

**Product Design Three**

Project Report:2007

**REFRESH DESIGN OF SCOOTY PEP PLUS**

Presented by

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Project Guide

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## PROJECT APPROVAL SHEET

The degree project titled “Refresh design of Scooty Pep Plus” submitted by Vinatha BabyPrakash is here by approved in partial fulfillment of the requirement for the Master’s Degree in Industrial Design

GUIDE: .....

INTERNAL EXAMINER: .....

EXTERNAL EXAMINER: .....

CHAIRMAN: .....



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My parents and sister has been very understanding and their quiet assurance and belief in me is something I have high appreciation for.



## ABSTRACT

The two-wheeler segment being the backbone of the Indian automotive industry and having caught up with a huge population of Indian users on roads today, one identifies a need for constant development of existing models. The crowd is in constant search for something that is new and different.

Even with automotives, the user is very conscious of styling trends and every year, the two-wheeler industry has more models to offer. Scooty Pep was last styled in 2000 and a refresh design of the third degree was introduced in 2004, which included design intervention in colour panels and decals mainly, along with a few added features.

With fashion changing and styling trends taken many a leap over the seven years, Scooty Pep Plus demands a new style statement. Also, the advent of competitor industries capturing the same user group, one has identified a possibility for a refresh design.



# 1.0 INTRODUCTION

PROJECT BRIEF

METHODOLOGY

BASIC DIVISION OF TWO WHEELERS

INDIAN MARKET OF SCOOTERS

TECHNOLOGY THAT SHAPED STYLING



## 1.1 PROJECT BRIEF

### 1.1.1 AIM

Refresh design of the Scooty Pep plus (90 cc) for M/s TVS Motors Company - for two specific user categories

### 1.1.2 OBJECTIVES

Understanding the concept of refresh design in the automotive industry

Understanding form appreciation for the specific user categories

Appreciation of styling trends in the existing scooter industry in global market

Refresh design of the existing vehicle

Physical modelling in full scale in Styling clay



## 1.1 PROJECT BRIEF

### 1.1.3 SCOPE AND LIMITATIONS

Emphasis has been given to two major areas of the design process namely:

#### a. EXTERIOR STYLING DESIGN:

Body panel design with extensive form exploration over at least 50 concepts.

The bulk of the body had to be retained on the same chassis.

Ergonomic changes are not suggested owing to the research put into this field behind every change, as the case is in the industry.

User amenities and related functional issues have not been dealt with owing to the scope of the project.

#### b. CLAY STYLING MODEL:

Emphasis has been given on recreating the model on a 1:1 scale in industrial styling clay.

This process would span over a period of two months, owing to the fact that the critical form refinement would occur during this stage.

The model would be built over an existing vehicle as a reference guide.



## 1.2 METHEDODOLOGY

JAN 15 - 31	FEB 01 - 25	MAR 01- 10	MAR 10 – APR 30
<p>Understanding refresh design</p> <p>Form Appreciation of Users</p> <p>Styling brief for target user group</p> <p>User study and activity analysis</p> <p>Market study and analysis</p> <p>Assembly line understanding</p>	<p>Initial form conceptualization</p> <p>Existing styling trends study</p> <p>Analysis of the existing model of Scooty Pep plus</p> <p>Integrating expression into form</p> <p>Deriving concepts in two directions</p>	<p>Incorporating changes from feedback of MID SEM review</p> <p>Concept evaluation</p>	<p>Mock model in 1:1 scale for form refinement</p> <p>Physical model in industrial styling clay (1:1)</p> <p>Documentation of the design process</p>



## 1.3 BASIC DIVISION OF TWO-WHEELERS

The different types of two wheelers that exist in the automotive industry are:

<b>Motorcycles</b>	<b>Sports touring bikes</b>
<b>Motor-cross bikes</b>	<b>Moto-scooters</b>
<b>Cruisers</b>	<b>Scooters</b>
<b>Sports bikes</b>	<b>Mini-Scooters</b>
<b>Dirt bikes</b>	<b>Mopeds</b>
<b>Super-bikes</b>	<b>Electric Scooters</b>
	<b>Scooterettes</b>

The most commonly accepted definition of **scooterette** is

*Two-wheeled, non-g geared vehicles that have wheels between 8 and 14 inches in diameter (smaller than scooters), step-through frames and typically engines that are low and close to the rear wheel*

[The New Encyclopedia Britannica (1997), vol. 8, pg. 367].

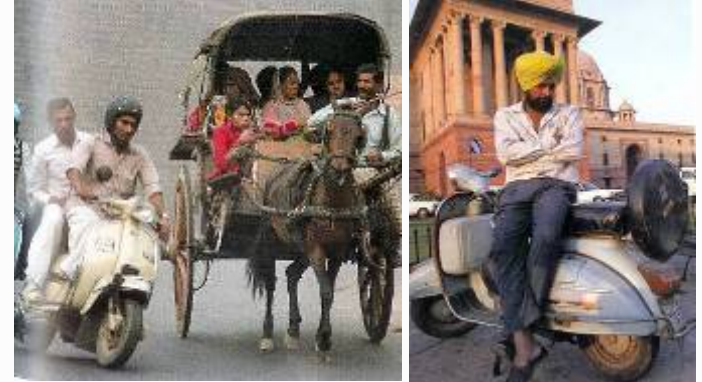
Scooterettes also often incorporate full bodywork, including leg shields and generally are designed to be easier to operate than standard motorcycles or scooters. It should be noted that scooterettes may be of any engine size.



## 1.4 INDIAN MARKET OF SCOOTERS

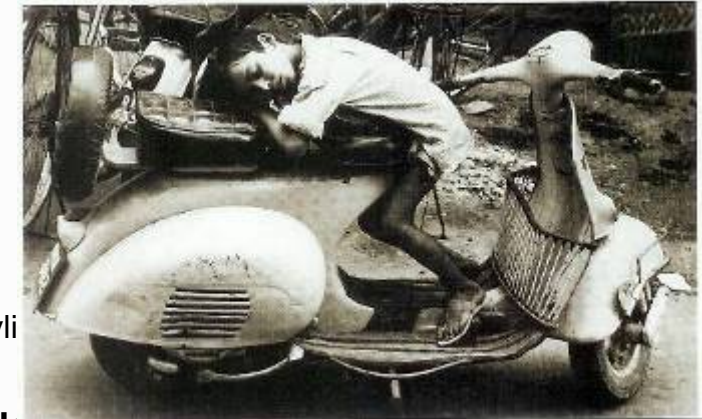
### 1961- Bajaj Auto Ltd. - “Chetak”, “ Vespa 150”

Piaggios license to manufacture in India expired and Bajaj Auto Ltd. had the opportunity to manufacture two outgoing two wheeler models of the times, the Chetak and the Vespa. They were introduced as a family vehicle. They targeted the practical crowd of India where the vehicle at home was not a mere passenger commuter but also the main support for various house errands, for instance carrying LPG stoves. They were used as source of transport for the dhoodwaala to do his business and as a two wheeler taxi.



### 1971- SIL(Scooters India Ltd). - “Lambretta”, (Lamby 150, Lamby Polo)

The lambretta was also a family vehicle with typical Italian styli for its high quality and technological updating.



### 1990- Kinetic Engineering + Honda - “Kinetic Honda

The sytyling for Kinetic Honda was inspired from a “swan”. This scooter was targeted at the youth and was manily used for transport in urban areas.



## 1.4 INDIAN MARKET OF SCOOTERS

### 1994- TVS Motor Company - “Scooty ”

TVS Motor Company launched ES with the idea of capturing the college crowd with a light-weight non-geared vehicle with cutting edge styling. This model was well accepted and survives till date.

Six years down the line, in 2000, the company launched Pep with a 4-stroke engine and was a trend setter with the stylized design. This model still caters to the college crowd.

### 2003- Honda - “Activa ”

With the idea of eating into the Scooter market that declined with the end of the Chetak reign from Bajaj, Honda launched the 100 cc non-geared moto-scooter, Activa. This step through design was introduced as a family vehicle with added benefits like easy maintenance, sturdy full metal body and ample stowage space, although a little retro in its styling trend.

### 2007- Bajaj Auto Ltd. - “Kristal ”

With the idea of entering the scooter market after taking a break from the segment and discontinuing previous models like the Saffire and Wave. It is aimed at 16-somethings that are entitled to get two-wheelers legally. The styling is razor sharp and edgy with sporty overtones and contemporary looks.



## 1.5 TECHNOLOGY THAT SHAPED STYLING

### COPY MILLING

This is the traditional method of clay styling where master craftsmen and the automotive designers worked manually on developing clay surfaces which were then translated using rail curves manually. This process was time consuming and each model would take more than 6 months. Once the model was made, the pantograph was used for transferring the model surfaces to develop the metal body model.



