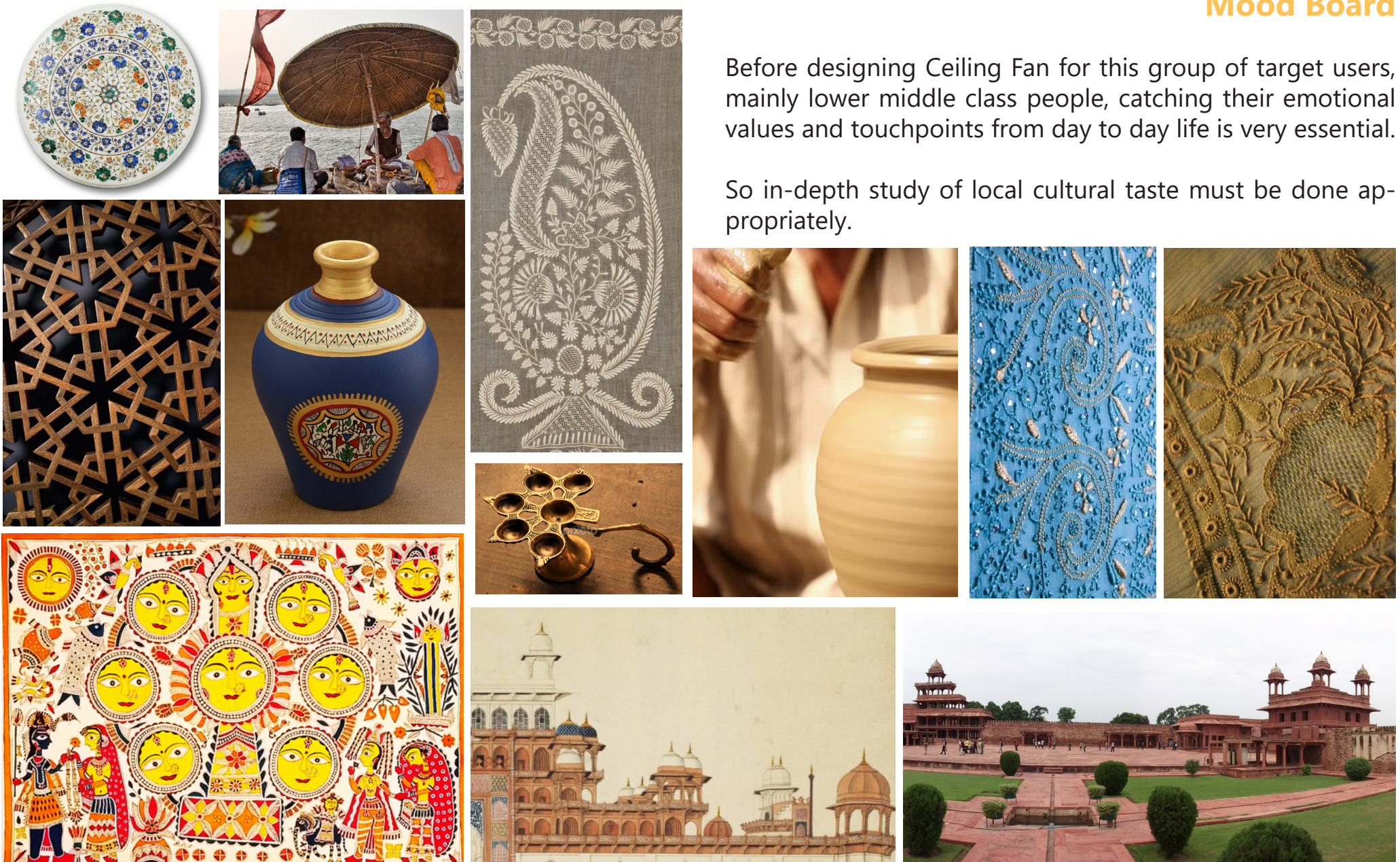
Semi-urban and semi-rural population of the India especially in the state of Bihar, Jharkhand, Uttar Pradesh and Uttarakhand.



## Mood Board

Before designing Ceiling Fan for this group of target users, mainly lower middle class people, catching their emotional values and touchpoints from day to day life is very essential.

So in-depth study of local cultural taste must be done appropriately.



## Existing Market Study

Market study should be done to know the current trend and language for designing modern ceiling fans. It also help to know stylizing methods according to different elements of the fans.

Company studied to know current market need:

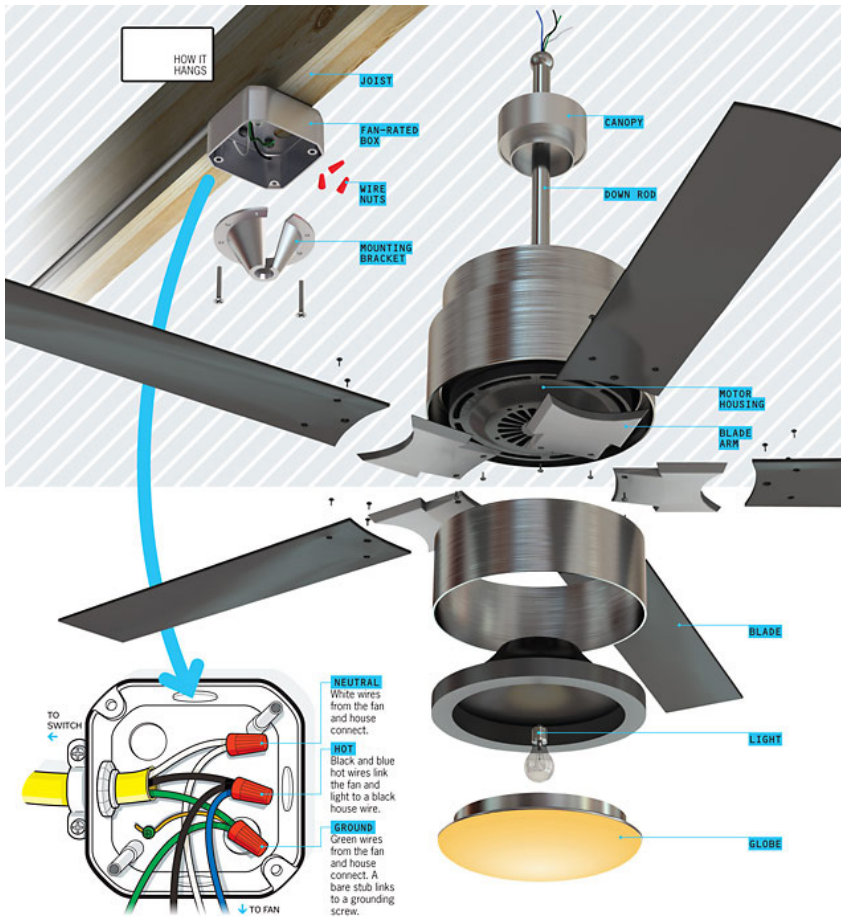
- (i) Havells,
- (ii) Crompton Greaves,
- (iii) Orient Electric,
- (iv) Usha,
- (v) Standard,
- (vi) Polycab

and some other companies and global new designs.

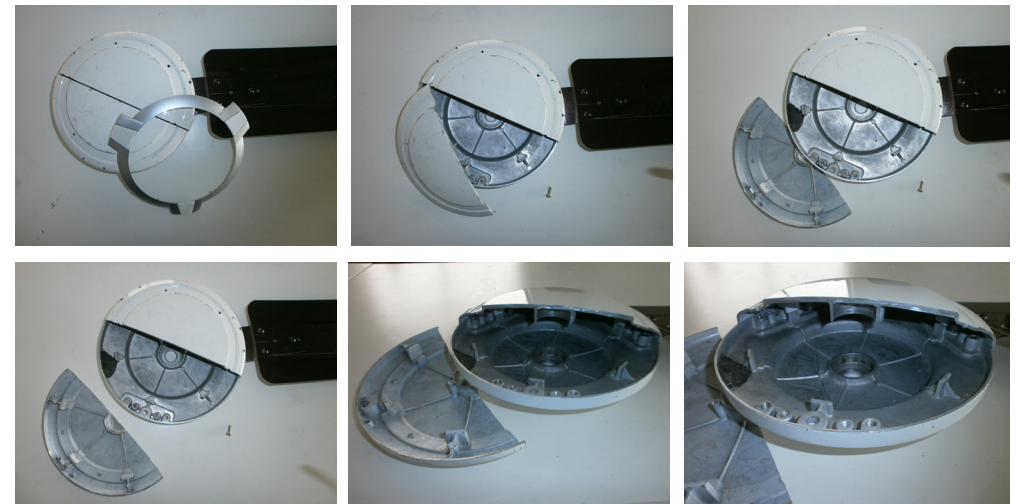


## Detail Study of Ceiling Fan - Parts and Assembly

It is very important to study existing fans in details before designing a new Ceiling Fan - all the parts and the details and assemble sequence accordingly. It gives an insight to manufacturing aspects of designing any product and how an internal architecture works behind the aesthetics aspects.



Details of Ceiling Fan (Source - <http://www.popularmechanics.com/home/how-to/a6735/whats-inside-your-ceiling-fan/> dated 30-06-2016)



## Scope of work to improve

Form Colour Texture Line quality Design flow of the parts  
Details Aesthetics

Create Possible new trend

## Area of New Concept with respect to target users

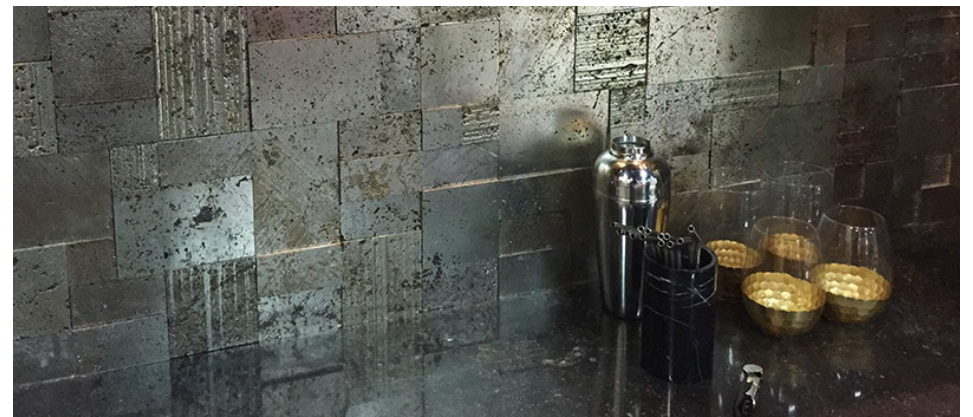
Inspiration from daily life  
Tradition culture and Heritage value  
Well known Natural resources  
Patterns and Textures  
Local major architectural style

Some futuristic design concepts  
Automotive design inspired

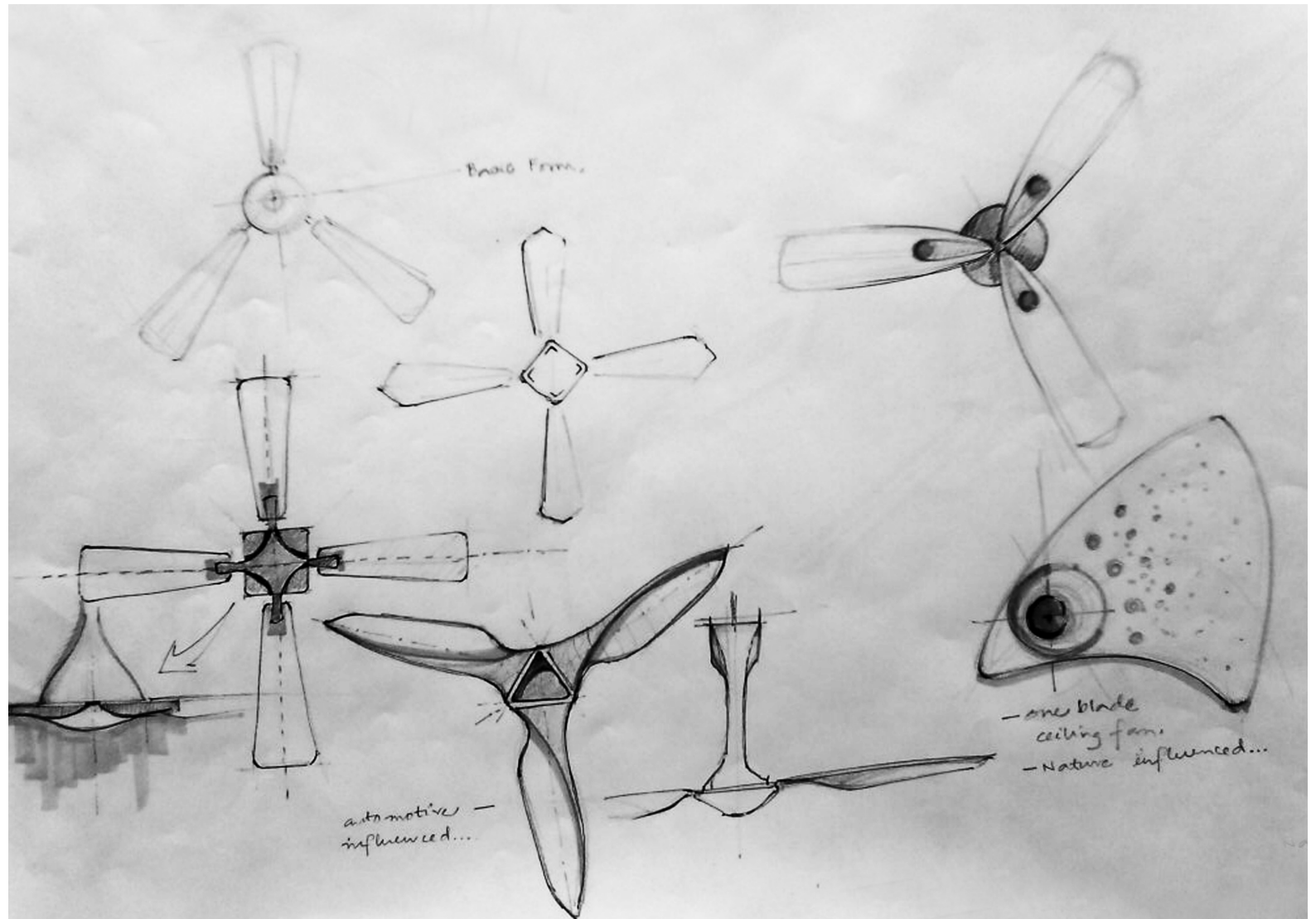
Affordability  
Economic  
Good looking  
Resemblance to their general wish