### CNC MILLING

This method involves the use of high-end Class- A modelling softwares to develop surface models. These models are then milled using CNC technology in Industrial clay. After a few refinements, a laser 3D scanner is used for acquiring cloud data of the model. This cloud is assimilated and corrected. The final model is then transferred to the dies used in the manufacturing process.



## 2.0 INTRODUCTION TO SCOOTY

HISTORY

MARKET SCENARIO

BRAND IDENTITY OF SCOOTY PEP PLUS

VEHICLE SPECIFICATIONS

MATERIAL UNDERSTANDING

HARD POINTS IN FRAME

PRODUCTION LINE



## 2.1 HISTORY

TVS Motor Company launched ES with the idea of capturing the college crowd. This model was well accepted and survives till date.

Six years down the line, in 2000, the company launched Pep with a 4-stroke engine and was a trend setter with the stylized design.

This model still catered to the college crowd and was promoted fervently through various campaigns using Preity Zinta as the brand ambassador.

On popular demand and high market potential, the need for refresh design on the third degree (decals and amenities) was undertaken in 2004. The company also decided to introduce the 99-colour scheme for the users, providing them with a wider scope for personalisation of their own vehicle.



## 2.2 MARKET SCENARIO

To capture the niche market of college going girls Scooty ES was launched with the following design strategies

- This vehicle is extremely light in weight contrary to then market scenario
- It is a non-geared two-wheeler with a convenient step – through and storage
- it is ergonomically designed for the youth
- The styling of the vehicle emphasizes lightness breaking away from notion of a “scooter”
- This model created an identity for scooterette in the market

This 90cc upgraded model of Scooty ES, The Scooty PEP was introduced in the year 2000.

- Scooty has developed with time and created a notion of “trust” with the user group.
- 30% of the Scooty users are males and the rest are all females from varying age groups.
- This vehicle was targeted for users in the top 10 metros in India, the user study for which is carried out on a psychographic segmentation rather than the typical demographic study



## 2.3 BRAND IDENTITY

On discussion with Mr. Srinivas, Marketing manager for the Scooty Pep Brand , the following points were reviewed :-

The Scooty Pep plus is Youthful, Energetic, Fun-Loving and targeted for the age- group 18 – 25 years

Young brand ambassadors like Aishwarya Rai and Preity Zinta have been advertised to promote the trendy identity of Scooty Pep.

In terms of the design features, the cutting edge modern styling was imparted to suit the user's preferences. The treatment of decals on the vehicle also imparted a fresh, trendy appeal to suit the image of the target user group. Additional features in the Scooty Pep Plus like a mobile charging point, easy central stand and the under seat-lighting feature for the storage space was added to prove more functional than the earlier model.

Later the company launched the 99-colour scheme to give the user's a choice of personalizing their vehicle to suit their taste. In effect to this move, the "Paint your Scooty" marketing campaign was launched to introduce this scheme.



## 2.4 VEHICLE SPECIFICATIONS

Wheelbase	1230
Seat height	740
Top speed (km/hr)	74
0-60 km/h	12.2
Power (ps/rpm)	5.1 / 6500
Torque (Nm/rpm)	5.8 / 4000
Displacement	87.8
Kerb weight (kg)	95
Fuel capacity (l)	5



## 2.5

## MATERIAL UNDERSTANDING

Headlamp –  
POLYCARBONATE

Reflectors – ABS SILVER  
PLATED

Front neck panel - ABS  
CUBIC PRINTED

Grey and Silver  
panels -  
STRUCTURAL  
POLYPROPYLEN  
E

Chassis  
frame -  
MS

Rear panel -  
PP – not  
painted

Wheel cap – Aluminum  
Alloy

Seat - Frame –  
PP

Foam – PU

Upholstery -  
REXIN

Grab handle-  
GAS INJECTED  
NYLON

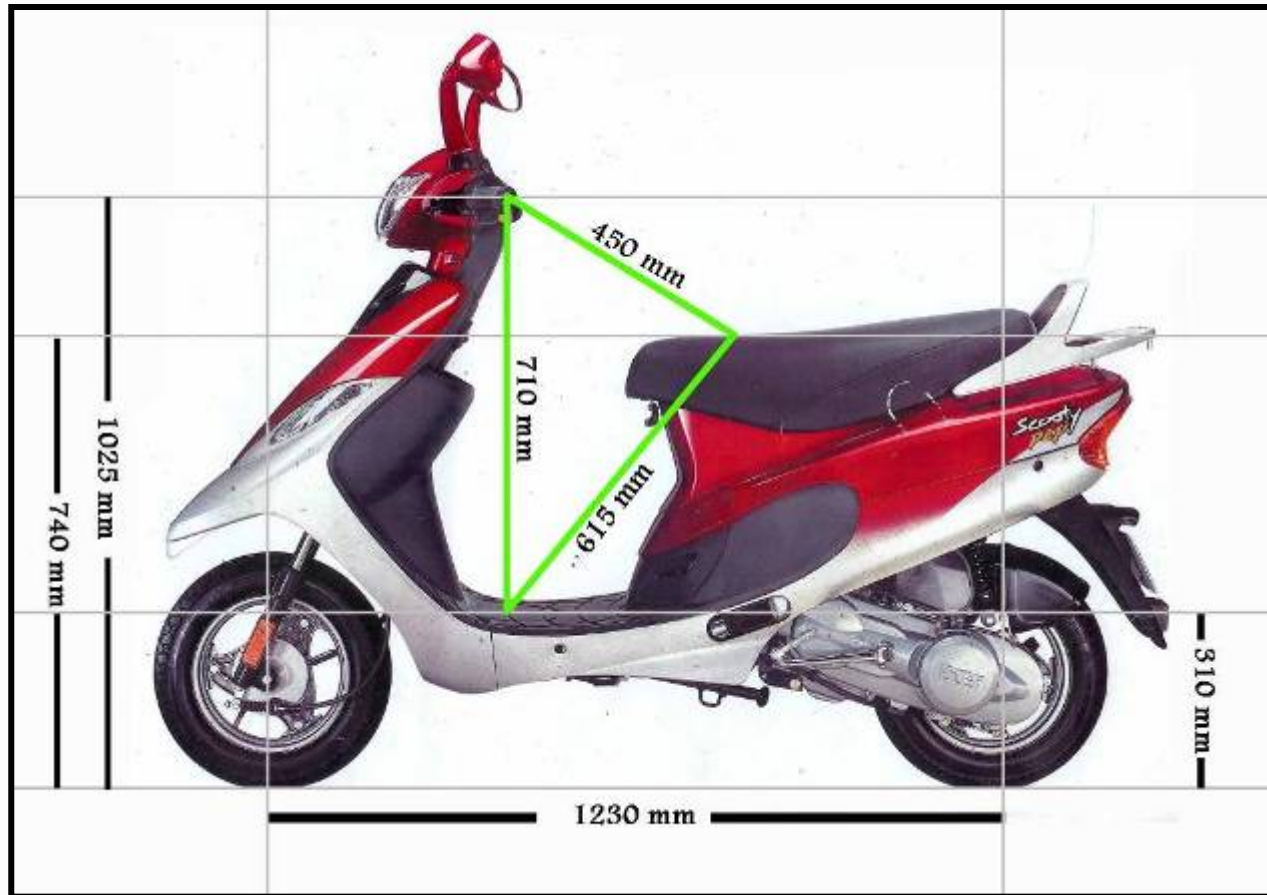
Painted Body  
panel - ABS

Mud-guard –  
STRUCTURAL  
PP

Engine housing-  
ALUMINIUM  
DIE-CAST



## 2.6 HARD POINTS IN FRAME

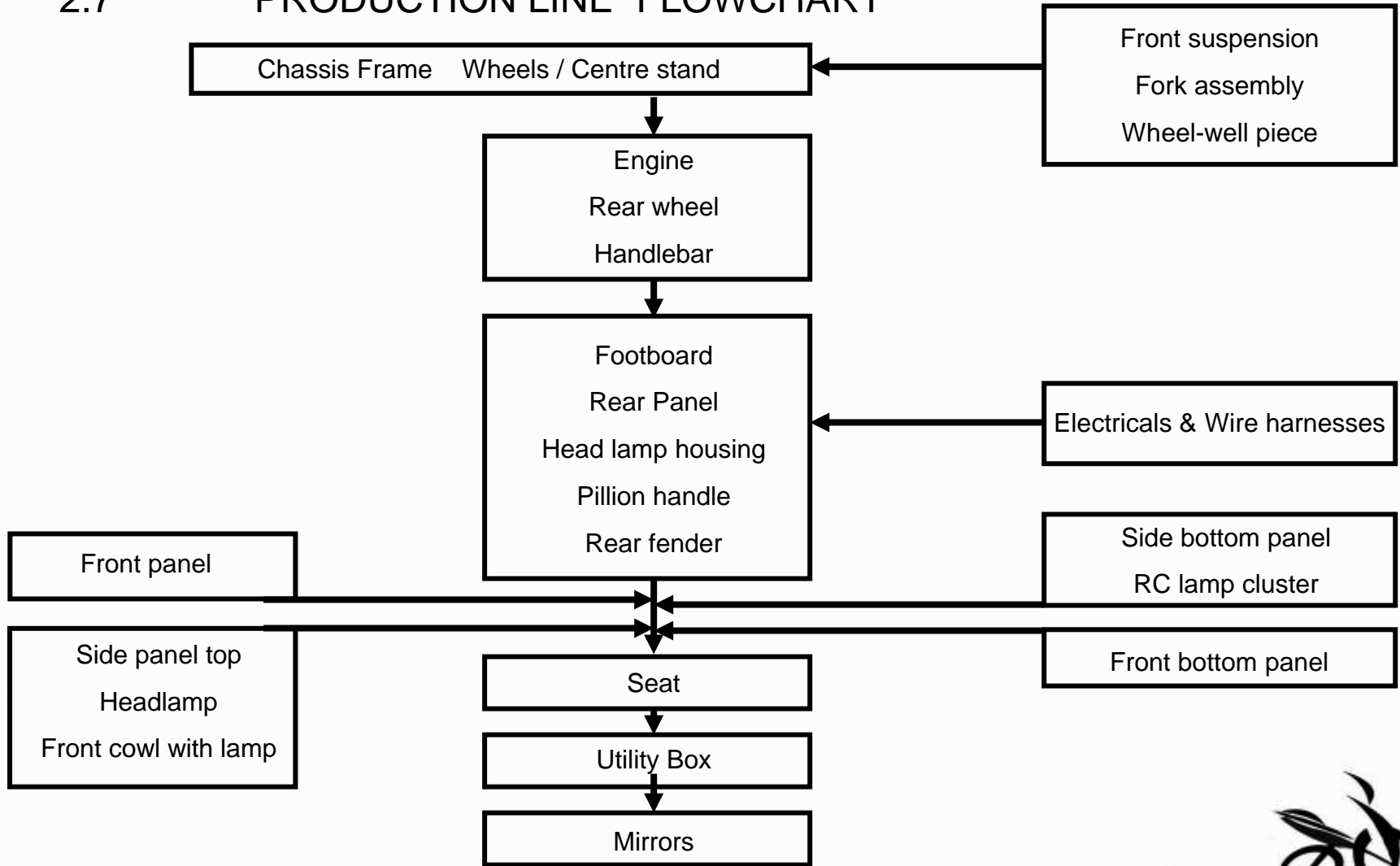


The main dimensions of the vehicle has been illustrated. These are the hard points for which alterations can not be made for ergonomical reasons. Any change in the dimension of the chassis is beyond the scope of the project.



2.7

PRODUCTION LINE FLOWCHART



## 3.0 UNDERSTANDING STYLING DESIGN STYLING TRENDS IN AUTOMOTIVE INDUSTRY

- 3.1 FRONTAL EXPRESSION
- 3.2 METAPHOR
- 3.3 SURFACE BEHAVIOUR
- 3.4 EDGE STYLING
- 3.5 RETRO STYLING
- 3.6 SCULPTURAL



### 3.1 FRONTAL EXPRESSION

Front face has life and emotion – relates to riders

Headlamps act as EYE

Grill as MOUTH

Other supportive accessories – FACIAL FEATURES



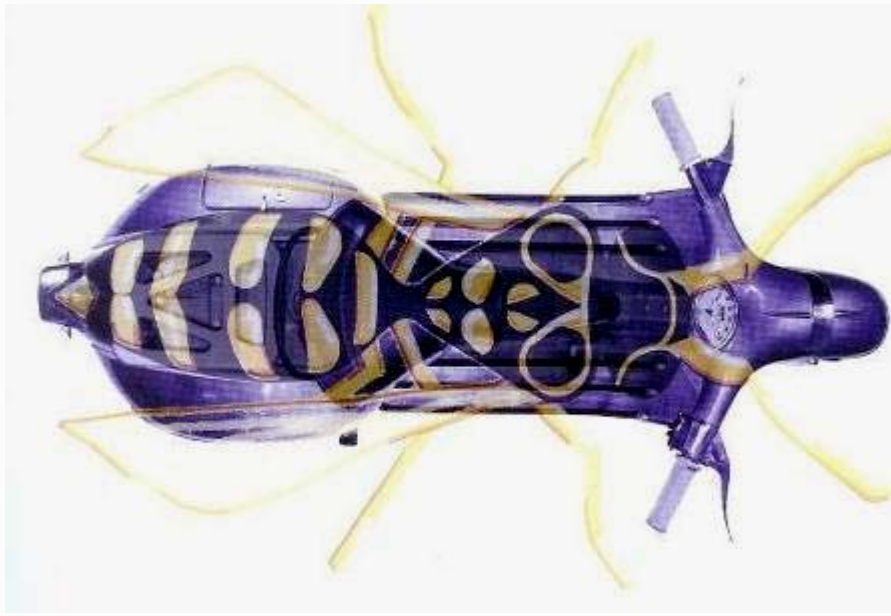
## 3.2 METAPHOR :

DIRECT BIONIC (NATURAL) & INDIRECT BIONIC (ARTIFICIAL)

EG: AEROPLANE DERIVED FROM BIRD

RAYMOND LOEWY'S DESIGN INSPIRED FROM AEROPLANES

MAIN CONSIDERATIONS – COMMON CHARACTERISTICS ELEMENTS



### 3.3 SURFACE BEHAVIOUR

CURVACEOUS FORM -  
AERODYNAMIC

AIDED BY TECHNOLOGICAL  
DEVELOPMENT



### 3.4 EDGE STYLING :

REPLACED SMOOTH  
FLOWING CURVES WITH  
SHARP CURVES AND WELL  
DEFINED EDGES

GEOMETRY HAS PREMIUM  
IMPORTANCE



## 3.5 RETRO STYLING :

STYLING TREND OF 40'S AND 50'S

INCORPORATES VISUAL FEATURES OF OLDER  
STYLISED VEHICLES



## 3.6 SCULPTURAL :

MORE IMPORTANCE TO STYLE AND LESS  
TO PRACTICAL CONSTRAINTS

NON-CONVENTIONAL LOOKS, MOSTLY  
ALL CONCEPT VEHICLES



## 4.0 UNDERSTANDING REFRESH DESIGN



## UNDERSTANDING REFRESH DESIGN

In the automotive industry, a common practice for successful models is to develop a refresh design. This is done to maintain the intrinsic qualities and identity of the model over its lifetime.

Refresh design involves minimal changes to the bulk of the mass, retaining the split lines as far as possible and keeping intact the school of thought behind its formal expression.

The design team gave us an opportunity to understand refresh design through the following exercise:

An earlier version of the YAMAHA Majesty was given to us to develop it to the next level of refresh design. Once the options were done, the next version that was developed by the YAMAHA design team was revealed and discussed.