Aesthetics

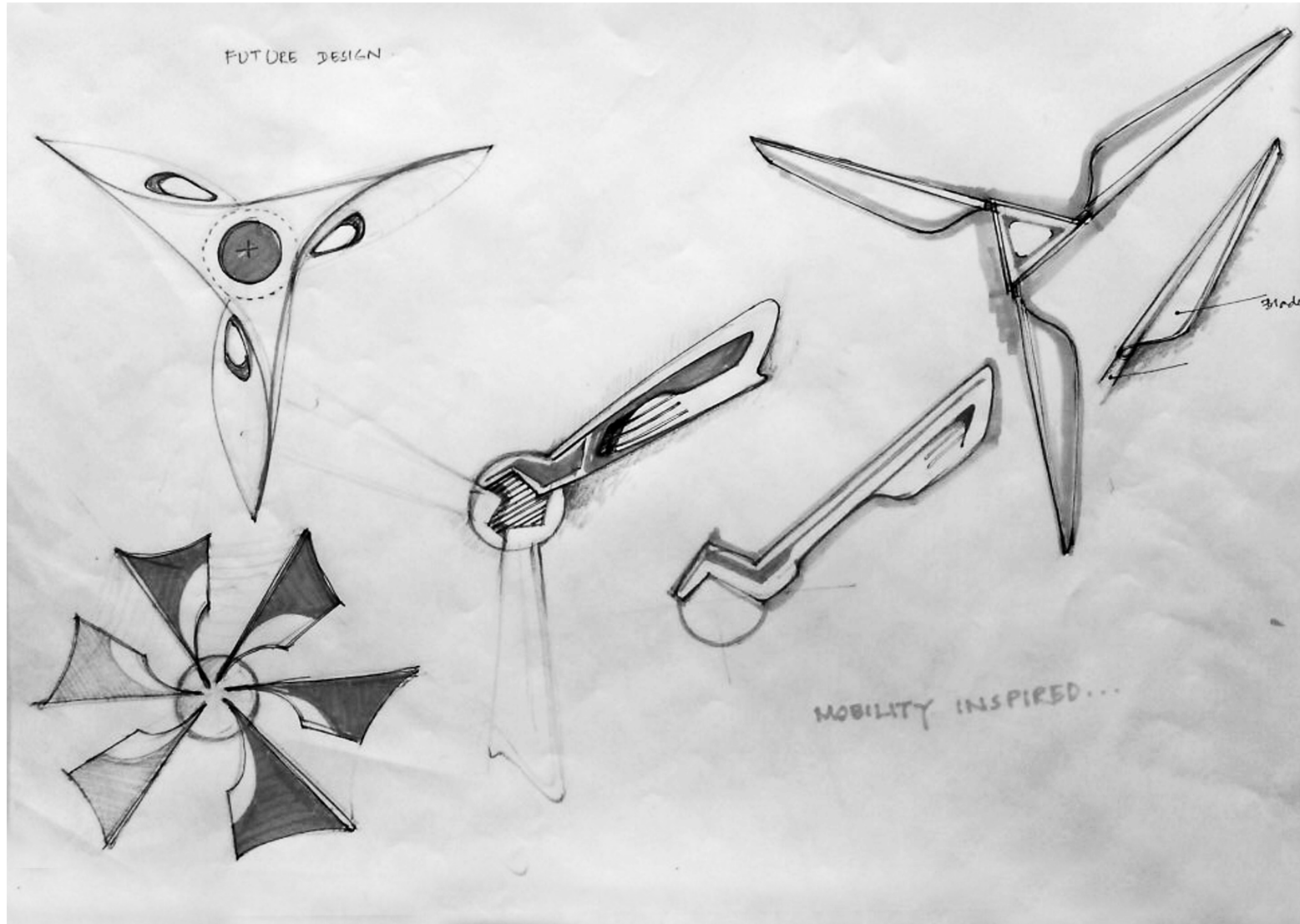
Create Possible new trend



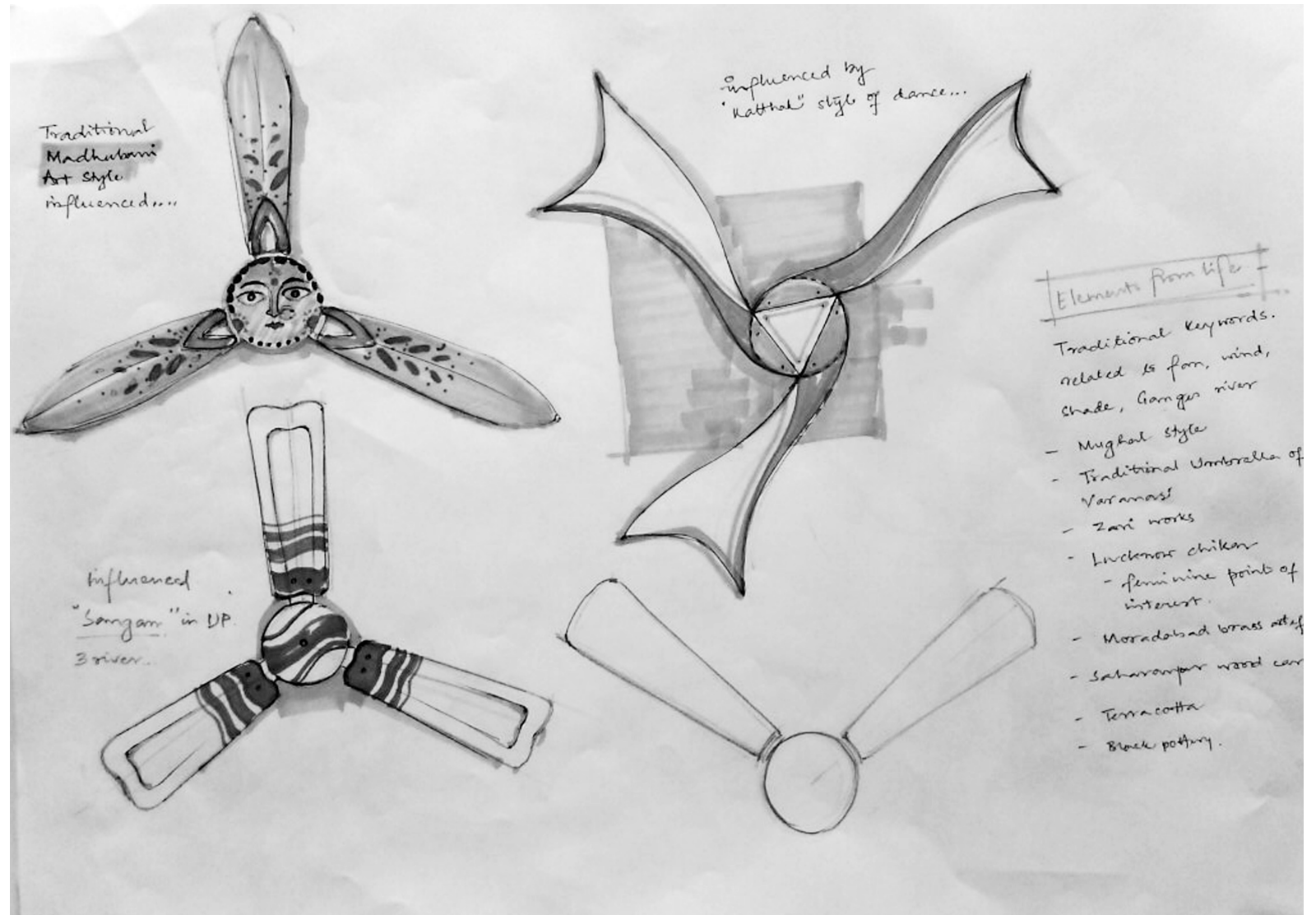
## New Concepts - Sketches



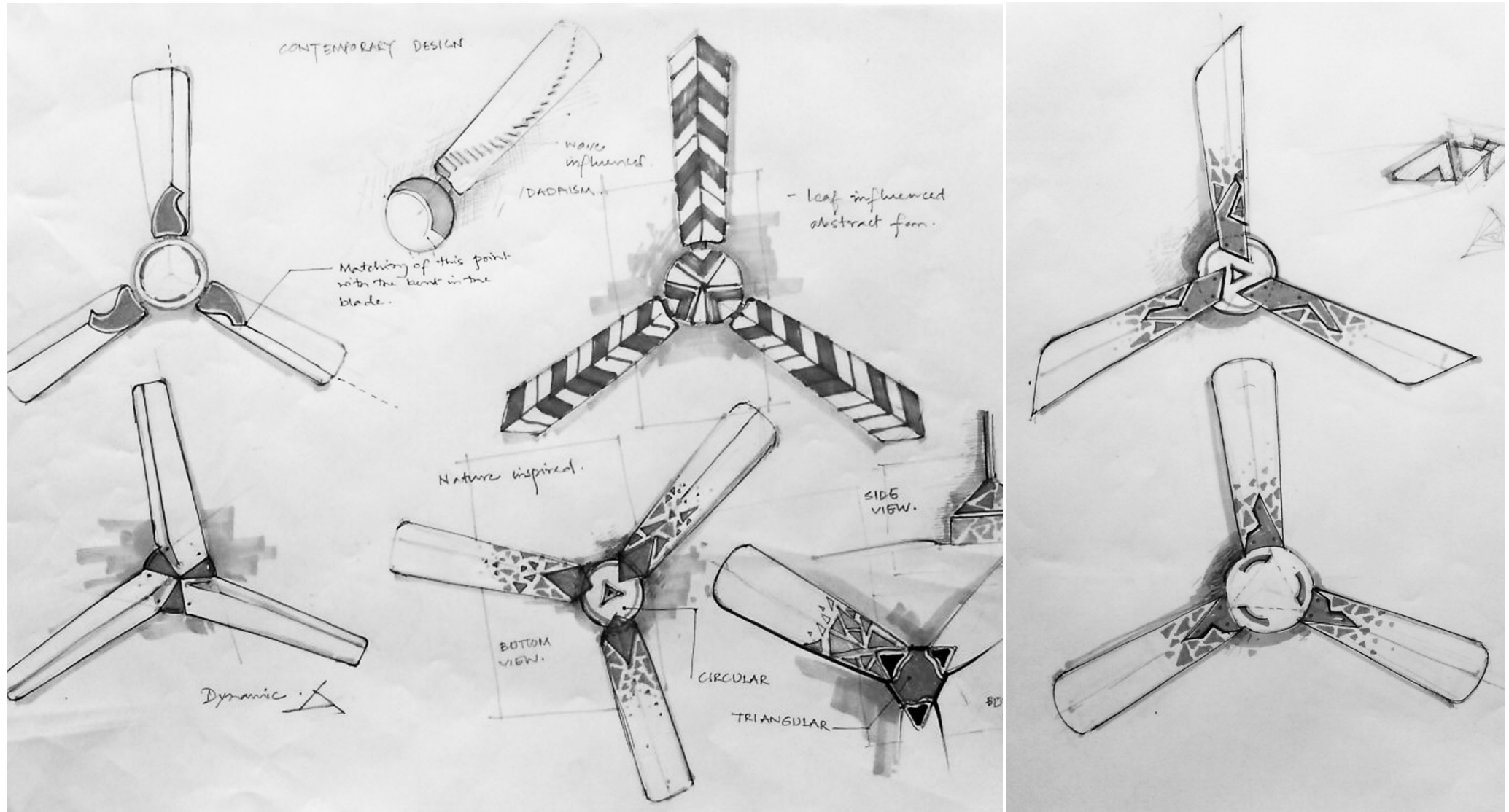
## New Concepts - Sketches



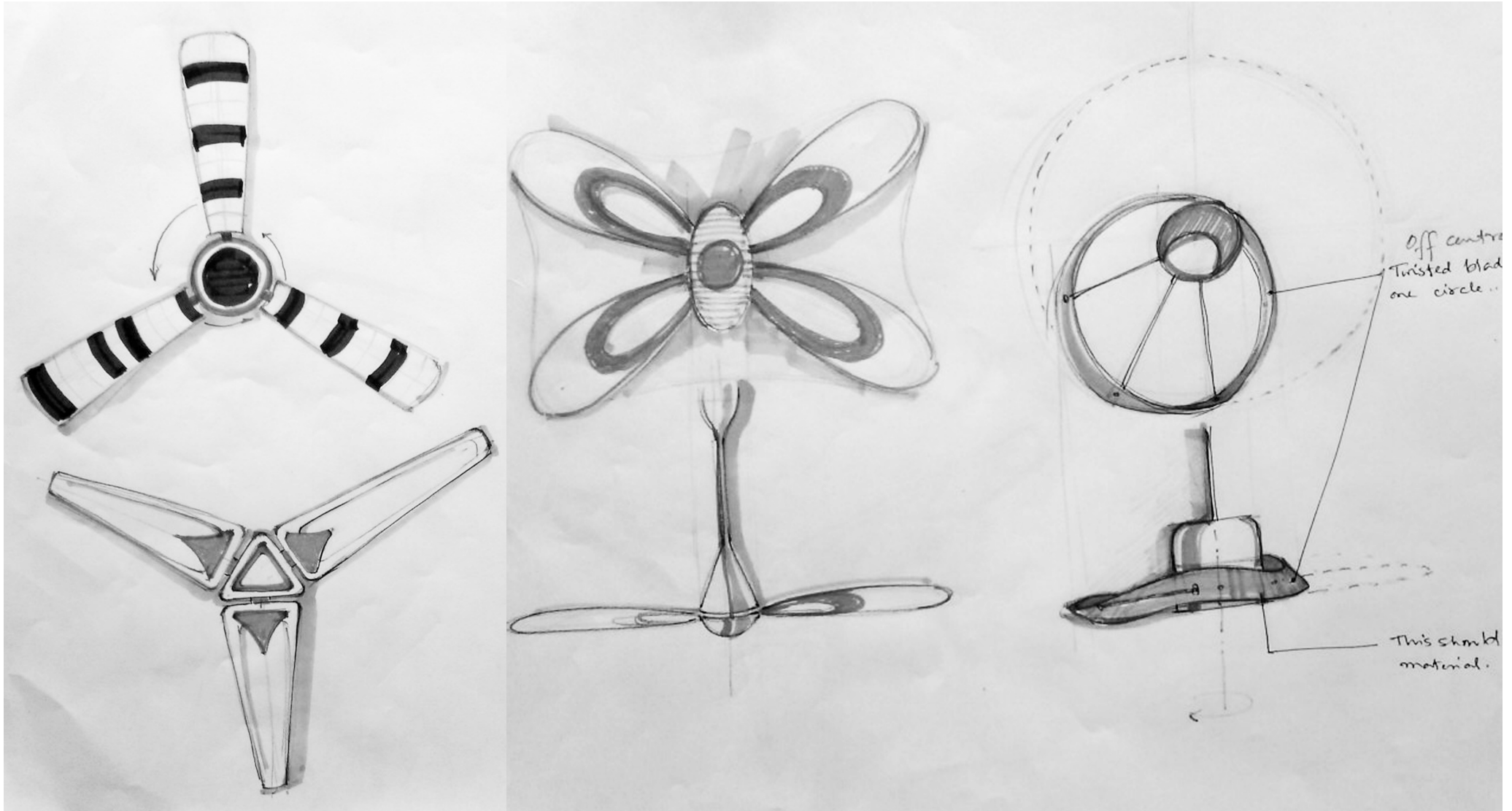
## New Concepts - Sketches



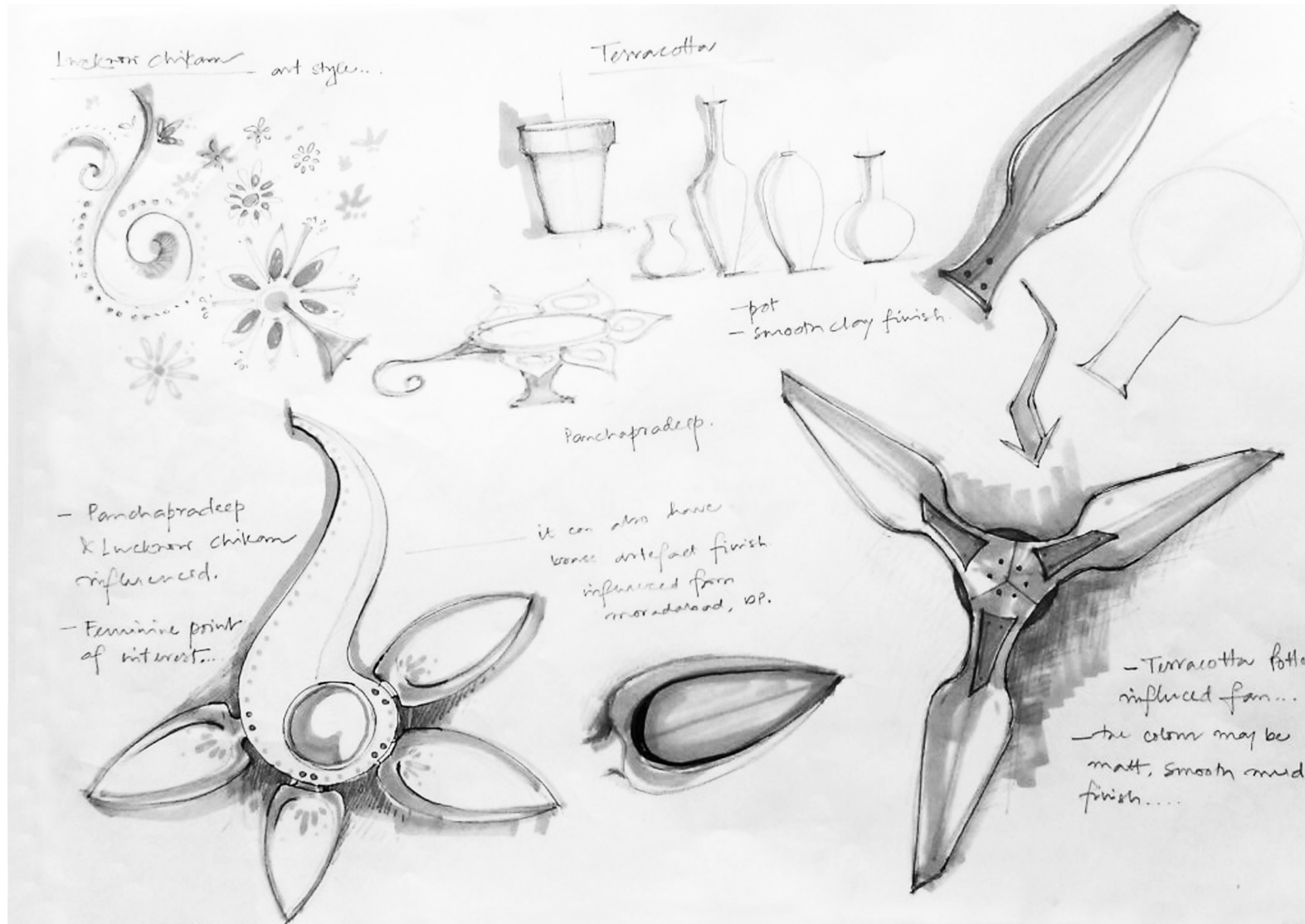
## New Concepts - Sketches



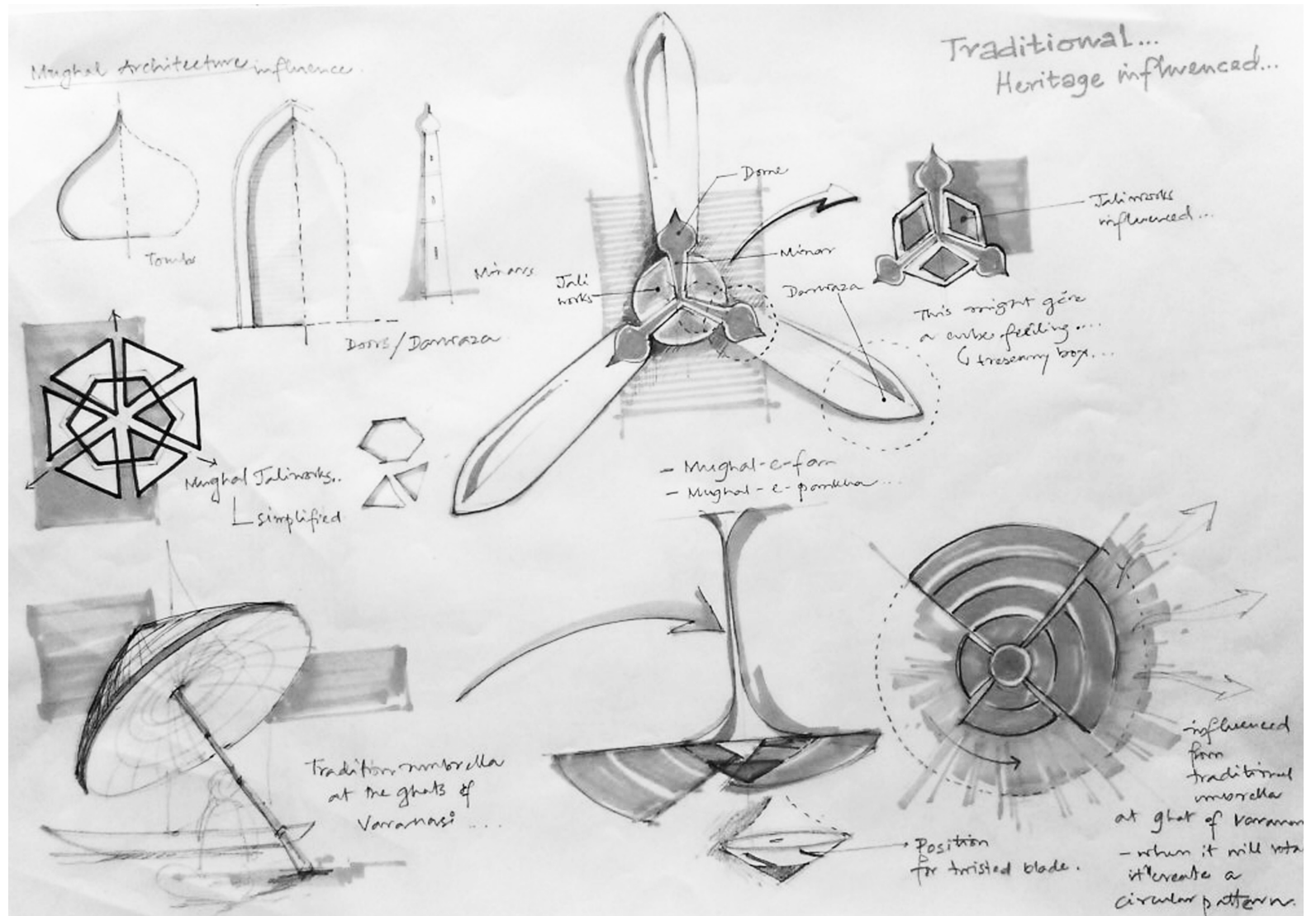
## New Concepts - Sketches



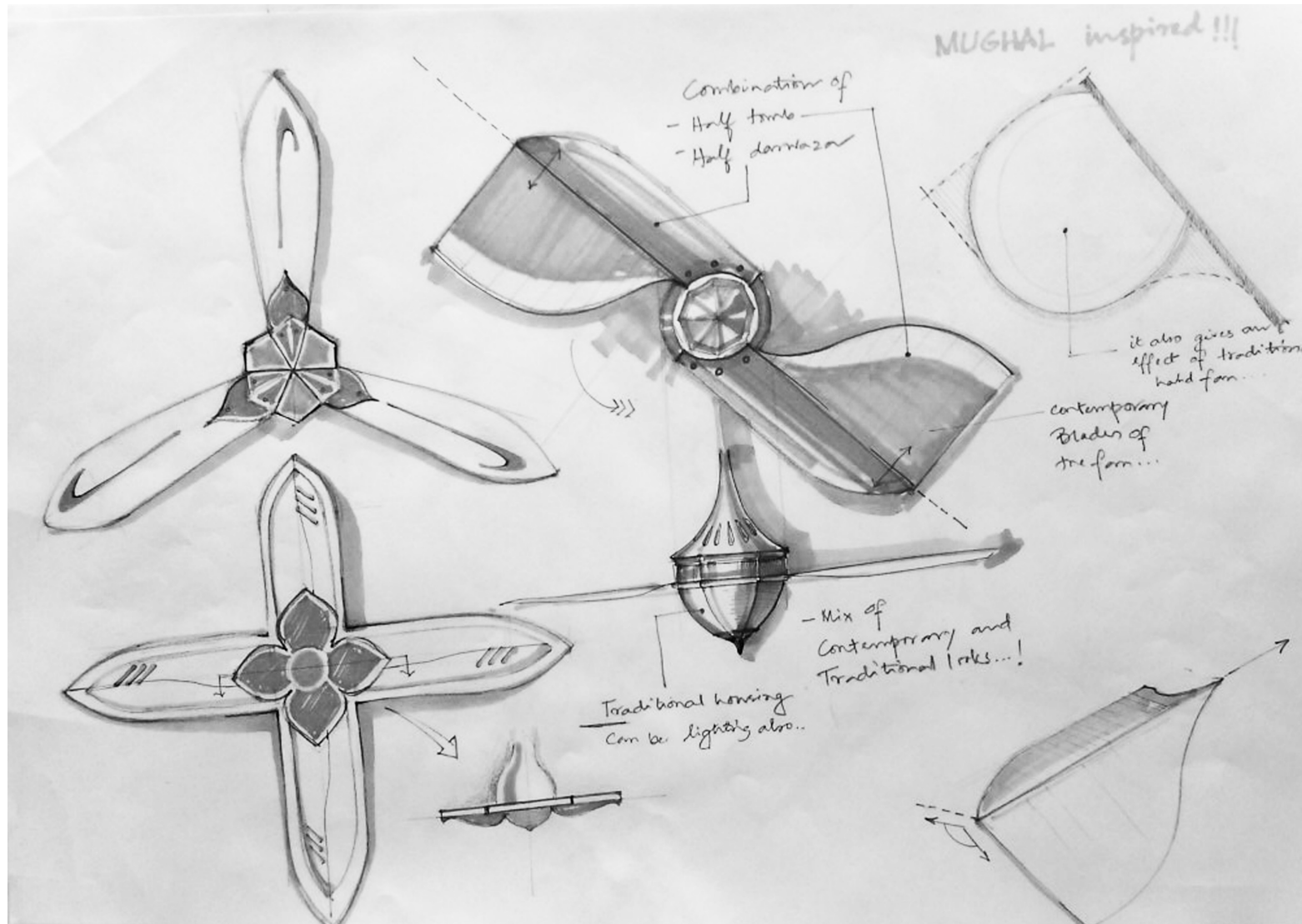
## New Concepts - Sketches



## New Concepts - Sketches



## New Concepts - Sketches

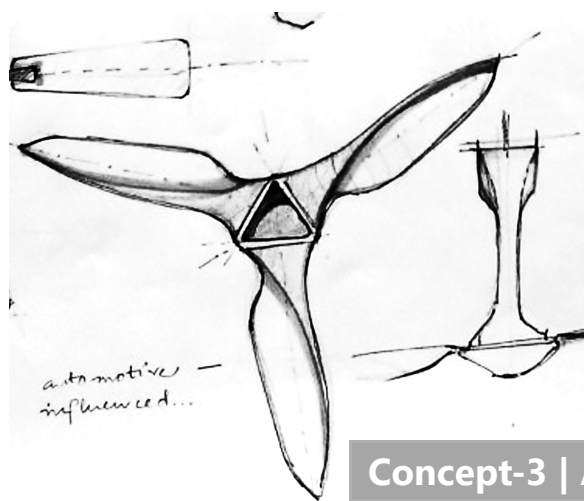