OLDER VERSION



REFRESH DESIGN



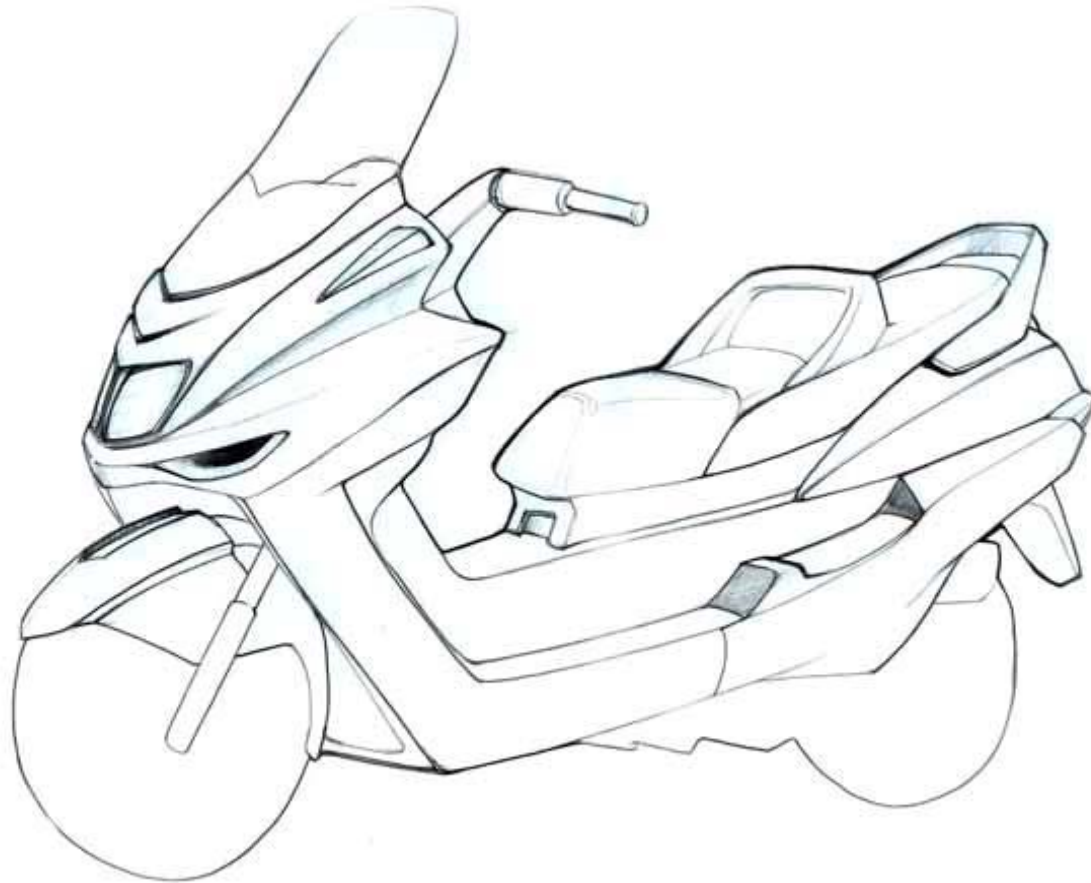
## UNDERSTANDING REFRESH DESIGN

### OPTION 1



## UNDERSTANDING REFRESH DESIGN

OPTION



## 5.0 COMPARATIVE ANALYSIS OF SCOOTERS IN INDIAN MARKET

HONDA ACTIVA

HONDA DIO

TVS SCOOTY ES

KINETIC NOVA

HERO HONDA PLEASURE

BAJAJ SAFFIRE

KINETIC ZOOM



## HEAD LAMP



Honda  
**ACTIVA**



TVS  
**SCOOTY  
ES**



Bajaj  
**SAFFIRE**



Kinetic  
**NOVA**



**HONDA DIO**



Hero-Honda  
**PLEASURE**

Box character, head light high lightened and separated	Indicator lights fused with head light in crescent shape	Head light in a crescent smile	Box character using concave edge lines, makes it look larger	In front panel, pointed to sharp corners, but the panel on handle takes a soft character	Smooth panel but the head light breaks away from it.
<b>Less Hard, Passive</b>	<b>Hard, Modern</b>	<b>Soft, Feminine</b>	Central area recedes to balance visual mass <b>Bulky, static</b>	<b>Sharp</b>	<b>Soft, feminine</b>



# FRONT PANEL



Honda **ACTIVA**

Metal panel - minimum surface transition  
metallic Colour makes hard edge chest, less prominent

Elegant, Retro



Kinetic **NOVA**

Visual mass reduced-silver panel  
long narrow indicators-trendy  
Curvaceous surface - bulky

Soft, less bulky



TVS **SCOOTY ES**

Characteristic sharp edge & nose, Cutouts gives aggressive feature

Hard



Bajaj **SAFFIRE**

Smooth and curvaceous with very little treatment  
Indicators - out of proportion

Bulky, soft



HONDA **DIO**

Graphics used to reduce bulky nature, accentuated sharp light emphasizes aggressive stance, name plate not integrated

Bulky, static



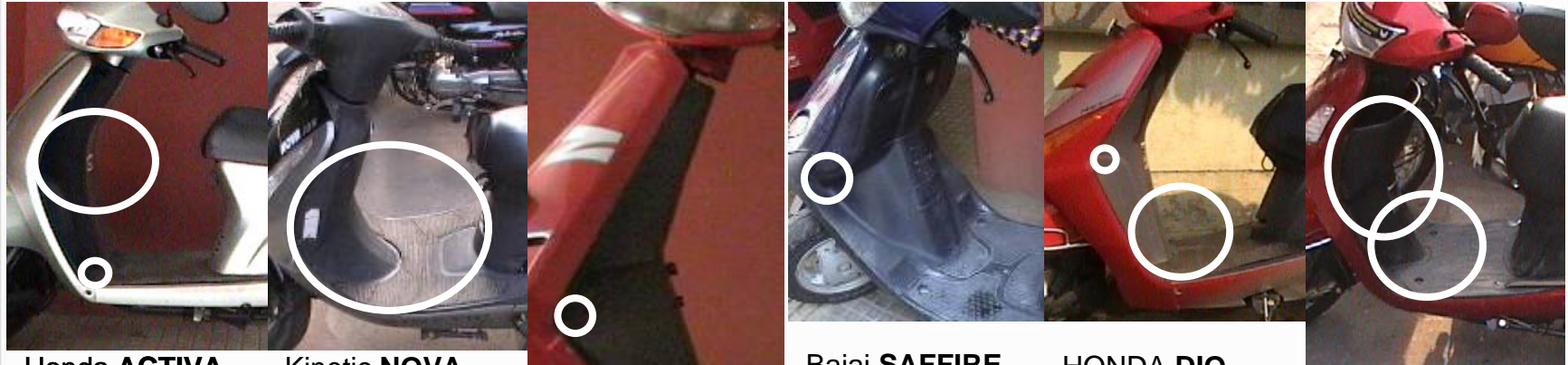
Hero-Honda **PLEASURE**

Bulky with highly soft edges, indicators like head light tries to assume a less soft character

Bulky, soft



# STEP THROUGH



Honda **ACTIVA**

Kinetic **NOVA**

Bajaj **SAFFIRE**

HONDA **DIO**

Hero-Honda

**PLEASURE**

<p>No storage, surface intersection doesn't merge, straight waist line</p>	<p>outer and inner panels offset hence smooth transition. Well integrated storage</p>	<p><b>TVS SCOOTY ES</b></p> <p>Hard edges, well integrated transition, foot board at angle make it dynamic</p>	<p>Storage is not well integrated, less smooth transition</p>	<p>Contradiction between outer and inner panel, absence of storage, footboard at angle make it dynamic</p>	<p>Storage is open, edges have smooth transition</p>
<p>Masculine</p>	<p>Smooth, Feminine</p>		<p>Bulky</p>	<p>Less sharp, less dynamic</p>	<p>Soft, Feminine</p>



## SIDE COWL



Honda  
**ACTIVA**

Kinetic  
**NOVA**

TVS  
**SCOOTY  
ES**

Bajaj  
**SAFFIRE**

Honda **DIO**

Hero-Honda  
**PLEASURE**

Bulky, Mass  
made to look  
modern using  
sharp cuts

Soft,  
curvaceous and  
rounded rear  
half

Wraps tight  
around the body  
  
Less area in  
proportion to the  
grey areas  
reduces mass  
of the rear

Cut-outs with  
ridges cut the  
visual bulk  
  
Steep angle of  
the side cowl  
imparts a high  
stance

Sharp pinch on  
front end gives  
a crisp appeal  
  
Higher stance  
gives a sense of  
lightness and  
dynamism

Smooth, modern  
Minimal surface  
transitions making  
it elegant



## TAIL LAMP



Honda  
**ACTIVA**



Kinetic  
**NOVA**



Bajaj  
**SAFFIRE**



Honda **DIO**



Hero-Honda  
**PLEASURE**

Modern, spreads  
over the entire  
width

Bulky, extending  
out of the body  
mass

Soft, feminine

Sharp points render a  
dynamic expression

Dynamic styling  
expression

Flow lines continued  
from the grab handle



## STANCE



Honda  
**ACTIVA**



Honda **DIO**



Hero-Honda  
**PLEASURE**



Kinetic  
**NOVA**



TVS  
**SCOOTY  
ES**

<p>Stable stance</p> <p>Serious look</p> <p>Mature expression</p>	<p>Crisp look</p> <p>Dynamic expression</p> <p>High stance</p>	<p>Happy expression</p> <p>Modern looks</p> <p>Soft, smooth elegant styling</p>	<p>Bulky, attempt has been made to reduce the visual width with a colour break</p>	<p>Light, sleek expression</p> <p>Hard, Edgy character</p>
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## FRONT FENDER



Honda  
**ACTIVA**

Hero-Honda  
**PLEASURE**

TVS  
**SCOOTY  
ES**

Kinetic  
**NOVA**

Honda **DIO**

Bajaj  
**SAFFIRE**

Fender attached to body - coherent with soft language of the whole form

Attached to the frontpanel- sharper look

Nose tapers down to reduce need of fender

Fender attached to the wheel and differentiated from the body with colour.

Nose is extremely shortened again, but the treatment to the bottom edge changes the character

Absence of fender



## SEAT



Honda **ACTIVA**

Warm, Less  
dynamic



HONDA **DIO**

Dynamic,  
Aggressive



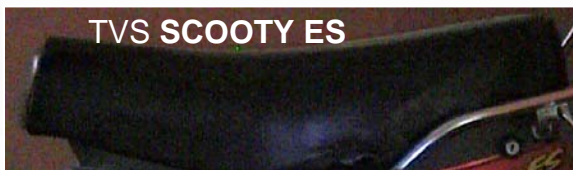
Kinetic **NOVA**

Bulky, Feminine



Bajaj **SAFFIRE**

More dynamic,  
Feminine



TVS **SCOOTY ES**

Serious, static



Hero-Honda **PLEASURE**

Smooth,  
Feminine



## REAR VIEW



Honda **ACTIVA**

Bulky, Stable



TVS **SCOOTY ES**

Hard, Static



Bajaj **SAFFIRE**

Light, Soft



Honda **DIO**

Sporty, Dynamic



# GRAB HANDLE



Honda **ACTIVA**



Kinetic **NOVA**



TVS **SCOOTY ES**



Bajaj **SAFFIRE**



Honda **DIO**



Hero-Honda **PLEASURE**

Heavy, Strong,  
not interesting

Bulky, Trendy

Light, Strong,  
Cold

Accentuates  
stance, Soft,  
Modern

Strong, Passive

Dynamic,  
Modern



## REAR VIEW MIRROR



Honda **ACTIVA**

Elegant



Kinetic **NOVA**

Trendy



TVS **SCOOTY ES**

Bulky



Bajaj **SAFFIRE**

Elegant



Honda **DIO**

Soft



Hero-Honda  
**PLEASURE**

Modern



## NOSE FEATURE



Honda **ACTIVA**

Kinetic **NOVA**

TVS **SCOOTY ES**

Bajaj **SAFFIRE**

Honda **DIO**

Hero-Honda **PLEASURE**

The nose is short and blends with the curve of the leg shield rendering a subtle, passive character

Nose is extremely shortened, almost blends with the leg shield curve. The front grills cut into the visual bulk

Tapering the nose renders an aggressive look and imparts a lighter, streamlined character

Nose is extended more towards the front and ends in a rounded point, with the horizontal division with split colours.

The nose is bulkier with the integration of the headlamp. Ends in a point and appears robust.

Nose is extremely shortened again, but the treatment to the bottom edge changes the character



## MONOGRAM, DECALS



## 6.0 ACTIVITY ANALYSIS AND USER STUDY

QUESTIONNAIRE  
ACTIVITY ANALYSIS  
USER COMMENTS  
OBSERVATIONS  
IMAGE OF PERSONAL VEHICLE  
PERSONAL ACCESSORIES  
ATTIRE  
HABITS WITH VEHICLE  
DESTINATIONS  
CO-RIDERS  
PREFERENCES WHEN BUYING  
UNUSUAL OBSERVATIONS



## ACTIVITY ANALYSIS AND USER STUDY

The user study conducted in Bangalore involved talking to 28 two-wheeler users which covered both the specific target user groups . The users were an equal mix of working professionals from firms and college students. The users were chosen depending on their experience of riding two-wheelers. A riding experience of at least two years was a criteria to choose the user. The study was conducted in Koramangala, Christ college, Brigade Road and Richmond town. The users hailed from various parts of India.

In the initial part of the User study a questionnaire was given to the users. The questionnaire and collective inference will be discussed in the chapter.



## 6.1 QUESTIONNAIRE

**Name:**

**Age:** 18-22 / 23-25/ 25-30/above 30

**Occupation:**

**Mother tongue:**

**Family members:**

**How would you best describe yourself?**

Fun loving

Serious

Extrovert

Introvert

Stylish

Casual

Emotional

.....

**Which of these personalities would you best relate yourself to? ( Please consider irrespective of age)**

Preity Zinta

Shabana Azmi

Sushmita sen

Madhuri Dixit

Kareena Kapoor

Juhi Chawla

Kiran Bedi

Sania Mirza

## 6.1 QUESTIONNAIRE

If you had free time on a normally busy day what would you do?

Go on a trip  
Stay indoor  
Play sports  
Head to the gym  
Read a book  
Go to the parlor  
Spend time with family  
Clubbing

**Favorite hangout** - .....  
**Favorite pass-time** - .....  
**Favorite book** - .....  
**Favorite movie** - .....  
**Favorite personality** - .....

Which two-wheeler do you own?

How would you best describe your vehicle?

Aggressive  
Dynamic  
Stylish  
Sleek  
Modern  
Sturdy  
Sporty  
Light  
Bulky

## 6.1 QUESTIONNAIRE

**Order of preference when buying a two-wheeler – (rank from 1 to 10)**

styling		price		brand identity
performance	speed		weight	
safety		storage space		hi-tech features
Colour				
(Any other preferences .....				

**What products do you use? Name the brand or model of the product**

Mobile phone - .....

Mp3 player - .....

Radio/walkman - .....

Watch - .....

**How would you describe your fashion sense?**

Casual  
Trendy  
Elegant  
Traditional  
Modern  
Formal  
Practical

**Would you like to personalize your vehicle?**

Choice of vehicle graphics  
Choice of altering colour panels  
Additional vehicle accessories

## 6.1 QUESTIONNAIRE

Are you happy with the storage space? Yes / No  
If no, please specify .....

How long have you been riding?

Where do you normally drive to?

Time spent riding the vehicle everyday

What do you prefer not to wear when you drive?

Who else do you drive with on the vehicle?

What do you feel about your safety when riding?

Have you developed any habits with your scooter?

What is the best two wheeler in the market? Why?

Your dream vehicle .....

## 6.2 ACTIVITY ANALYSIS ( MALE USER)



### TASKS:

1. Wears the helmet
2. Kick starts the pedal, after putting in key
3. Grabs the vehicle by the grab handle and the handle bar
4. Lifts the vehicle off the central stand
5. Reverses vehicle from parking lot
6. Ingresses across the step through
7. Takes position of the handle bar, checks the instrument panel and accelerates
8. Rides away into traffic



## 6.2 ACTIVITY ANALYSIS ( FEMALE USER)



### TASKS:

1. Removes helmet from the storage compartment, wears the helmet, puts her bag into the storage compartment
2. Removes side stand by holding onto the handle bar and seat
3. Driver climbs in through the step-through
4. Takes position on the handle bar
5. Turns the key and checks the instrument panel
6. Presses the self-start button , while pressing the brake handle
7. Pillion rider climbs onto back seat
8. Accelerates and drives into traffic



## 6.2 ACTIVITY ANALYSIS (USER COMMENTS)

“It is difficult to put the vehicle on centre stand, Hence I leave the vehicle on side stand” - LAVANYA

-

“With a co-rider it is easier to carry my other bags”- PRASAD

“ Even if I wear a jacket or a rain coat, water still splashes on my dress during the monsoon season” - SHANTA

“ I prefer wearing my jacket while riding” - SHWETA

“ I prefer the Dio, because it helps me carry my pet dog to the vet, He rests on the floor of the step-through in front” - VARSHA

“ I am not able to reach the ground easily , during long hours of traffic halt; it becomes hard to balance the vehicle”  
- APEKSHA

“ I feel uncomfortable while riding my Spirit, because when the wheel turns to the right, the front is still pointing straight ahead” - ANU

“ I park my scooty near the laariwallah and have pani puris” - MARY



## 6.3 PROBLEMS WHILE RIDING

The users were questioned about the problems they faced while driving and these were a few of the situations that they faced :

- Hand bags are hung onto the handlebar and slip from it while taking a turn. This can prove to be quite cumbersome.
- Female riders are very concerned about their safety while riding, especially with eve-teasing on in the increase on Indian roads.
- Skidding on two-wheelers is common in the monsoons and on sandy roads.
- The safety of kids is a primary concern when dropping them off to school and on the return journey, owing to lack of safety features for riders of smaller stature.
- Very often, the issue of filling up petrol at the right time creeps up and is forgotten leading to uncomfortable situations with stalling in traffic.
- Sudden brake tantrums.
- The physical weight of the vehicle turns out to be too heavy and sometimes becomes hard to handle in heavy traffic scenarios where the user has to balance the vehicle in jams.
- Wearing Saris prove to be a big handrance as they fly while riding the two wheelers. Moreover in the rain, the water splashes from the sides and the user gets thoroughly drenched inspite of wearing rain coats.
- The information on the instrument panel could be more lucid.



## 6.4 IMAGE OF PERSONAL VEHICLE

On interviewing the users about their opinions about the existing two-wheelers in the market, one could differentiate the opinions largely based on the two age groups targeted.

### HONDA DIO

The target user group from age 18 – 25 years described the vehicle as a fun vehicle, easy to ride, too steep a seat and a speedy, fast moving bike.