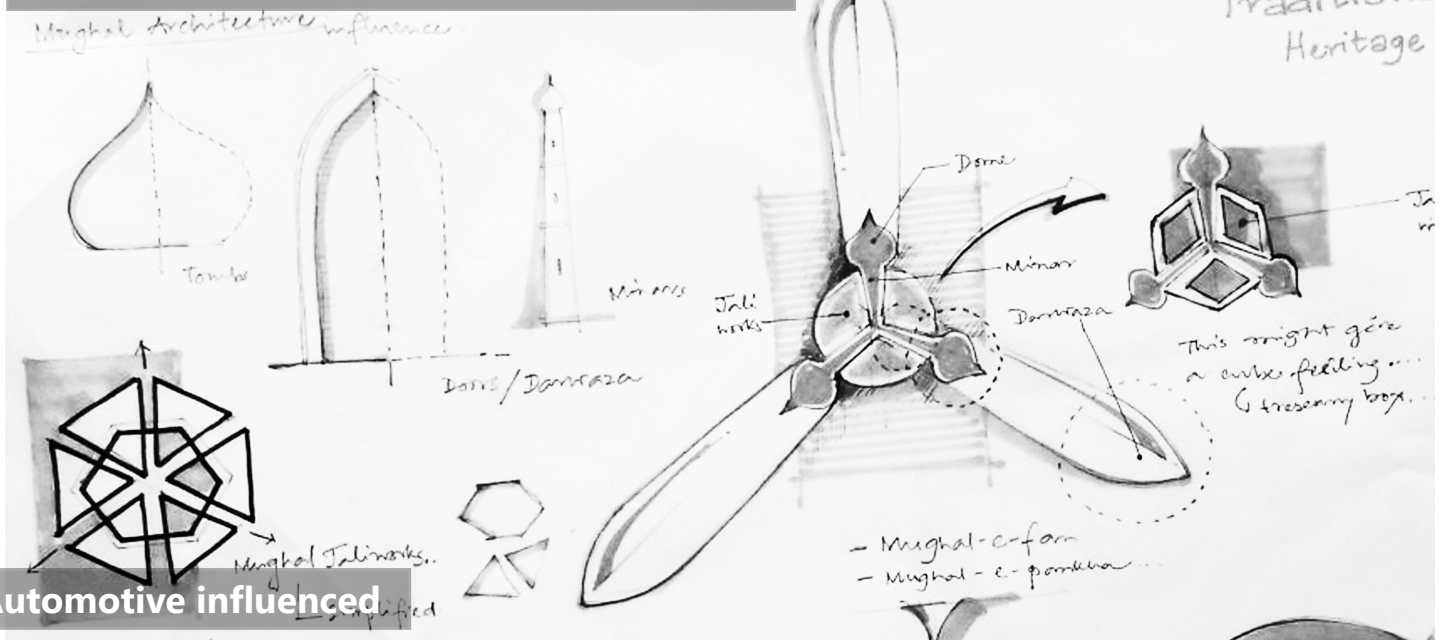


## Preliminary Selected Concept Sketches

Concept-1 | Falling Leaves



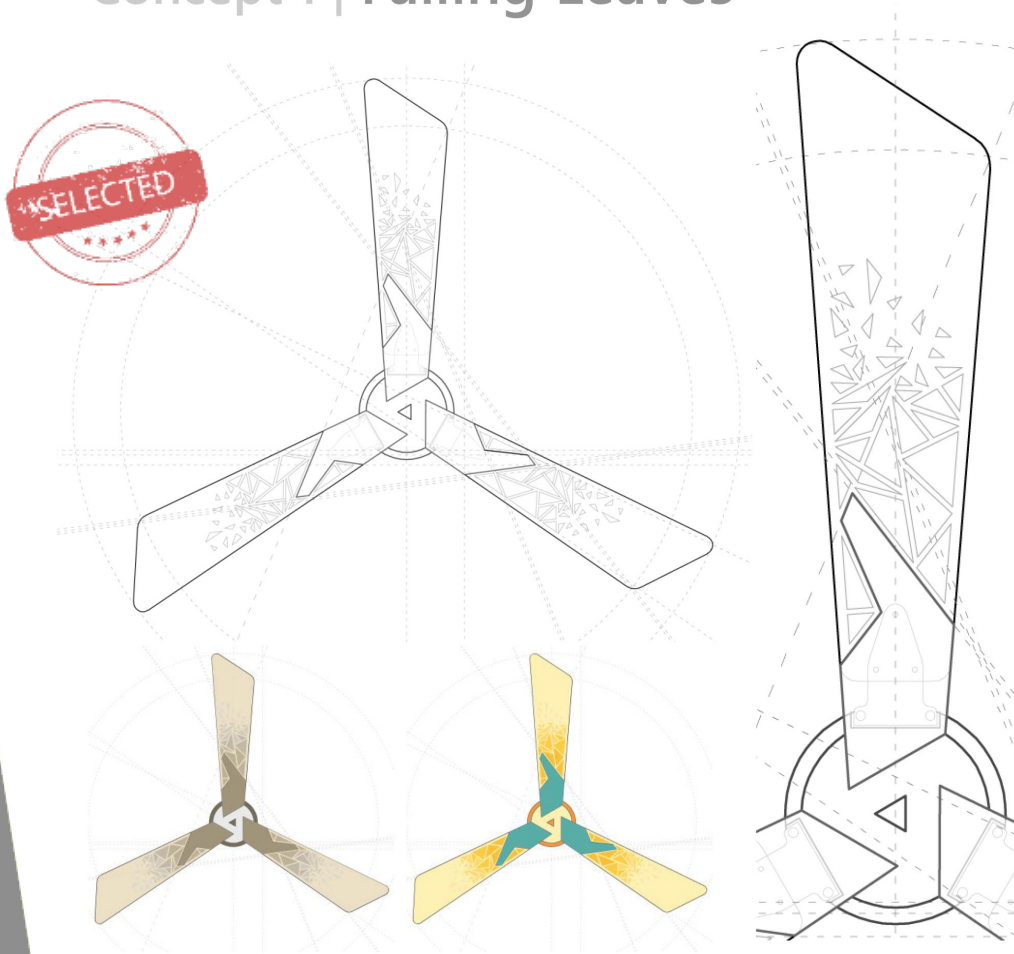
Concept-2 | Islamic Architecture influenced



Concept-3 | Automotive influenced

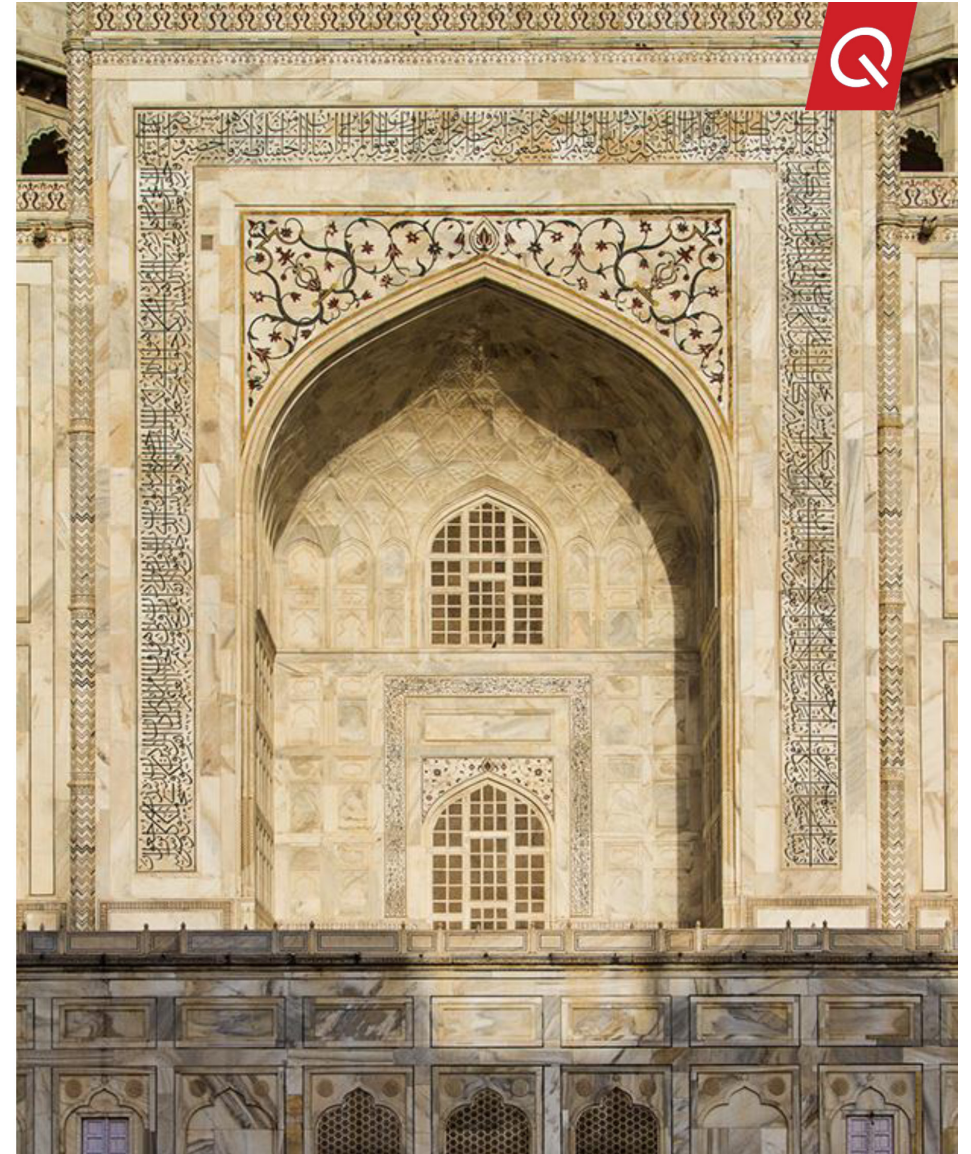
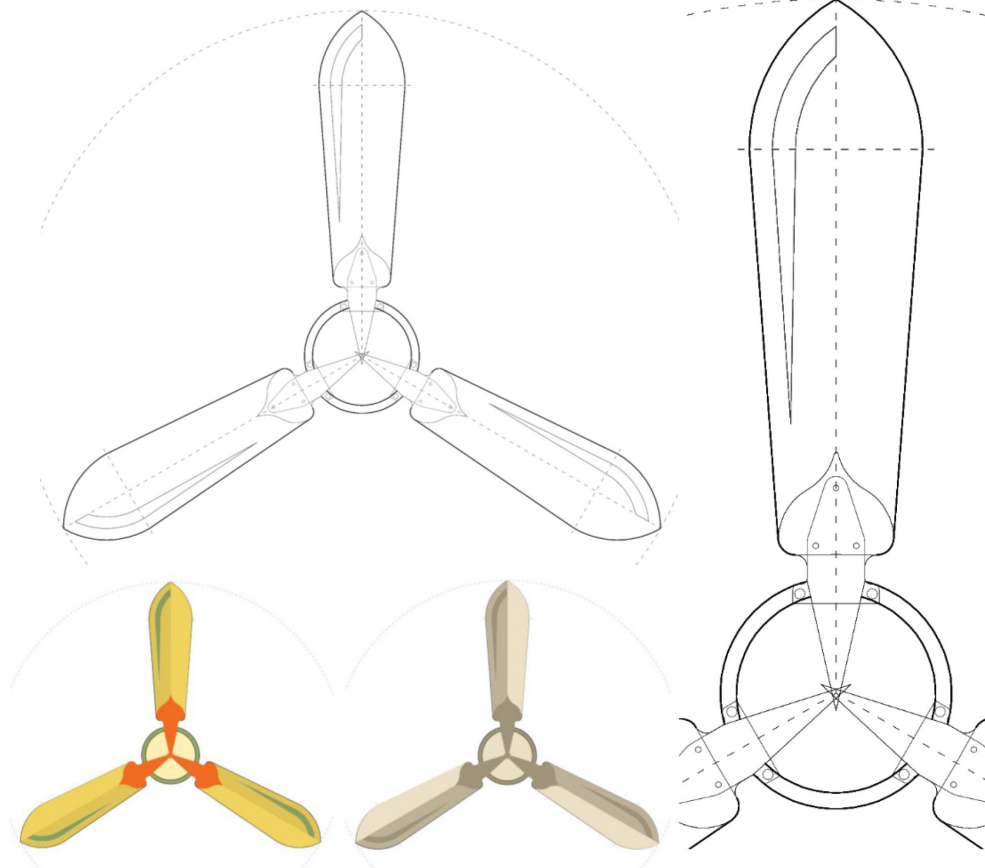
## Preliminary Selected Concept - sent to client for Approval

### Concept 1 | Falling Leaves



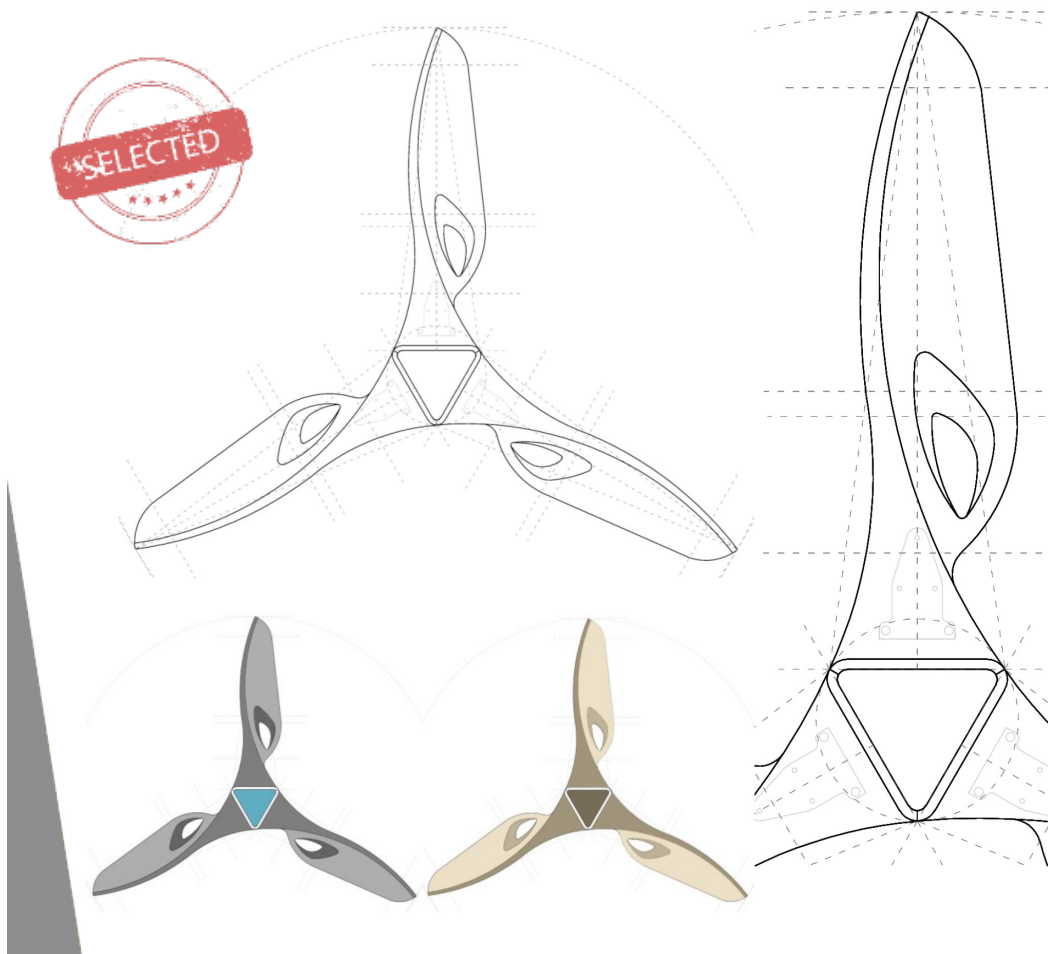
## Preliminary Selected Concept - sent to client for Approval

### Concept 2 | Dawat-e-ishq

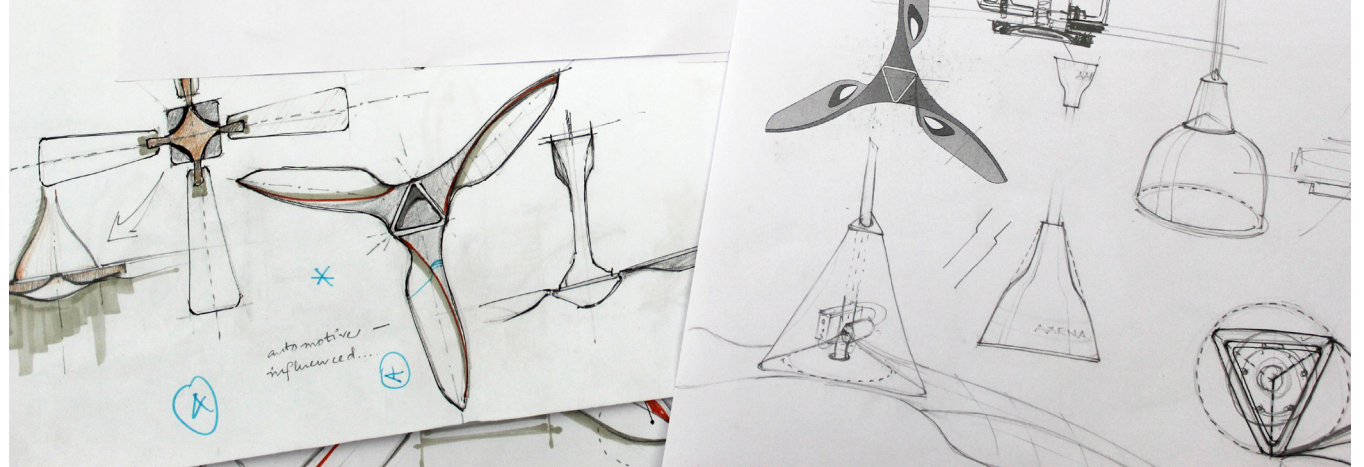
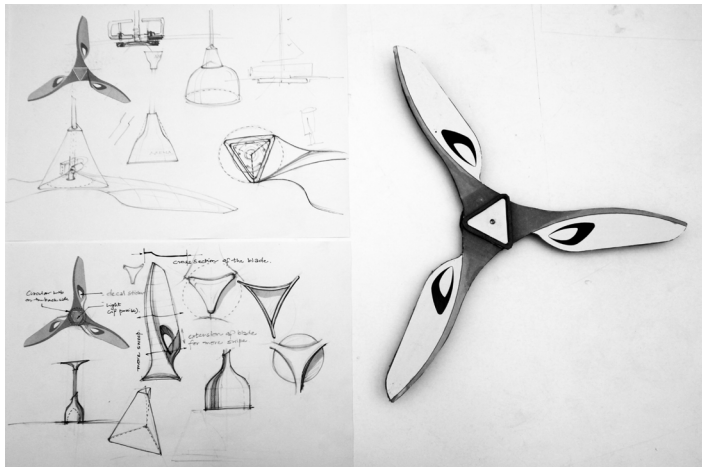
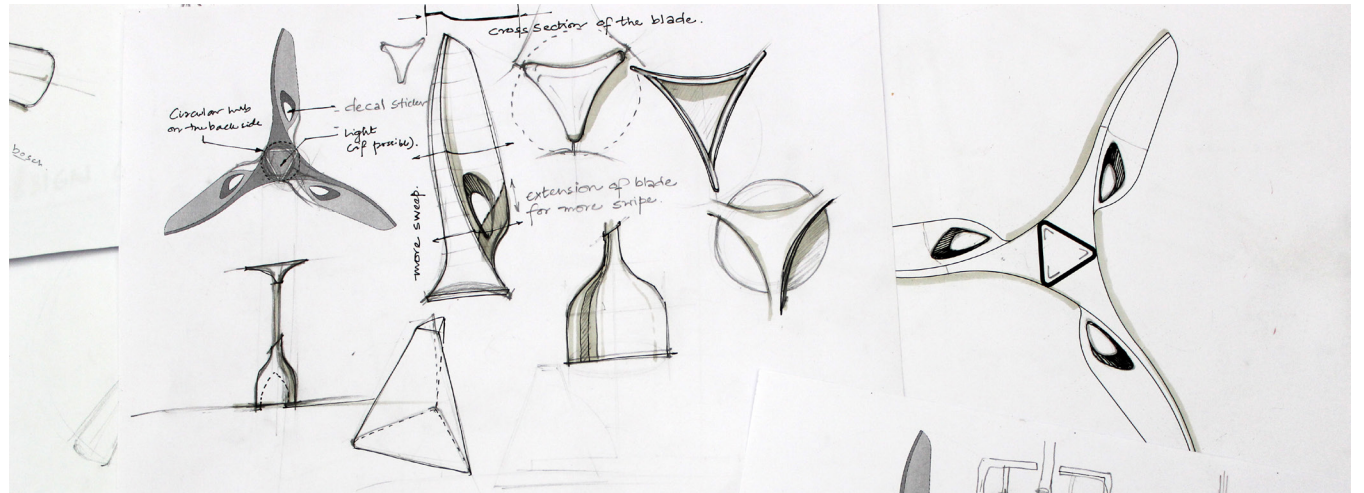
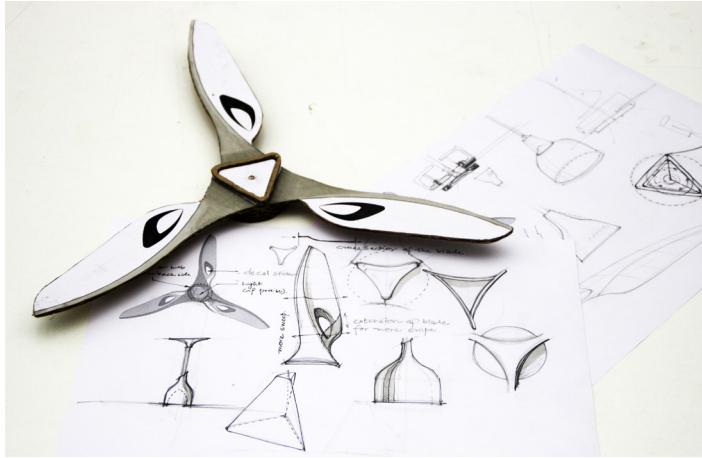
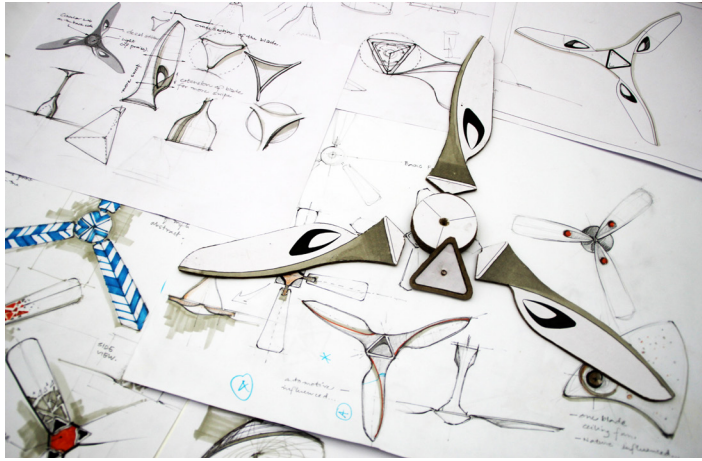


## Preliminary Selected Concept - sent to client for Approval

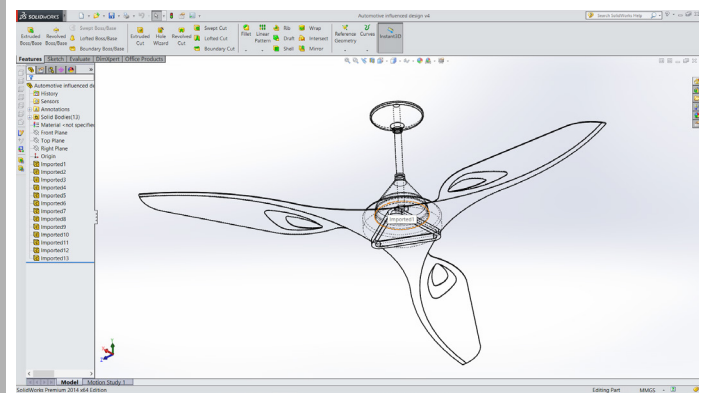
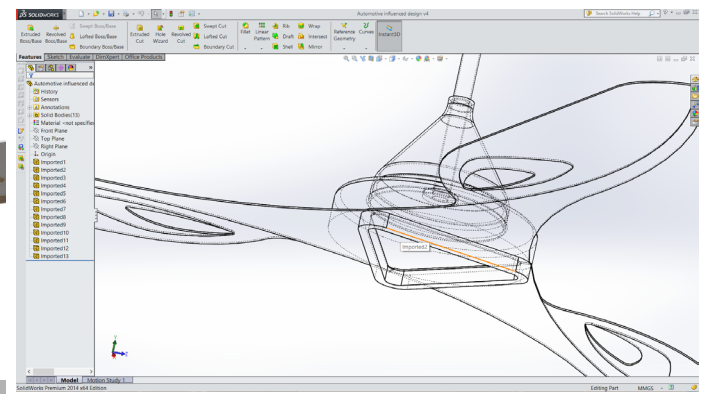
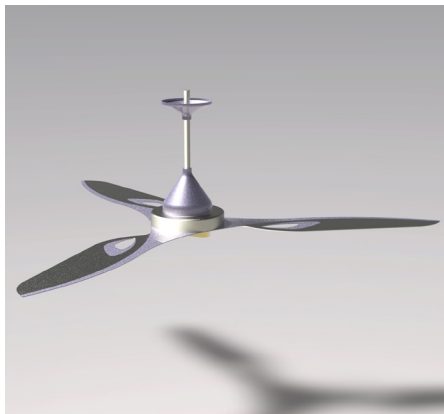
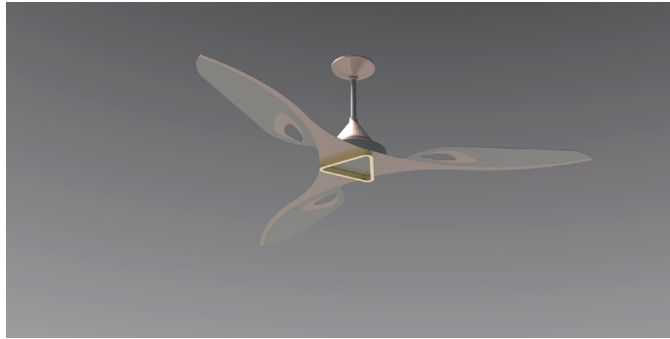
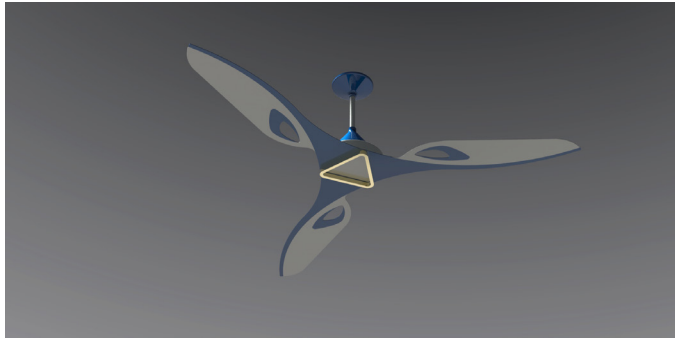
### Concept 3 | Dhoom Machale



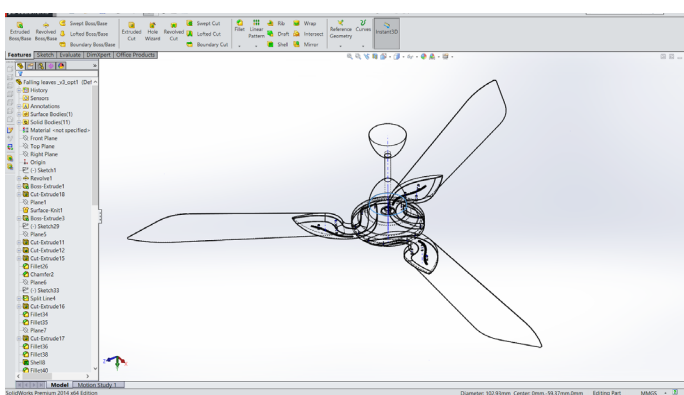
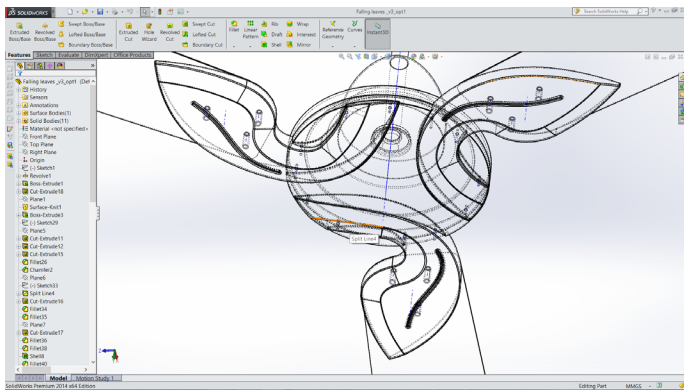
## Further working on selected concepts



## Further working on selected concepts



## Further working on selected concepts





02

**Research on different Washing Processes for Innovation in Waterless Cleaning Process**

## Current Scenario of Garment Care Industry

The professional garment care industry is currently experiencing one of the greatest periods of change since it began.

Two forces are driving this change:

- (i) Sustainable use of Natural Resources
- (ii) Technology - Rule & Regulations - Moral values.

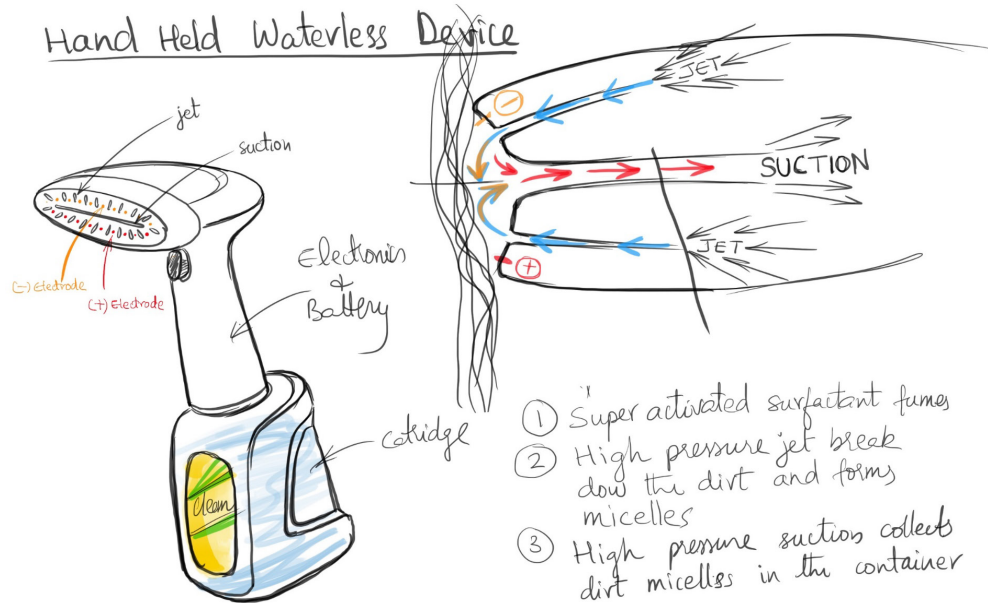
The garment care industry is working on new equipment, new detergents and new cleaning methods. Some of this new technology is available now. Some of it is still being developed and tested.

Changing in Environmental regulations are forcing many industries to change their processes.

## Key Factors

- Detergents Consumption
- Huge Water and other energy Consumption
- Cleaning Technology
- Operational Technology
- Technical and Social Regulations
- Health Issues
- Environmental Issues regarding toxic chemicals

User Experience



## Existing processes for cleaning

Dry Washing – blowing, Suction, Vibration etc.

Wet Washing – various types are available and coming up.

## Current alternatives processes for Wet Washing

Dry Cleaning

Carbon Dioxide – Supercritical and Liquid

Ozone

Ultrasonic Cleaning

Wet Cleaning

## What is Dry Cleaning

The word “dry” in dry cleaning refers to the fact that very less water is used in the process. Garments are pretreated with either a solvent (for oil or grease stains) or water (for water soluble stains) and then submerged in PERC which removes dirt and soil.

## Advantages of Dry Cleaning

- (i) Dry cleaning removes dirt and especially better for fats and oil and stains.
- (ii) Dry cleaning not wear the fabric.
- (iii) Dry cleaning not shrink, dry, no wrinkle, regenerates respects and preserves the colors look again.
- (iv) Low power consumption
- (v) Low labor consumption

## What is PERC

Perchloroethylene (PERC) is a dangerous toxin that can be harmful to your health and has some pretty serious affects on the environment, too. Among other things, perc has been linked to:

- increased risks of bladder, esophageal, and cervical cancer
- eyes, nose, throat and skin irritations
- reduced fertility

According to the US Environmental Protection Agency (EPA), PERC breaks down into other chemicals that contaminate air and groundwater, and depletes the ozone layer.

**DRY CLEANING IS  
HIGHLY  
TOXIC!!!**

## Side Effects of Perchloroethylene (PERC)

(i) Acute exposure to PERC for a short amount of time (under 24hrs.). It may causedrowsiness, nausea, irritation of the eyes, skin and respiratory tract

(ii) Chronic exposure may occur when people exposed to PERC repeatedly for a long period of time. Garment Care workers generally have the biggest risk of having this. General public can also be at risk when PERC from a dry cleaning plant gets into local air and water. This type of exposure can cause Central nervous system damage, lung, liverand kidney damage.

(iii) The U.S. Environmental Protection Agency (EPA), The National Institute for Occupational Health and Safety (NISOH), The International Agency for Research on Cancer (IARC) classified PERC as a probable Carcinogen.

**BANNED!!!**  
**IN DIFFERENT**  
**COUNTRY**

## Use of DF 2000 (Hydrocarbons)

- (i) It is a solvent free which you can buy from any supplier and manufacturer. It has no patent or royalties.
- (ii) It is much lesser volatile than the perchlorethylene, thus save consumption substantially less solvent to evaporate.
- (iii) It has more cleaning power than silicones and similar to Perchloroethylene practical effect. Although the rate of cleaning is less than the PERC, the dissolution of the dirt from the clothes to be treated is clean enough to leave, to a level similar to the PERC.
- (iv) It is not dangerous to human health by inhalation, which is not nearly volatile.
- (v) It is less aggressive than the PERC with the clothes, therefore there are not many discolorations and cares more flair or additions (sequins, ornaments, plastic) that the PERC.
- (vi) With the hydrocarbon solves one of the big problems with PERC dry cleaning: odors. With no oil or scent trail left on the clothes.

## CO2 Cleaning – Supercritical and Liquid

(i) Under high temperature and pressure, CO<sub>2</sub> reaches a state called supercritical phase. Grease and oils dissolve when they come in contact with Supercritical CO<sub>2</sub>.

(ii) It has another advantage as well. When pressure is reduced, grease and oil that are dissolved in the supercritical CO<sub>2</sub>, separate from CO<sub>2</sub>. The grease and oil can be disposed and CO<sub>2</sub> can be reused.

(iii) In lower temperature and pressure Liquid CO<sub>2</sub> exists. It was originally developed by the aerospace industry for cleaning optical and electrical parts, and now it is going to be used dry clean garments.

(iv) Liquid CO<sub>2</sub> has no surface tension, which helps it separate dirt and grease from fabric. It can also be combined with surfactants to make it more effective.