The older age group of users 25 years and above considered it to be well grounded, crisp looking, safe and no off- balance



### HONDA ACTIVA

The younger user group considered the Activa to be smart with good styling, it may skid owing to the heavy weight, nice grips and very powerful and everyone can handle it.

The target user group of 25 years and above described this vehicle as a powerful, non-g geared vehicle with good styling which enthused stability and easy maintenance, although a little too heavy.



## 6.4 IMAGE OF PERSONAL VEHICLE

### SCOOTY PEP +

The target user group of age group 18 – 25 years are of the opinion that Scooty Pep Plus had a very good mileage. It is trendy and stylish. It is light and just right for college girls. Few of them felt the vehicle is very smooth.

The target user group of age 25 and above felt the Scooty Pep Plus looked ridiculous. Its styling being kiddish lacked crispness. It doesn't suit the image of a professional. But most of them were of the opinion that the vehicle was safe.

### KINETIC HONDA

The target user group of age group 18 – 25 years thought this vehicle looks on the lines of a bull that is very sturdy and heavy. The styling of this vehicle had a very poor reflection among the young users.

The target user group of age 25 and above also felt the Kinetic Honda was very bulky. Few of them are of the opinion that the styling looks rudimentary and obsolete.



## 6.5 OBSERVATIONS

- Little kids sit on the floor of the step through owing to lack of space.
- Hand bags are hung on the handle bar and slip while taking a turn.
- There is no provision to rest the mobile phone while charging.
- The user tries to personalise his/her vehicle with images/idols of their God.
- The buckle beneath the seat is used for hanging all small bags from grocery shopping.
- The bigger bags are hung around the grab handle behind the vehicle.
- Habit of holding the seat to pull it from central stand which is bad because the seat is hinged at one point only and the lock is not strong enough.
- If lost in the city, females rely on rickshaw drivers for directions and they are hesitant in this regard.
- Need for flexibility in the kind of storage – also most users prefer a lockable storage as compared to open pockets.
- When going to buy scooterettes among a gang of friends, there is an understanding of the colour for each vehicle chosen.
- Having to egress from the vehicle and put it onto central stand is painful for female users especially.
- Traffic in the city is excruciatingly painstaking and there is a need for entertainment.
- Women are aware of the tool-kit provided by some manufacturers for quick repairs.
- Working professionals carry their lap-top bags on their shoulders for want of more storage space.
- Kids standing in front hold onto the rear-view mirror handles for extra support.
- At night it is difficult to find the key slot.



## PERSONAL ACCESSORIES

The users carried few electronic accessories like mobile phones, walkman and MP3 players. But most of them abstain from using them while riding their vehicle. Certain other accessories like jacket, handbag, scarf and helmet played an important role while riding and many users carried them in their vehicle to wear them only when they are riding.

Their storage space were mainly occupied by books, grocery bags, purse, school bags, bottle, cleaning cloth, food, rain coat and tool kit.

## ATTIRE

The users mostly preferred wearing clothes that were casual and comfortable in nature. They were at ease wearing jeans, Jacket, trousers, Shirts and pants. They preferred relaxed footwear like floaters, Flats and sneakers while riding.

The attire that had moderate appeal while riding two wheelers is salwar

Very few users were inclined in wearing traditional attire like sari while riding. Other least preferred attire for riding include skirts, Dupatta and high heeled footwear.



## HABITS WITH VEHICLE

The users always tie up their dupattas before riding the vehicle for want of not letting it fly off. On alighting from the vehicle, after reaching the destination, most users look into the mirror. The vehicle is treated as a social hub when they go out with friends to eateries / leisure rides.

A lot of users also talk to their vehicles. Most of them dust their seats with the cleaning cloth stowed in the utility box before riding the scooterette.

## DESTINATIONS

The different destinations driven to by the users are to College, Office, School, Groceries / Shopping malls, Theaters, Coffee pubs, Parlours or just on leisure rides.

## CO RIDERS

Most of them ride with friends and family members, older relatives as well as young children. Sometimes, the pet is taken to the vet on the vehicle. There is also a certain emotion attached with riding on the vehicle with male friends / husbands. Riding with triple passengers is loads of fun for the younger users, especially those attending college.

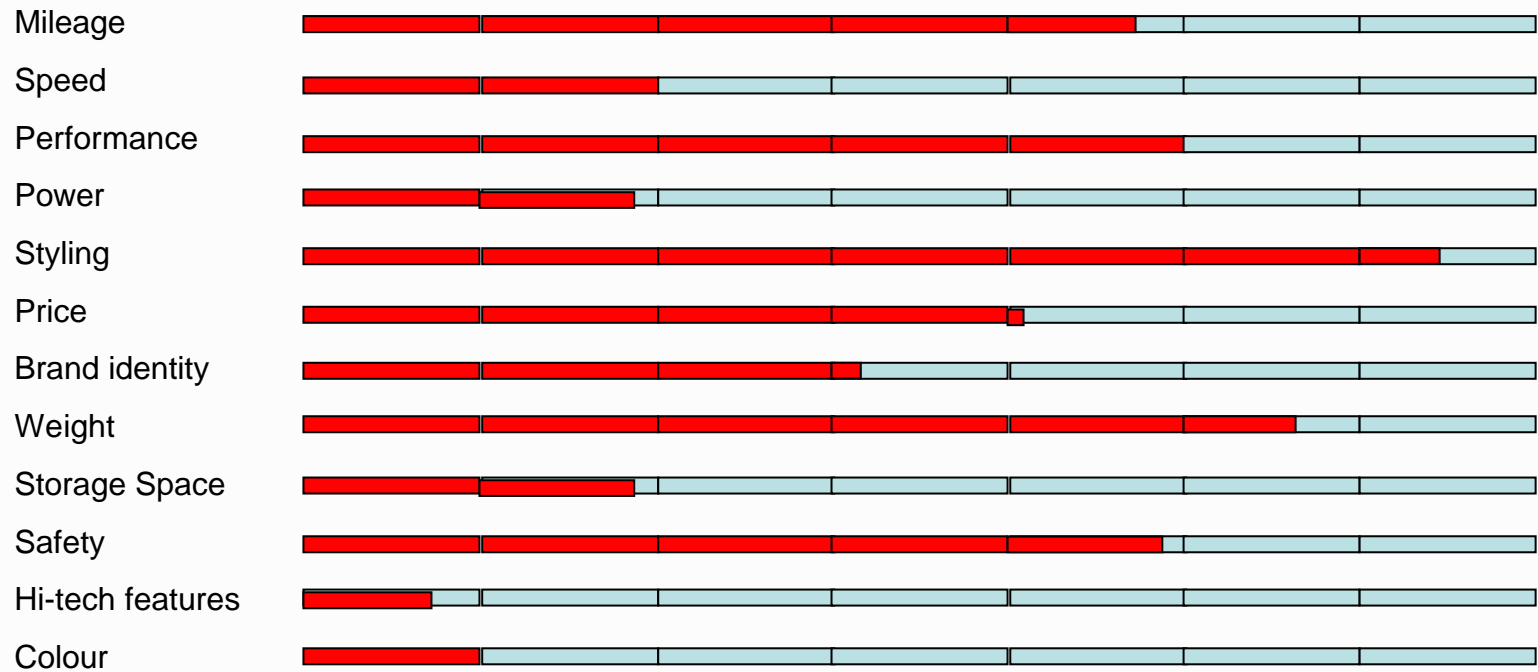


## UNUSUAL OBSERVATIONS

- Working professionals carry laptop bags on shoulder while riding owing to the lack of storage space for lap-tops.
- Little kids sit on floor of step- through for want of safety while riding with parent to school.
- Girls are concerned about getting tanned and often cover themselves with scarves and gloves, especially in the summer season. These are easily stored in the utility box, while not riding the vehicle.
- Most users prefer wearing jacket while riding to protect them from the cold.
- There is a mental image created by the user in regards to their physical stature and the proportion of the vehicle to this image. Stocky users, for instance, felt intimidated riding the Scooty Pep owing to its sleek look, as compared to other vehicles on the road.
- The pet dog can be taken to vet on Honda Dio.
- Covering oneself with the raincoat is of little help in the monsoons, since water splashes on them anyways. The step – through vehicle does not offer much protection from the rains.
- Hand bags slip from handle when taking a turn and a hook for hanging the bags can ease this situation, as provided on the Scooty Pep Plus.
- Looking into the mirror is a frequent habit while stalled at traffic jams and also after alighting from the vehicle, on reaching the destination.



## 6.6 PREFERNCES WHEN BUYING



## 7.0 DESIGN DEVELOPMENT

UNDERSTANDING TARGET USER GROUP  
DEVELOPMENT OF STYLING BRIEF  
APPRECIATION OF EXPRESSION IN FORM  
INFERENCE  
FORM EXPLORATION  
IDEATION IN TWO DEFINITE DIRECTION  
CONCEPTUALISATION IN TWO DEFINITE DIRECTION



## 7.1 TARGET USER GROUP

The project is mainly targeted at the fair sex between the age group of 18-25 years. College going girls and young professionals who travel on their own to college, office and common hubs of social interaction.