## CO2 Cleaning – Supercritical and Liquid

Inert gas under normal circumstances | It is not toxic to humans | It is readily available and inexpensive | Easily recycled  
Don't damage ozone layer | Doesn't cause any metal corrosion | Doesn't pollute ground water and soil | Doesn't cause any damage to clothes

## Ozone Cleaning System

(i) The Ozonized Water Continuous Cleaning System is a new process that is still being studied but is available commercially on a limited basis.

(ii) It works as an oxidizing agent

(iii) Able to disinfect, deodorize and bleach fabrics  
Also less labor required, - the garment remains on a hanger throughout the washing cycle.

(iv) NO Shrinkage

(v) NO Change of shapes

(vi) NO Wrinkles

## Ultrasonic Cleaning System

(i) U.S. Department of Energy and Kansas City Plant and Garment Care Inc. determined that agitation for a continuous-flow, water-based clothes washing process could be provided by ultrasound. And in test it cleans enough to encourage researchers.

(ii) Ultrasonic waves are sound waves at a higher frequency than the human can hear. The energy from the ultrasound excites the stain or dirt molecules and cause them to separate from the fibre.



**03**

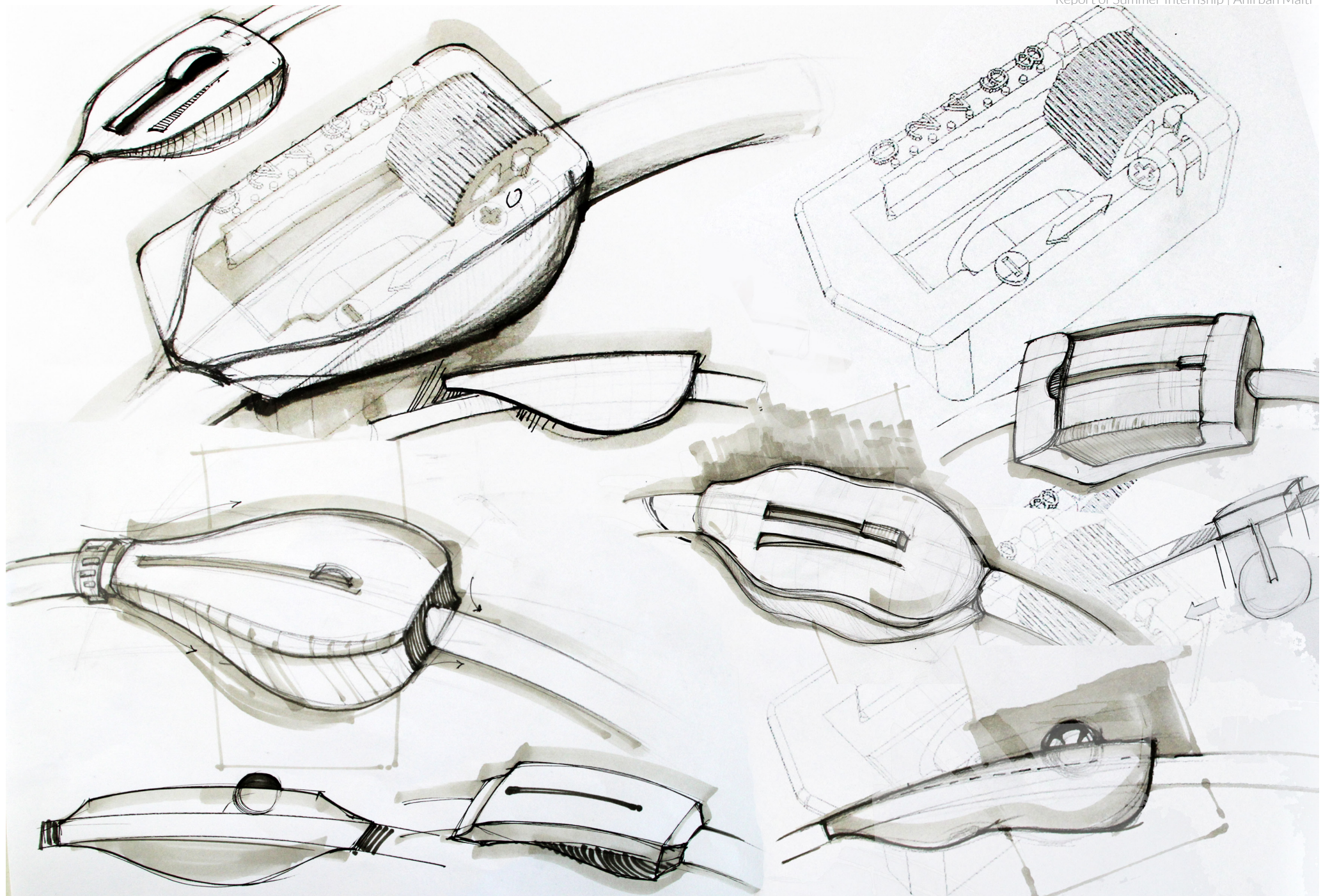
**Design Concept Generation for  
Project OYE**

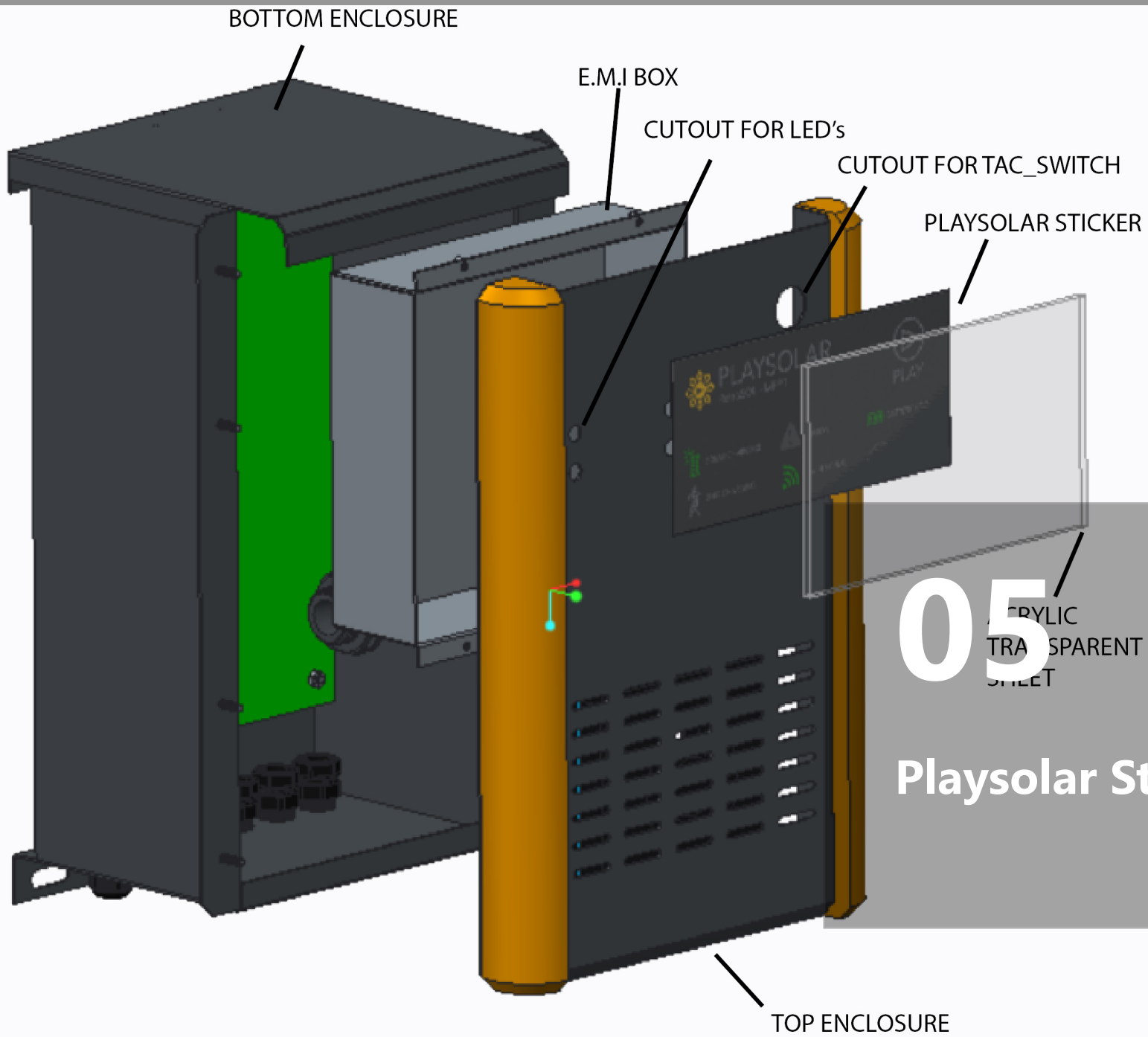




# 04

## Design Concept Generation for Fill Valve

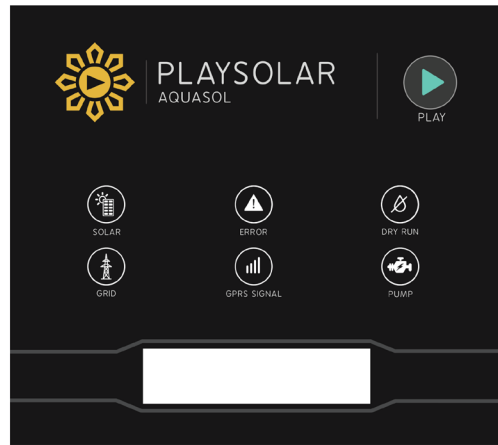




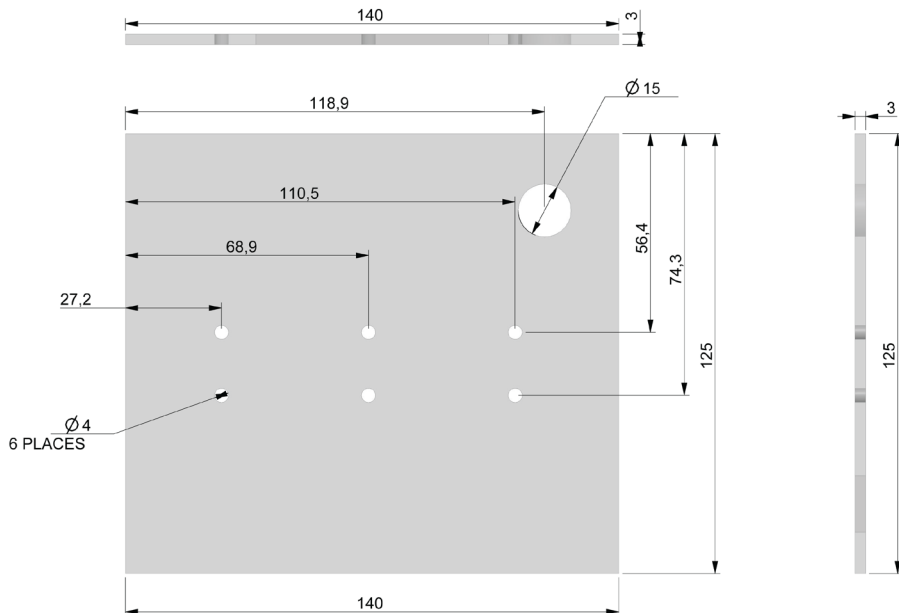
05

Playsolar Stickers

Name - AQUASOL\_MPPT\_LABEL\_V3  
 Dimension - 140mm x 125mm  
 Qty - 25  
 Material - 0.15mm screen printing on clear PC with Self-adhesive Glue



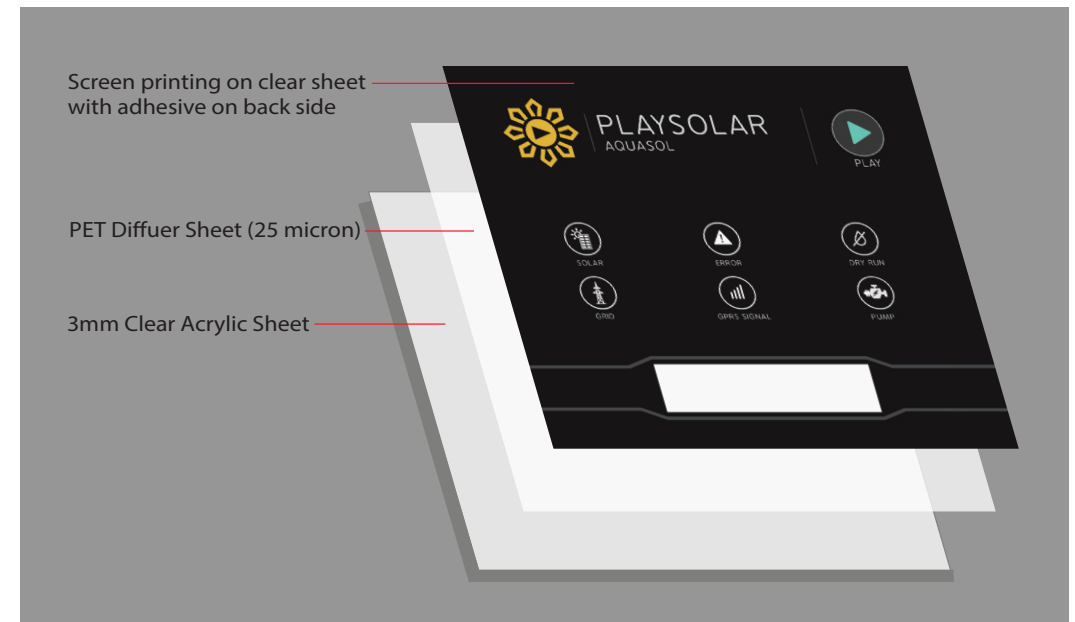
Name - ACRYLIC SHEET  
 Dimension - 140mm x 125mm x 3mm  
 Qty - 25  
 Material - 3mm Clear Acrylic Sheet

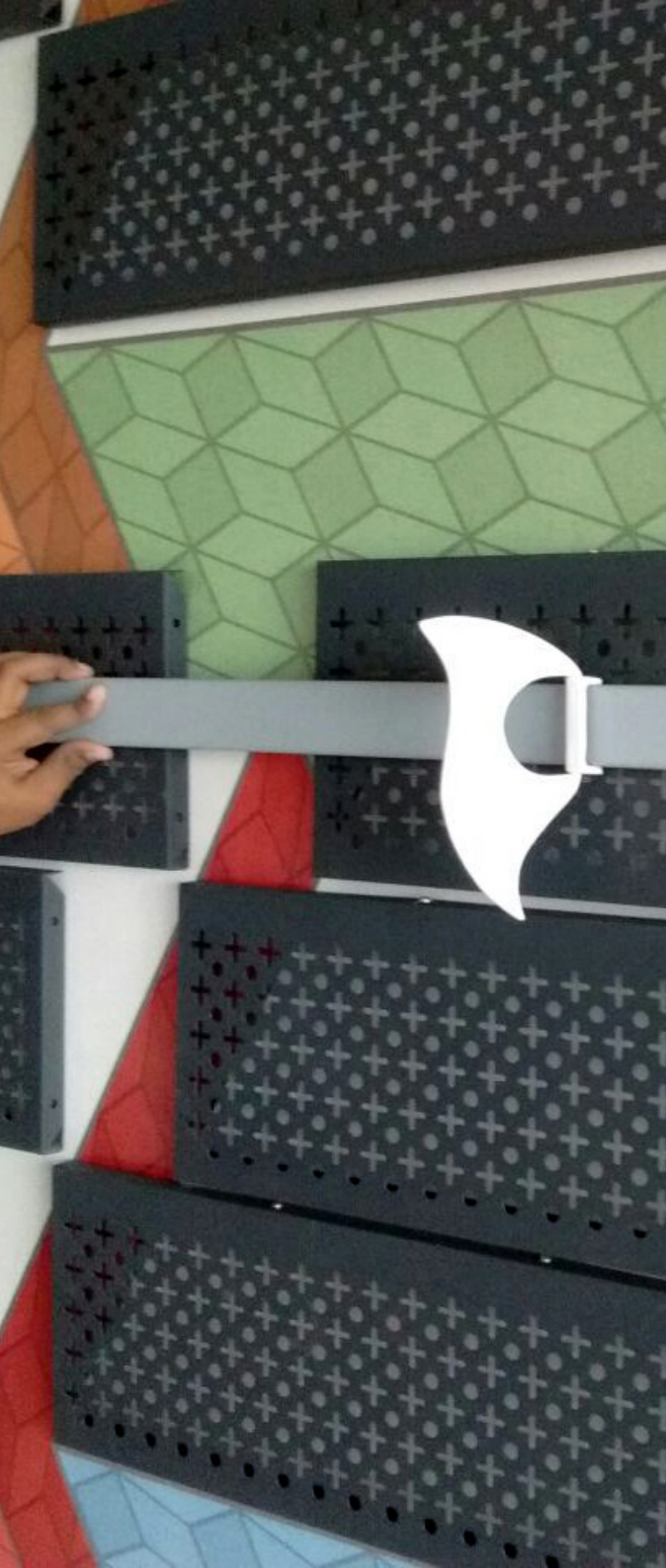


Name - AQUASOL\_MPPT\_LABEL\_V3  
 Dimension - 140mm x 125mm  
 Qty - 25  
 Material - 0.15mm screen printing on clear PC with Self-adhesive Glue

	Fill RGB :R-255 G-195 B-35 CMYK :C-0 M-25 Y-95 K-0
NO OUTLINE Type - Opaque Adhesive Area	
	Fill RGB :R-75t G-72 B-73 CMYK :C-65 M-60 Y-57 K-40
NO OUTLINE Type - Opaque Adhesive Area	
	Fill RGB :R-23 G-23 B-23 CMYK :C-73 M-67 Y-65 K-80
NO OUTLINE Type - Opaque Adhesive Area	
	Fill RGB :R-255 G-255 B-255 CMYK :C-0 M-0 Y-0 K-0
White Filter bi-colour LED to be visible NO OUTLINE Type - Opaque NON Adhesive Area	
	Fill RGB :R-255 G-255 B-255 CMYK :C-0 M-0 Y-0 K-0
White Filter bi-colour LED to be visible NO OUTLINE Type - Translucent NON Adhesive Area	

	Fill RGB :R-103 G-198 B-182 CMYK :C-57 M-0 Y-35 K-0
NO OUTLINE Type - Translucent NON Adhesive Area (0.3-0.5 MM Bulge)	



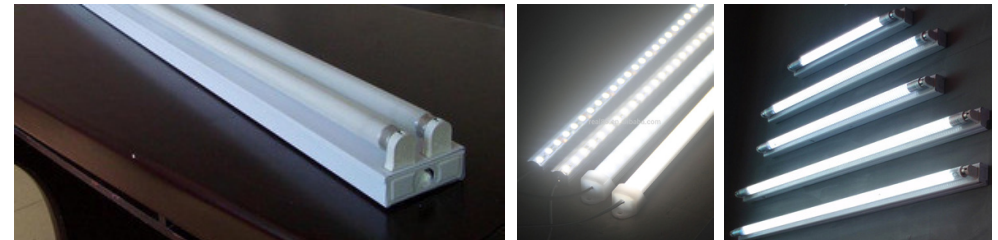


**06**

**Decorative Fluorescent  
Light Cover**

## Context

In Indian subcontinent most of population used widely available fluorescent lamps for domestic and commercial purposes.



## Current scenario & problems

In most of the cases people don't use any cover on this type of fluorescent light. The intensity of the light is very high, which often cause disturbance at the time of working.

And generally the colour of the light is very cool and sharp which also might be some reason for visual and physical discomfort.



## Probable Solutions

According to the context and scenario we should look for some affordable and cool solution.

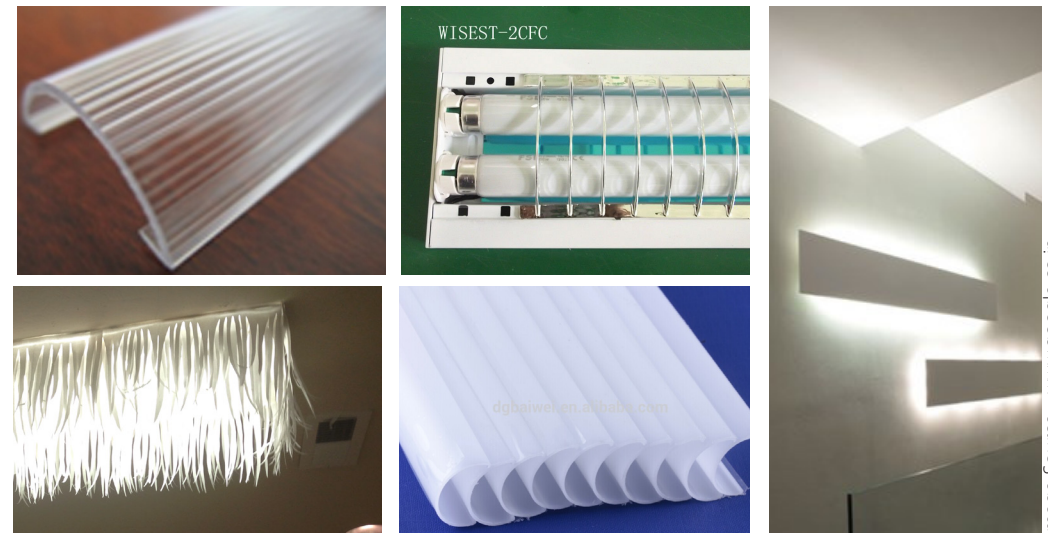
Probable solutions may be:

- (i) Diffuser
- (ii) Fin type restrictor
- (iii) Blinds
- (iv) Interactive Cover with enriching User Experience



## Market Research of Existing Products

- (i) Fixing joint: Snap on with only some specific products
- (ii) Materials: Poly-carbonate (which is costly) etc.
- (iii) No value addition in this product except function
- (iv) No planned User Experience



## Parameters for Designing New concepts



Light should be diffused according to requirement  
Level of diffusing to be varied to cater different type of functional requirements - Translucent  
It should create a soothing ambience  
It should also create an enriched user  
Easy assemble and de-assemble – Modular / Stackable  
Affordable  
Adequate Heat resistant & Durable  
Easily cleaning  
Sustainable  
Minimalistic  
Regaining process for loss of light (in some case only)

## Target Users

Very fringe layer of customer like creative upper middle class people



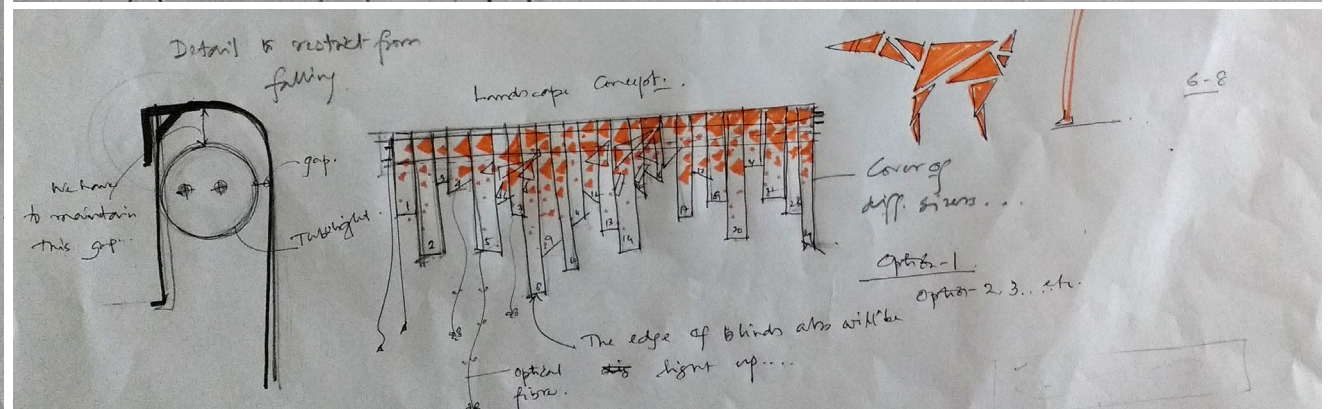
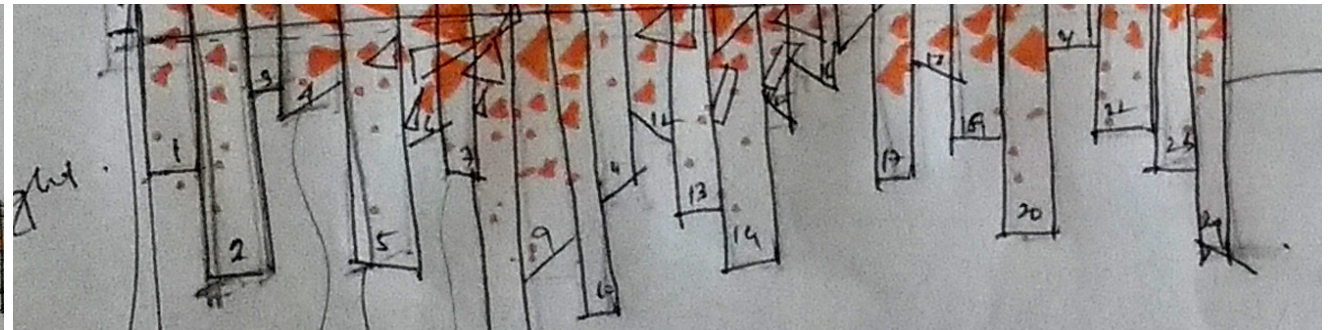
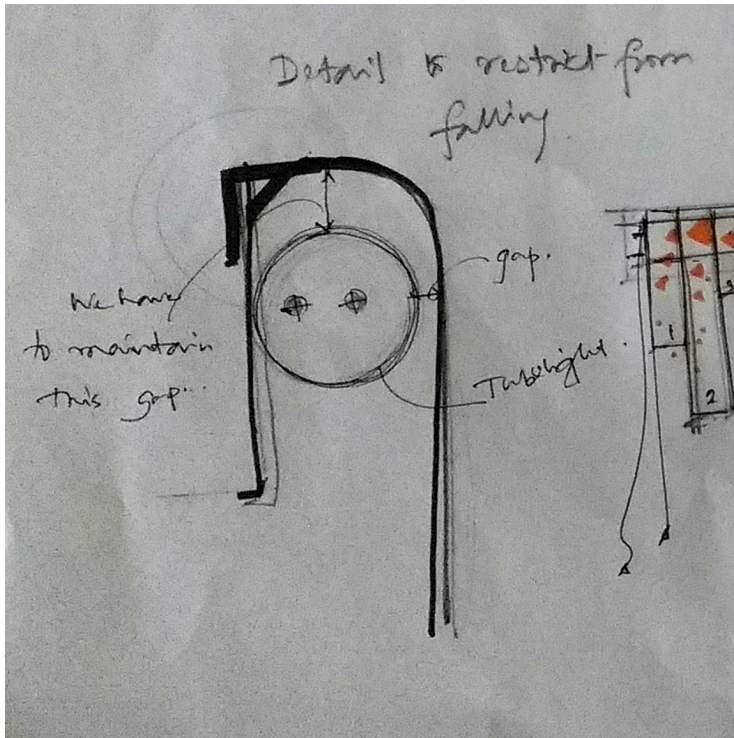
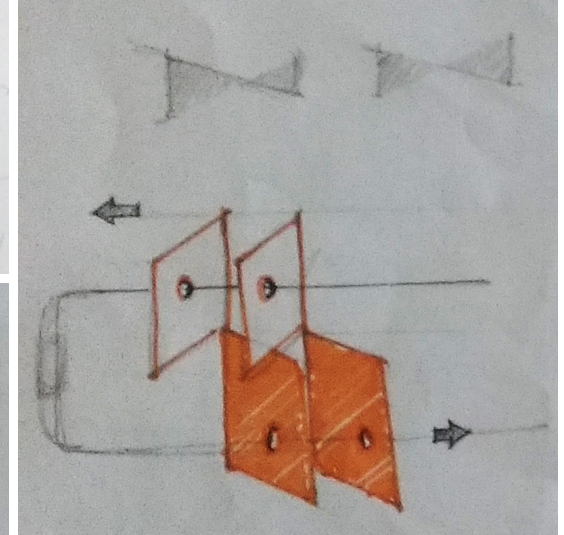
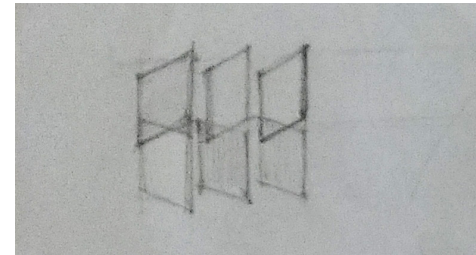
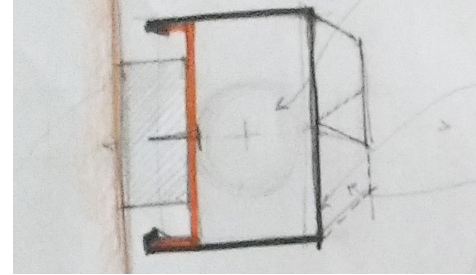
## New Concepts

### Concept-1

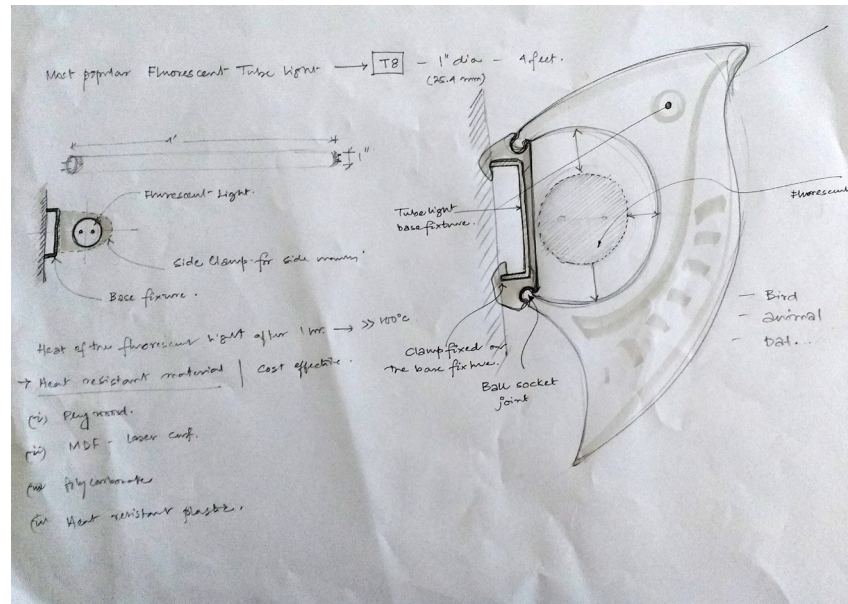
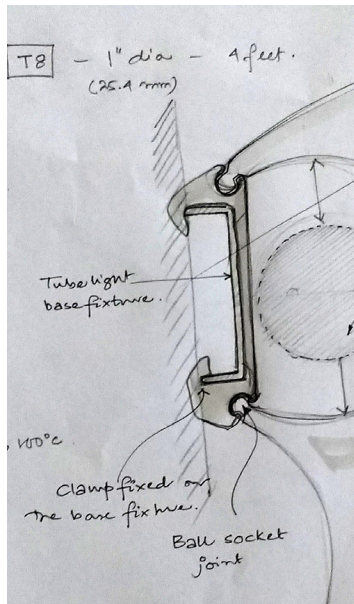
Flapping Birds - There will be two set of diffuser fixed in common members - moving in opposite direction (by connected strings) will give an image of flapping wings of a bird.

### Concept-2

Light Curtain - Simple modular diffusers (may be set of 8/12) will create a curtain like feel aesthetically with graphics on it.



## New Concepts

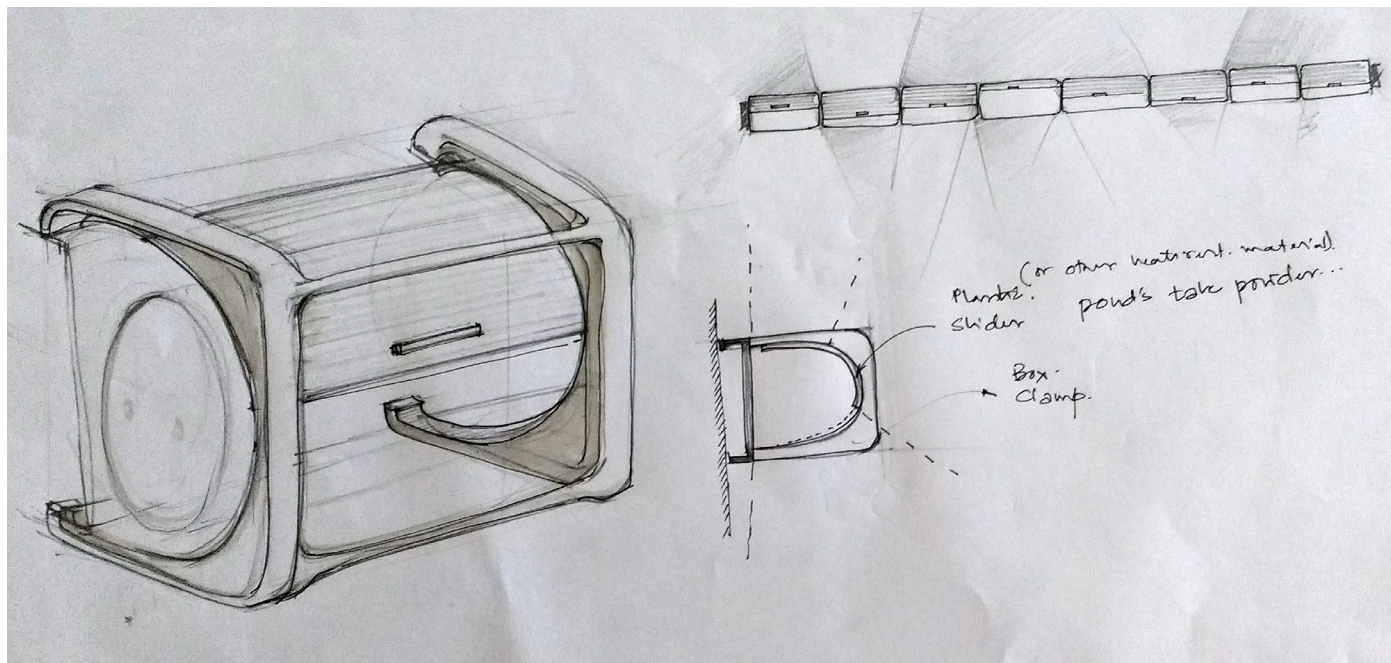


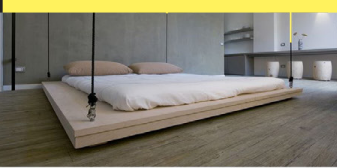
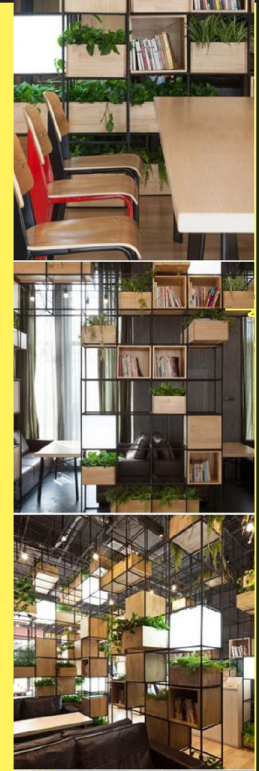
### Concept-3

Fish on Light - Fish shaped diffusing modules are very easy to manufacture also gives interactive experience which add value over its functional attributes.

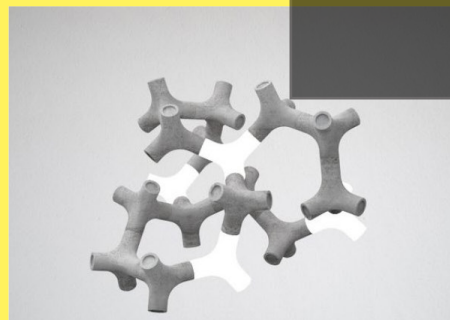
### Concept-4

Dramatic Slider - Easy to manufacture simple clamps with thin plastic slider (like the stopper of Ponds Talc Power bottle) gives a total ambient lighting with different pattern by positioning those sliders differently.





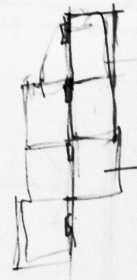
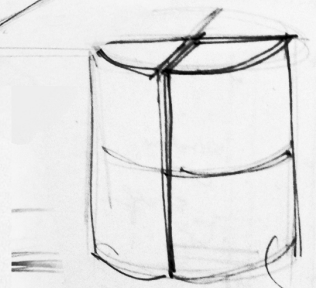
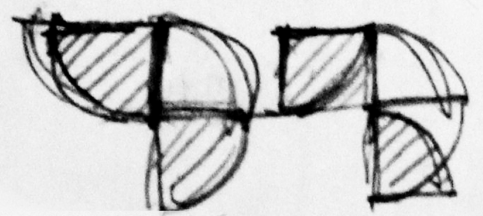
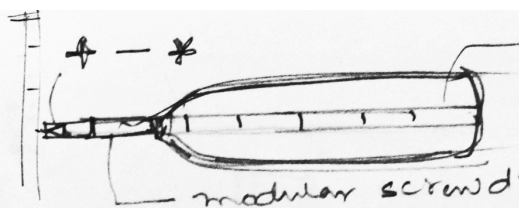
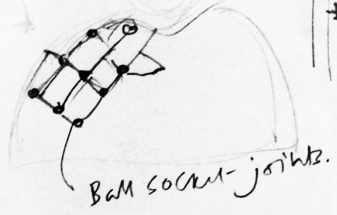
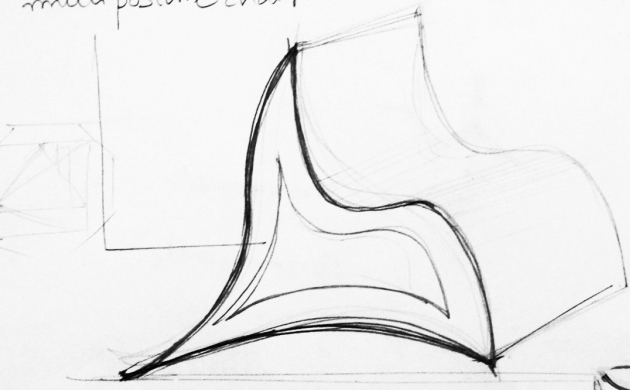
07



Ideation for Modular Shelf



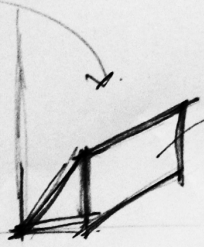
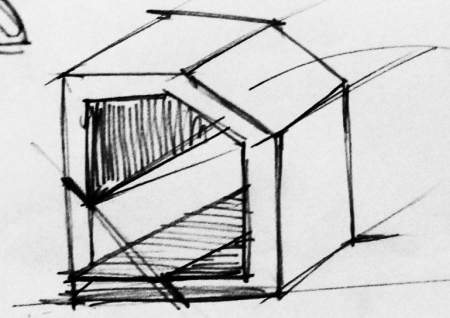
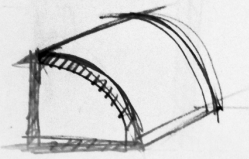
multi posture chair.