Interaction with the user group helped realise that most of them are responsible individuals with high aspirations in life. The quality of independence they experienced while driving their own two wheeler is special and important to them

### Lifestyle

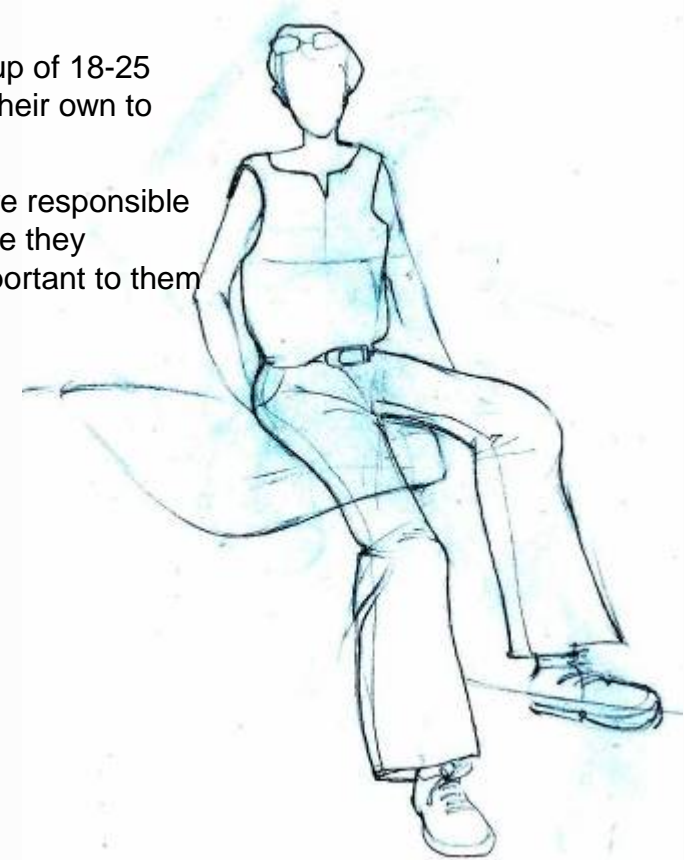
A very energetic young crowd whose lifestyle can be best described as fast and trendy

### Accessories

The crowd in Bangalore is brand conscious . The accessories like mobile phones and watches were either sporty or elegant with minimal sleek lines. Even the jewellery they used were modern.

### Apparel

The executives prefer formal wear. College girls wore a sporty comfortable wear or an ethnic Indian wear like salwars and kurta with jeans



## ASPIRATIONS

Based on the understanding from the questionnaire given to the users their needs and aspirations have been categorized into functional and emotional requirements.

### EMOTIONAL NEEDS

Personal mode of transport would ideally personify their own spirit & reflect their personality.

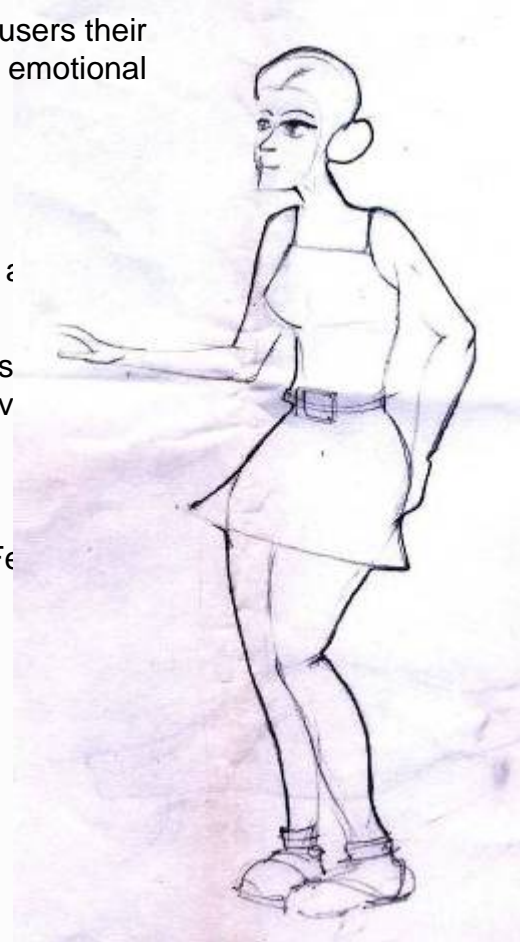
They are very keen on customise the product they use to their personal sentiments. Hence a possibility for customization of their vehicle is very important to them.

The image of oneself riding on the vehicle is very dear to them.

They place their trust in popular brands for quality and durability. Friends, users, friends and colleagues have a huge influence in this.

### FUNCTIONAL NEEDS

- Safety on the road
- Easy maintenance
- Best mileage
- Better user amenities
- Weight of vehicle
- Easiness to ride
- Size or compactness



## 7.2 DEVELOPMENT OF STYLING BRIEF

The understanding of users and inference from the user survey was cultivated further to develop a styling brief for the project.

### What does a vehicle mean to its user

It is a statement of her character

It is an emphasis on what she envisions herself to be

### What does Scooty PEP + convey?

I am girlish and I am cute

I like fancy looking products

I am independent

I am young, vibrant and fun-loving

I care for my looks

Attempted to analyze and come up with an inference as to what features in the Scooty made people describe the vehicle as such ....

- Use of very vibrant and young colors
- Cheerful head lamp with jewel treatment
- “Assertive in the face” Stance



- Soft body form
- Too many surface transitions emphasized by change in colors too
- Very feminine waist line
- Silver lower panel has a strong fancy character

**... few user comments from target user group**

“I think the Scooty looks cute on the road”

“I own a Scooty ES and I think it is the best scooterette on the road”

“It looks ridiculous”

“It’s a typical barbie doll vehicle – looks very fancy”

“I being hefty, think that scooty doesn’t suit my built. But it does look good on the road.”

“Scooty doesn’t look elegant but rather very flirtatious”

“I am daring person...The vehicle doesn’t have the crispness of a DIO”



## 7.2.1 INFERENCE

The user study has revealed with out doubt that the Scooty needs a fresh look on the roads. This need for change has been raised unanimously by most of the users.

The user comments have directed this new change be towards a style statement that is ....

- Crisp and dynamic
- Elegant
- Less fancy
- Modern
- Young and vibrant

## 7.2.2 STYLING BRIEF

To design Scooty pep in strict lines of refresh with a conscious effort to maintain the youthful energy that is intrinsic to Scooty styling. This would be done in two definite directions, one being more '**sporty and dynamic**' and the other '**Elegant and modern**'.



## 7.3 APPRECIATION OF EXPRESSION IN FORM

Attempt was made to appreciate form that would suit the styling brief. This would later help in abstracting the characteristic visual cues of the qualities users were looking for in a vehicle.

A user survey was conducted using image cards to understand how users appreciated specific expressions in form



## EXPRESSION IN FORM

The user comments have directed the change in Scooty Styling to be towards a style statement that is ....

Crisp and dynamic  
Elegant  
Less fancy  
Modern  
Young and vibrant

### 7.3.1 USER SURVEY

Two sets of Images of products that stood for two expressions namely Sportiness and elegance, were selected and image cards of size 10 X 7.5 cm were made.

The first set for sportiness was asked to arrange in increasing order of

**Sportiness which is more dynamic in nature**

The second set for elegance was asked to arrange in increasing order of

**Elegance which is more modern in nature**



## USER SURVEY

An initial user survey for expression was done where the users were asked to arrange pictures in order of increasing sportiness and increasing elegance alone

**Less Sporty** —————> **More Sporty**

**Less Elegant** —————> **More Elegant**

Feedback from faculty review revealed that there were conflicts of expressions when products were attempted to categories on the basis of pure expressions because there are certain intrinsic qualities of expressions that creep into a product.

For instance, an elegant product can look both traditional and modern. Both are equally elegant but there is a vast difference in the expressions of these forms.

So the user feedback was analyzed to understand what kind of sportiness and elegance they were aspiring for.

So a second survey was conducted keeping this in mind and the cards were asked to arrange in increasing order of sportiness that is more dynamic and elegance that is more modern

**Less Dynamic Sportiness** —————> **More Dynamic Sportiness**

**Less Modern elegance** —————> **More Modern elegance**





Low

Dynamic Sportiness

High



Few image cards were not considered for evaluation by users as they didn't find them sporty. These cards were also studied to derive inference.