- Bucket
- Flower Vase large
- Fountain arrangement
- Chair
- Shelf

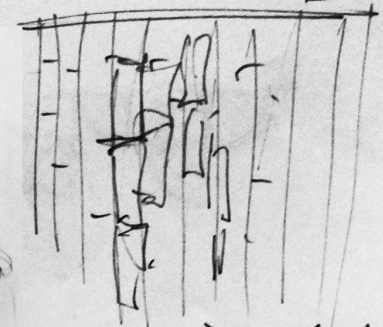
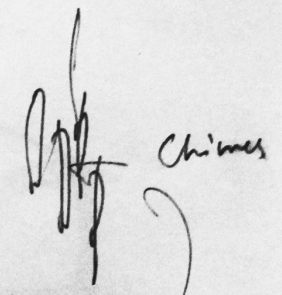
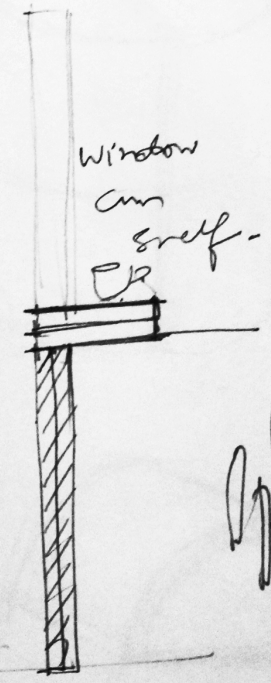
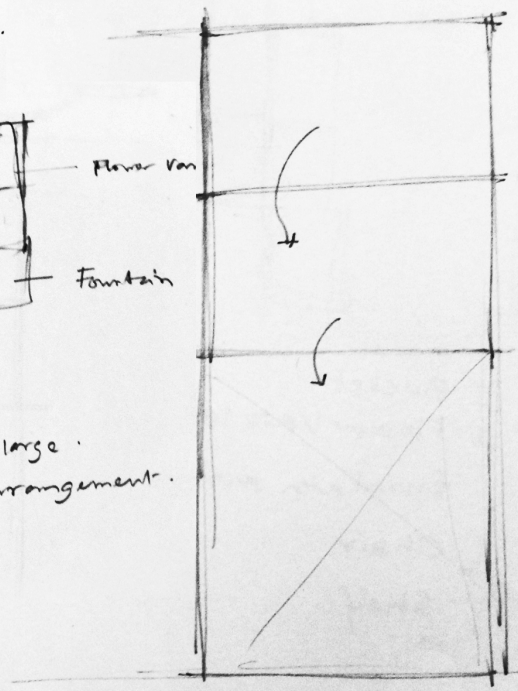
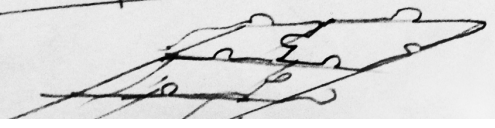


Seat



leg support

Drizzle Carpet

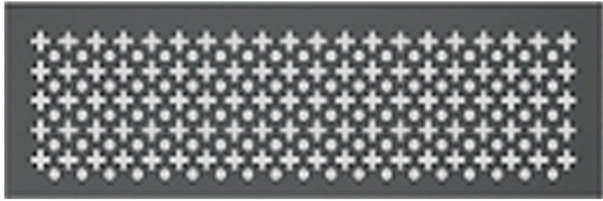
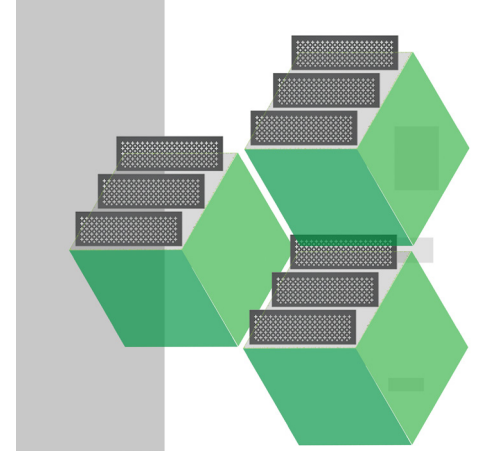
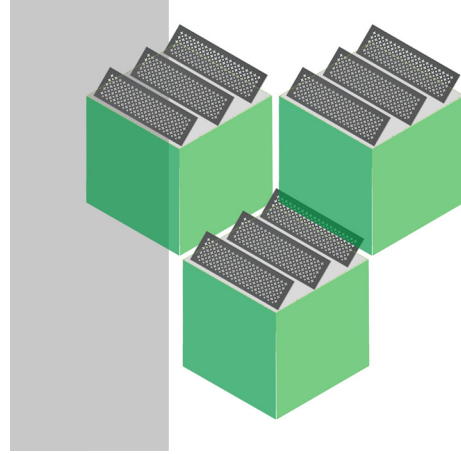
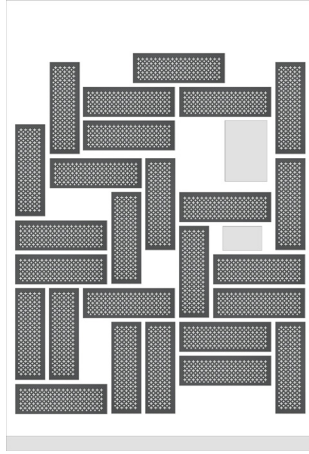
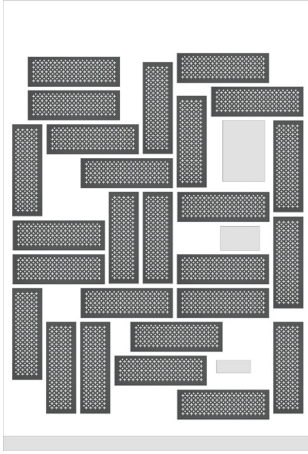
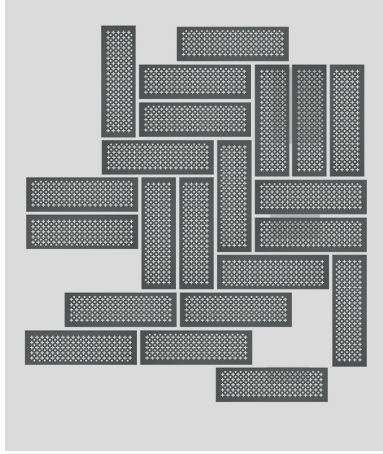


Chimes Curtain

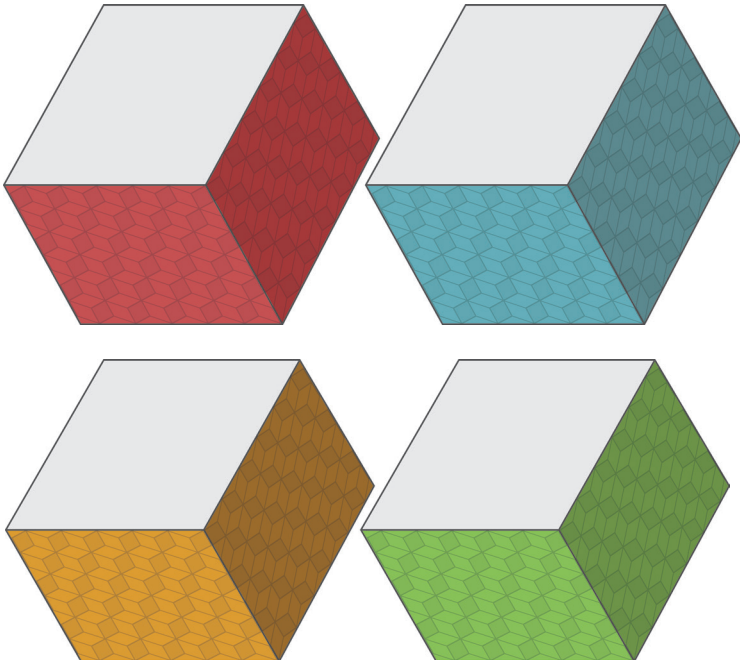


**08**

**Gemklip Store Shelf Pattern**



One single unit of 615mm x 200mm



Gemklip Store Shelf Pattern on the Wall Area of 3m x 2.04m



Gemklip Store in the office

**CHALLENGE**  
**OPPORTUNITY**  
**CREATIVITY**  
**VALUE**  
**IMPACT**

**09**

**Gemklip Motto Callouts**

**Challenge**  
the exiting way  
of doing things

Consider every  
problem as an  
**Opportunity**

Be passionate  
about  
**Creativity**

Deliver  
**Value**  
through Design

**Impact**  
lives on large  
scale

gemktp.com



**Join  
us now!**

...to be an awesome designer

BE CREATIVE  
BE AWESOME

**Join  
us now!**

...to be an awesome designer

BE CREATIVE  
BE AWESOME

**10**

**Gemklip Inauguration Poster**



**Product Exhibition  
& Self Exploration**

**21<sup>ST</sup>**  
May 2016

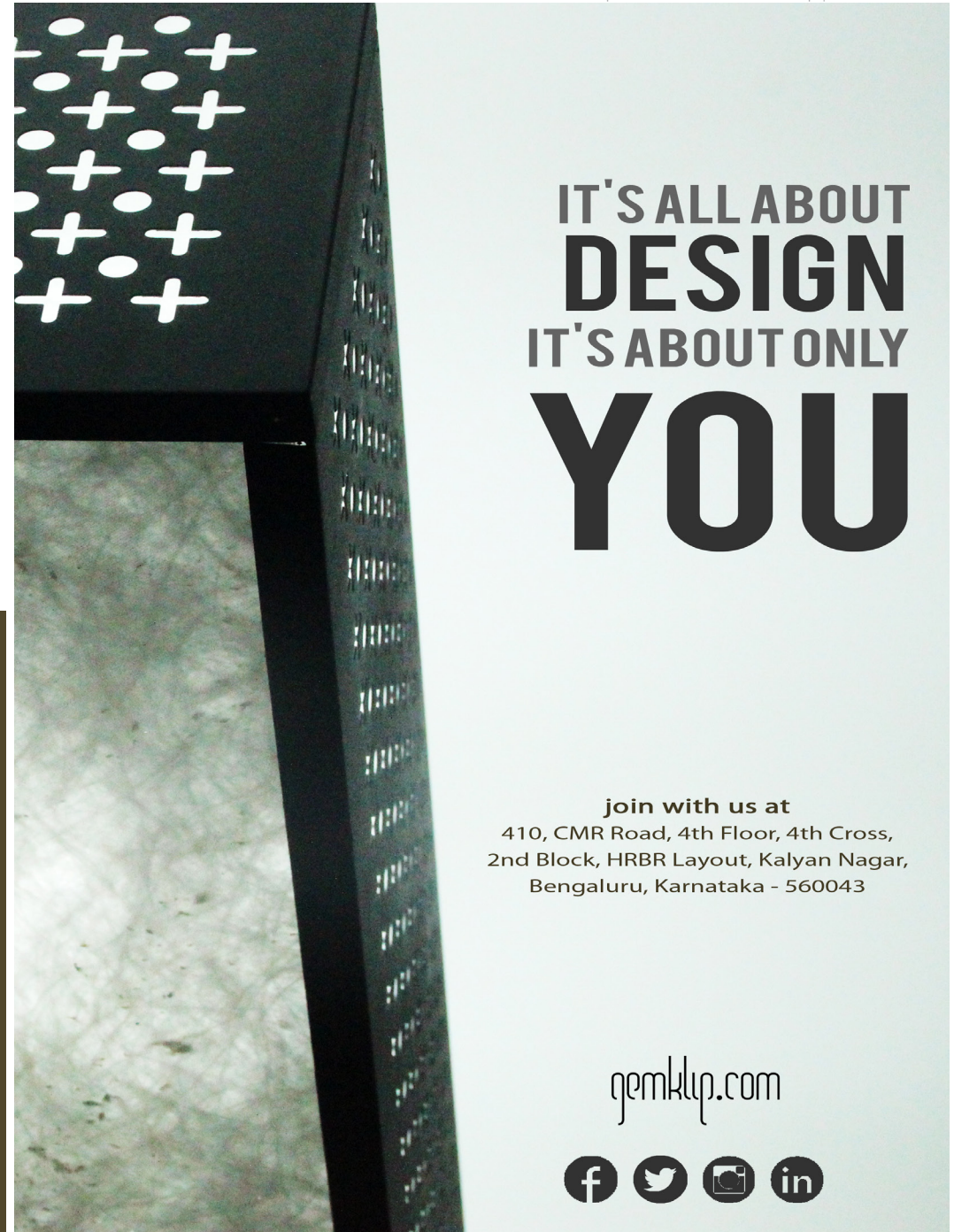
**22<sup>ND</sup>**  
May 2016

gemklp.com

List of Sessions  
Sketching Session  
Brainstorming Session  
Value Proposition Discussion

at  
410, CMR Road, 4th Floor, 4th Cross, 2nd Block, HRBR Layout,  
Kalyan Nagar, Bengaluru, Karnataka 560043

**DO YOU WANNA BE  
AN  
AWESOME  
DESIGNER  
???**



**IT'S ALL ABOUT  
DESIGN  
IT'S ABOUT ONLY  
YOU**

**join with us at**  
410, CMR Road, 4th Floor, 4th Cross,  
2nd Block, HRBR Layout, Kalyan Nagar,  
Bengaluru, Karnataka - 560043

gemklp.com

**BE AWESOME BE CREATIVE BE GREAT**

**PRODUCT EXHIBITION  
& self exploration**

Inspired in DESIGN  
Transformed by VALUE

**21<sup>ST</sup>** **22<sup>ND</sup>**  
May 2016 May 2016

at  
ABC Centre  
410, CMR Road, 4th Floor, 4th Cross, 2nd Block, HRBR  
Layout, Kalyan Nagar, Bengaluru, Karnataka 560043

List of Sessions  
Sketching Session  
Brainstorming Session  
Value Proposition Discussion

hope to see you soon...

gemklp.com



**DO YOU WANT TO  
BE AN AWESOME  
PRODUCT DESIGNER  
???**

**21<sup>ST</sup>**  
May 2016

**22<sup>ND</sup>**  
May 2016

gemklp.com

at  
410, CMR Road, 4th Floor, 4th Cross, 2nd Block, HRBR Layout,  
Kalyan Nagar, Bengaluru, Karnataka 560043



11

## Gemklip Inauguration Flyer

gemklip.com

## Flyer cum Mobile Hanger

Design guidelines for the flyer for inauguration of Gemklip Store:

(i) It will be distributed in the morning newspaper through the vendor, who will throw newspaper from ground floor to different floor

(ii) Very economic for mass production and distribution

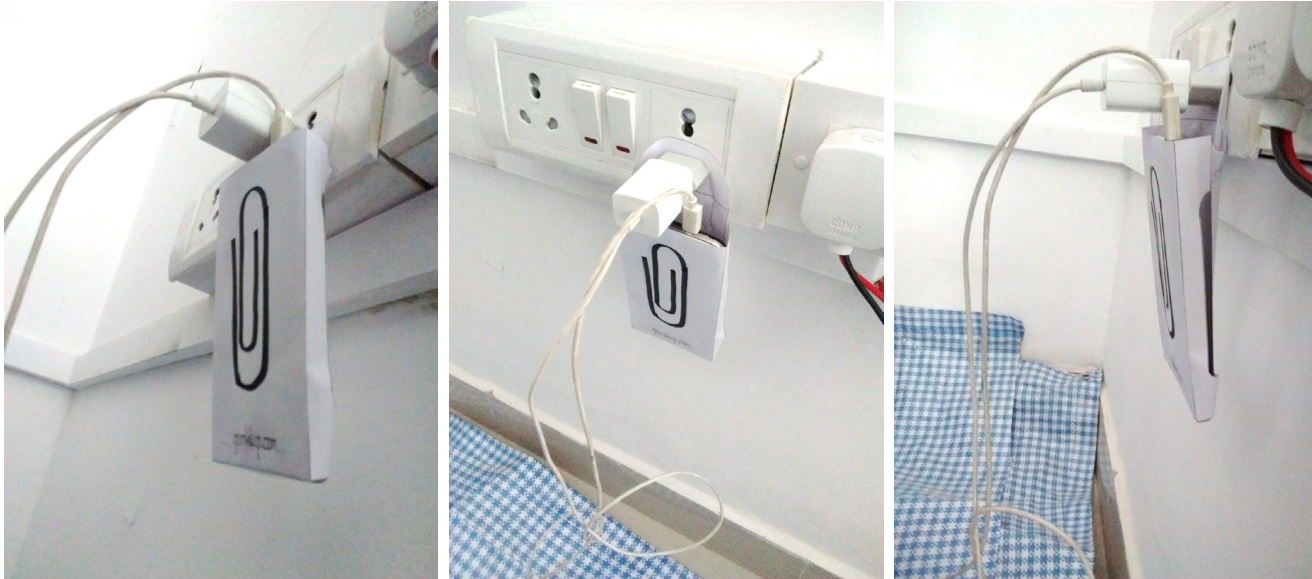
(iii) Some useful product behind the promotion, so that people will keep that product and remember the brand

(iv) Simple innovativeness and giving satisfaction to the customers by DIY mode and owning that product.

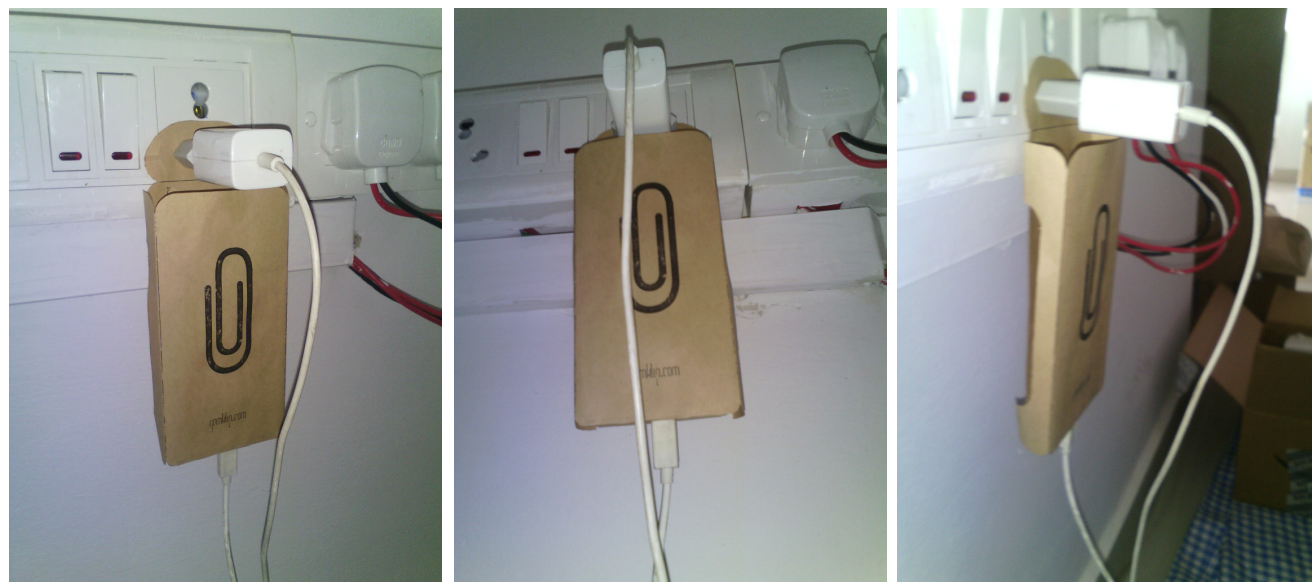
(v) It should catch maximum people for the promotional purposes.

(vi) It should create a point of discussion later, which will help promoting the brand itself.

VERSION 1.0

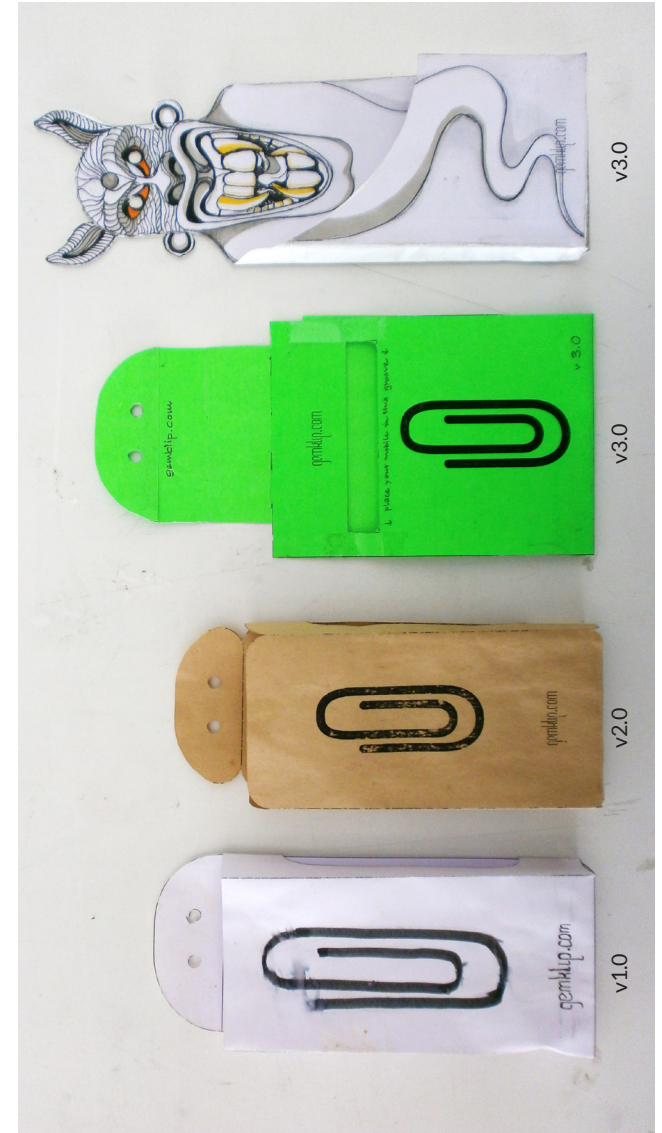


VERSION 2.0



## Flyer cum Mobile Hanger

VERSION 3.0



Evolution of Mobile Hanger

VERSION 4.0





**IT'S ALL ABOUT DESIGN  
IT'S ALL ABOUT YOU...!!!**  
Come and start a new journey with us

Instructions

at  
410, CMR Road, 4th Floor, 4th Cross,  
2nd Block, HRBR Layout, Kalyan Nagar,  
Bengaluru, Karnataka 560043

☎ 080 4121 8823

gemklip.com

f /gemklip

@gemklip

✉ join@gemklip.com

Designer: Anirban Maiti  
Manufactured by Gemklip  
A brand of Teqzo Consulting  
Bangalore 560043 IN

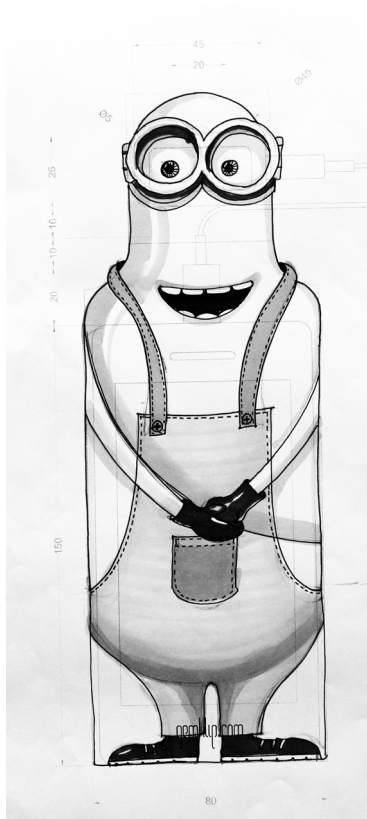
**M.R.P: ₹80**  
(inclusive of all taxes.)



Made in India

© Copyright May 2016

This is made of Tyvek paper which is non-tearable, durable & water-resistant



Different options of Mobile Hanger based on different animated characters

Mockup model



Mockup model with infographics

Different options of Mobile Hanger based on different random graphics

**INSPIRED BY DESIGN  
VALUED BY DESIGN  
TRANSFORMED BY DESIGN**

**BE CREATIVE  
BE AWESOME**

**12**

**Gemklip T-shirts**

# BE CREATIVE BE AWESOME



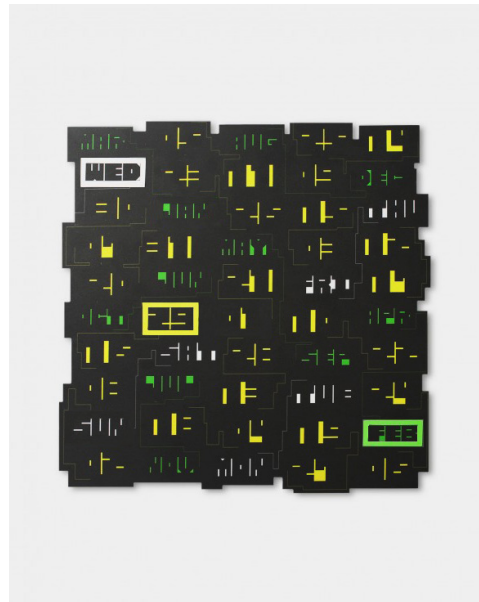
Graphics Finalized  
Trials to be made  
Order to be made



# 13

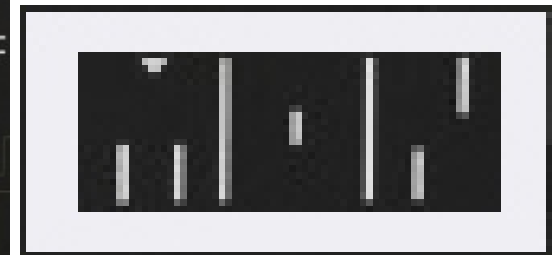
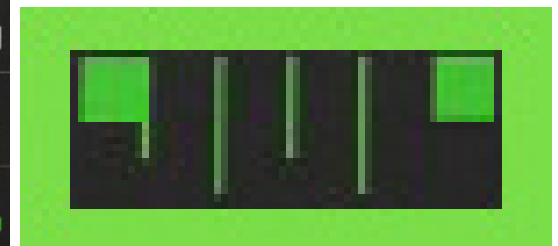
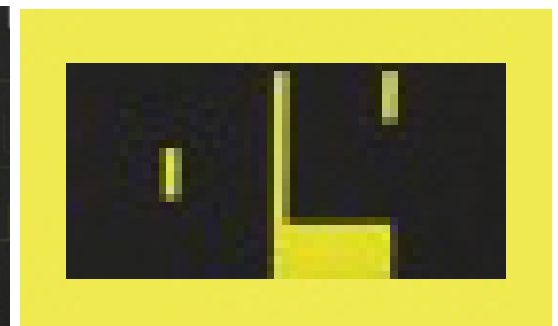
## Interactive Calendars

## Crypto - Mysterious Calendar



Crypto was born out of the idea of creating a calendar that would complement the room as a beautiful wall art. It looks mysterious at first sight, but watch it closer, you'll notice that it is actually a calendar, an order in chaos.

You can see the dates, days, and months subtly hidden using cleverly constructed graphics and once the included magnets are placed over them, they will reveal themselves.



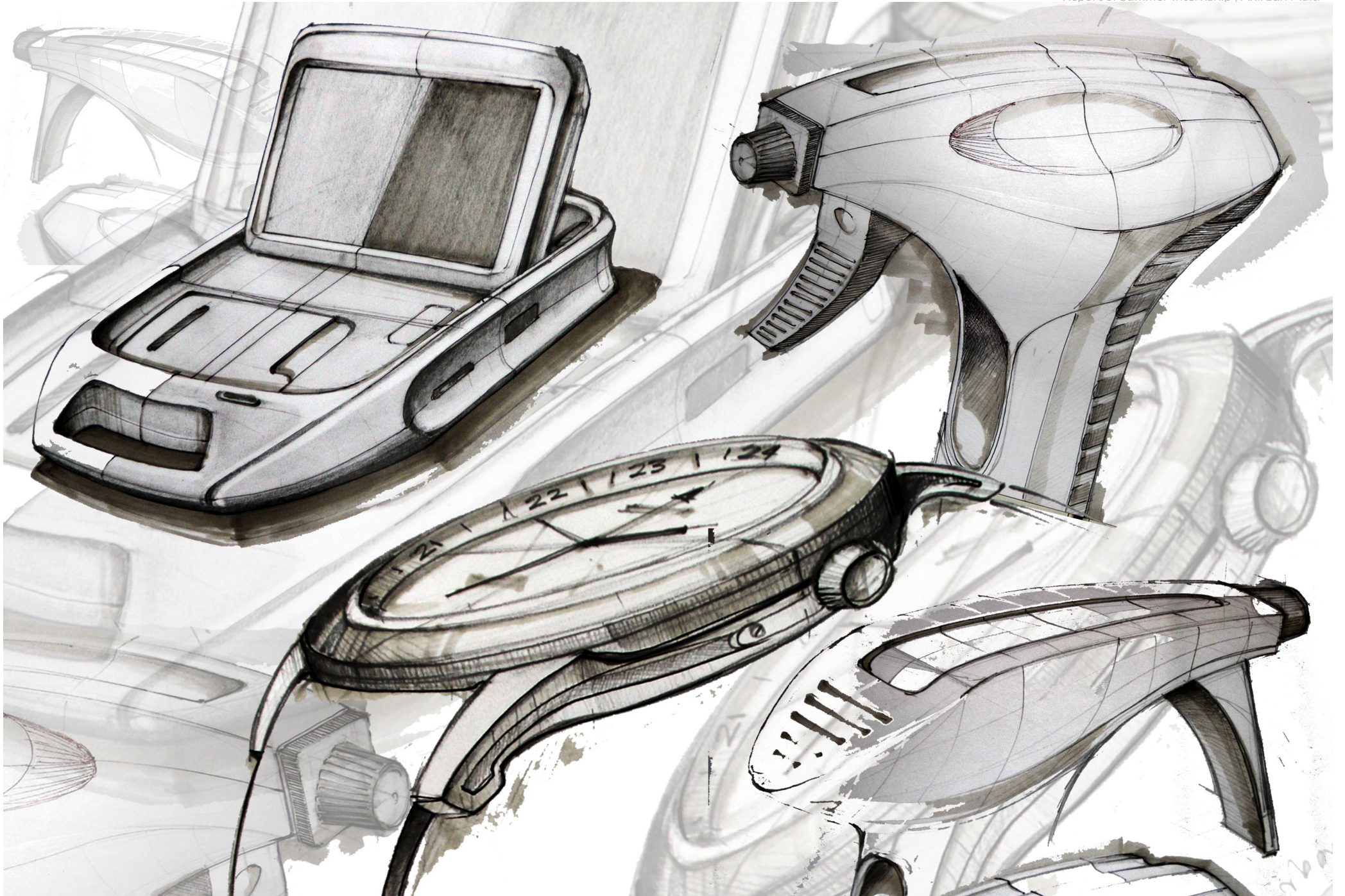
# SKETCHING SESSIONS

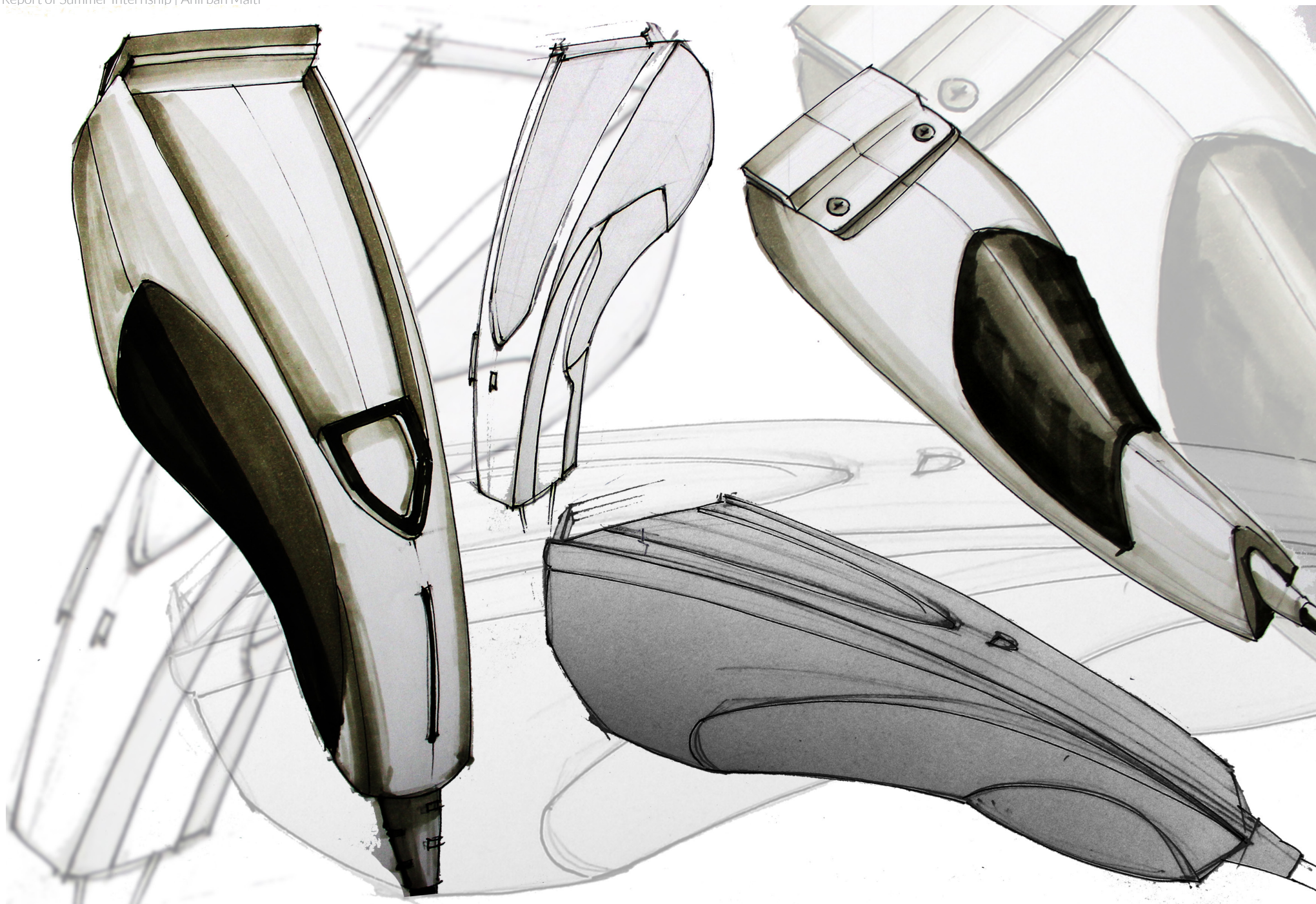


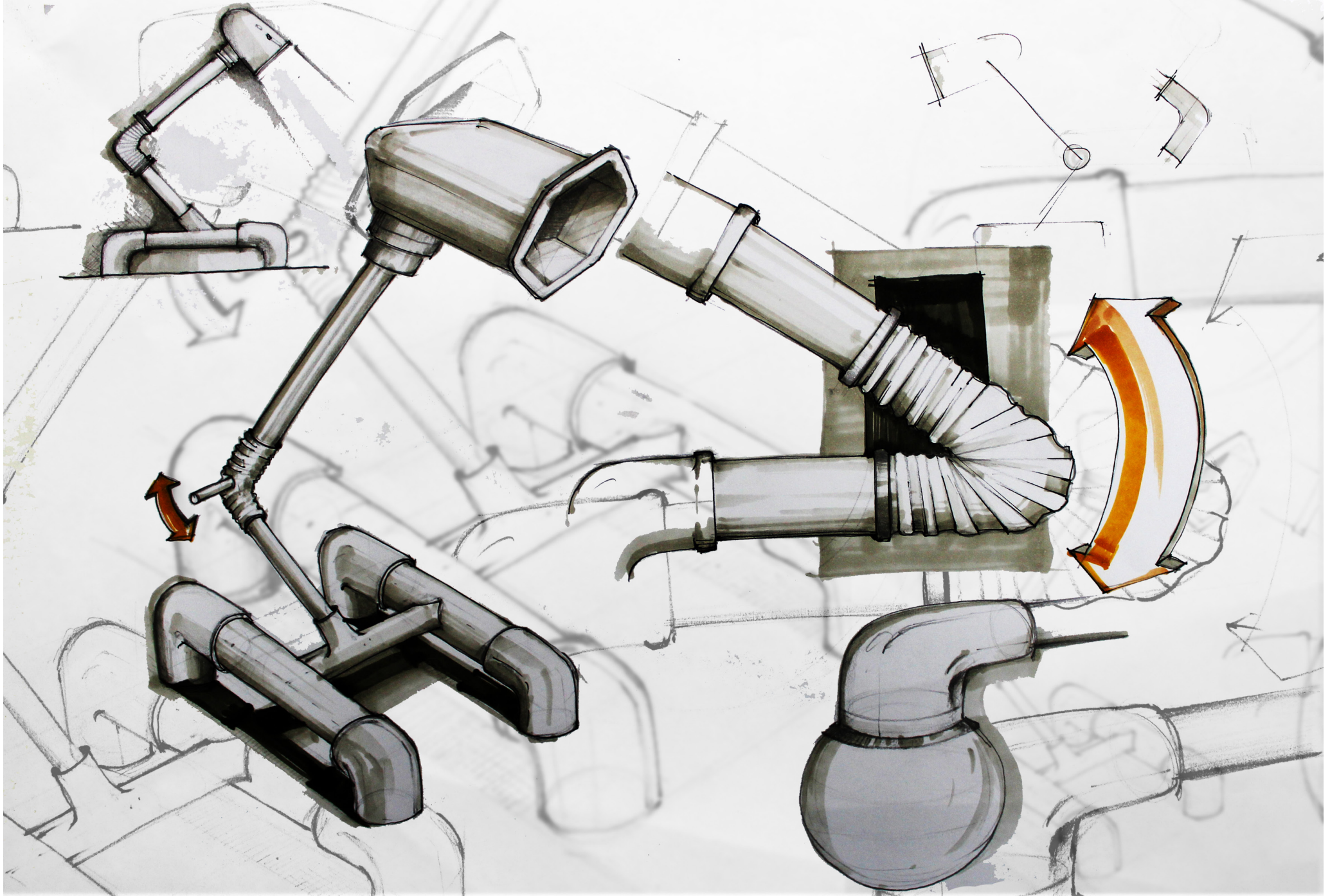
# 14

## Sketching Sessions

Sketching is not my skill, it is my expression...













Find this at