### 7.3.2 INFERENCE



An initial user survey for expression was done where the users were asked to arrange pictures in order of increasing sportiness and increasing elegance alone

Streamlined body with flowy lines

Sense of movement

Surface is treated with colors to have high contrast, bright vibrant colors with either white or black

Dynamic stance





Low —————> High

Modern elegance

Few image cards were not considered for evaluation by users as they didn't find them sporty. These cards were also studied to derive inference.



### 7.3.2 INFERENCE

An initial user survey for expression was done where the users were asked to arrange pictures in order of increasing sportiness and increasing elegance alone

- Flushed lines and minimalist details
- Pure shapes / forms look elegant
- Very little surface break up
- Smooth surface transition
- Colors that are light and soothing to the eye



## 7.4 FORM EXPLORATION

Initial form exploration was before user study and was an attempt to look at forms unbiased by opinions and ideas even from the users.

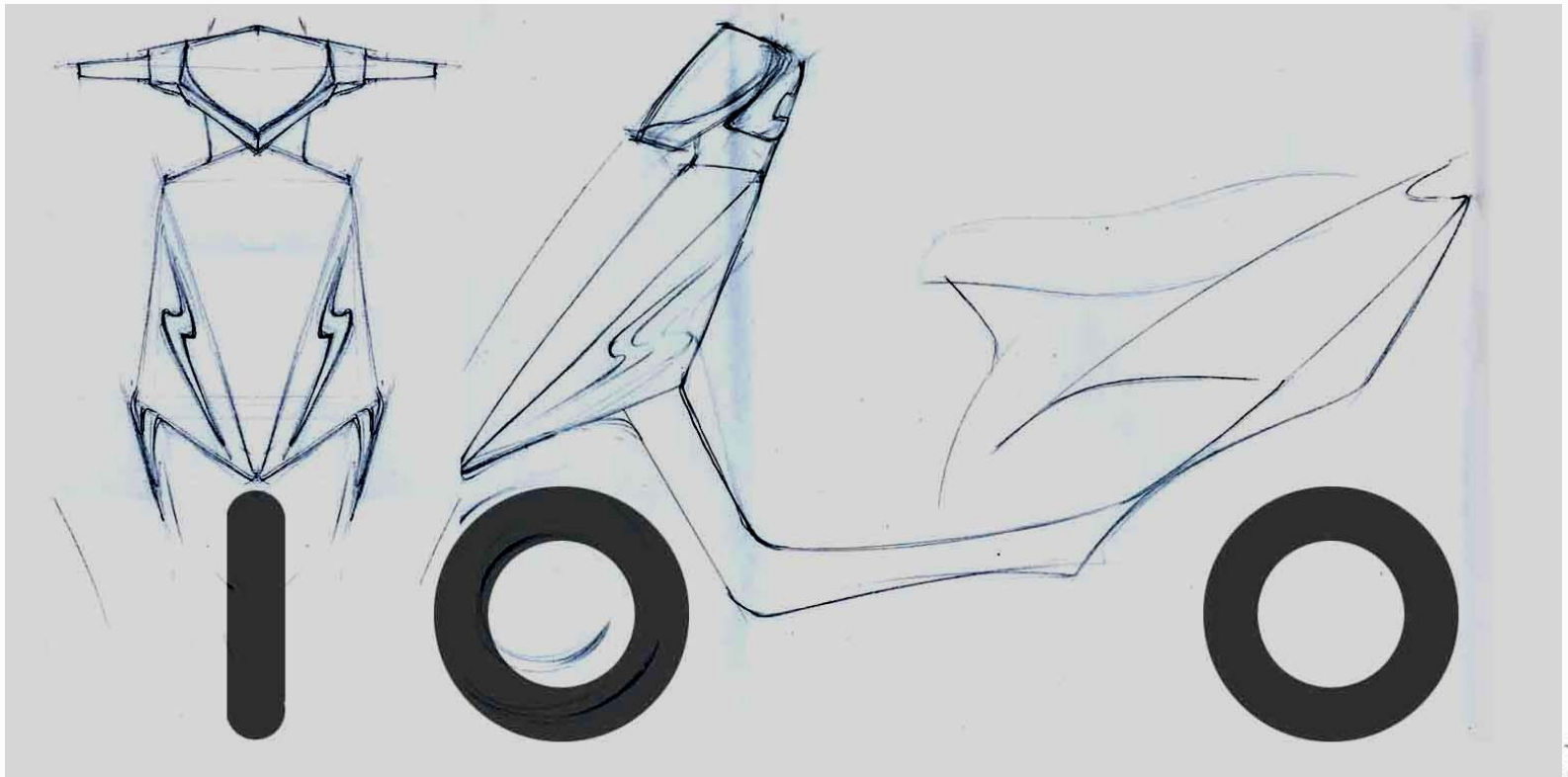
These explorations are strictly line diagrams of which have been practiced on an overlay over the line diagram of Scooty so that sketches are always in consonance with the dimension of Scooty.

Use of colors have been avoided for the first half of the session. Pure Black and white exploration have helped to develop sensitivity to the flow of lines that determine the form.



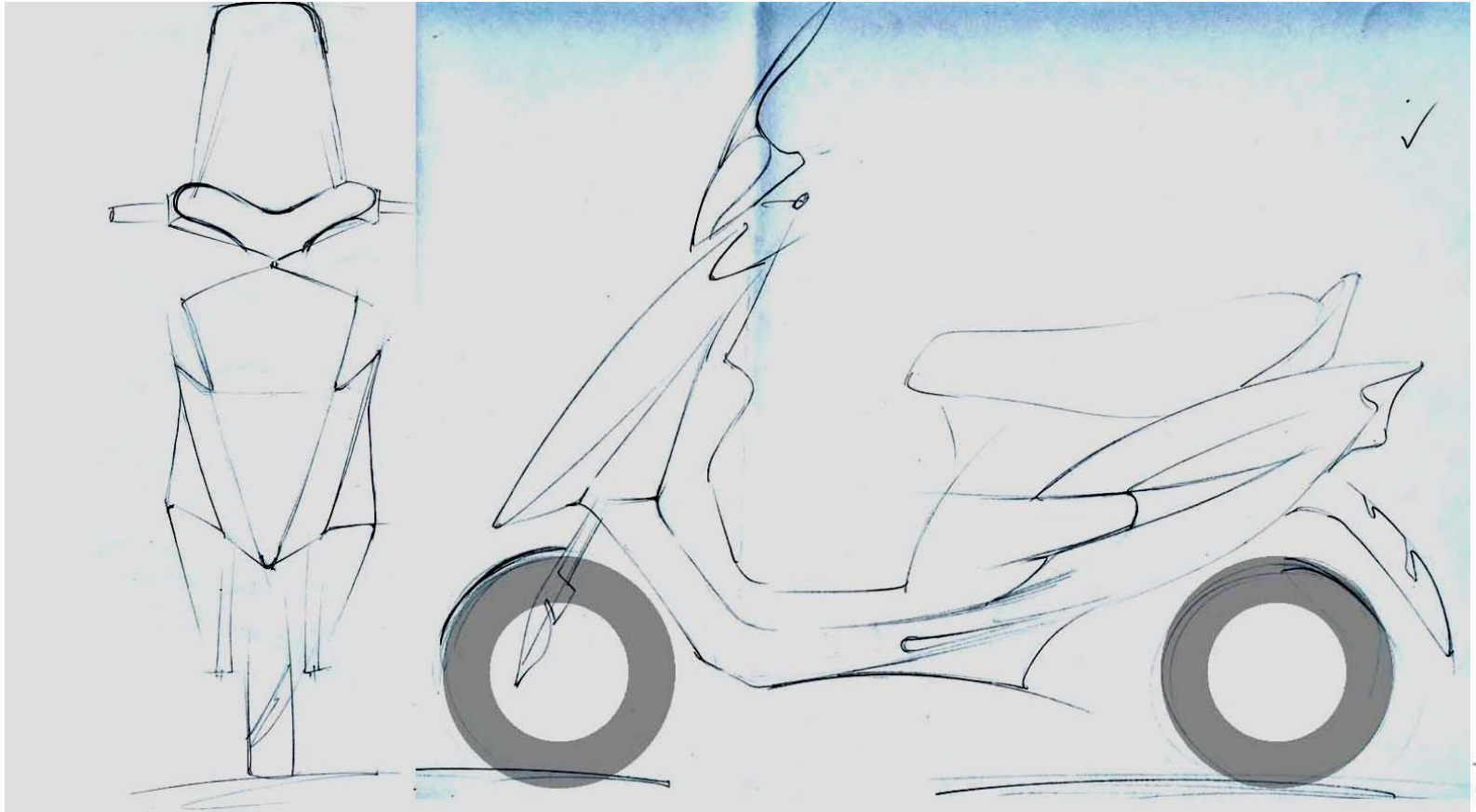
## FORM EXPLORATION

The front panel and Indicators have been designed for speed and dynamism



## FORM EXPLORATION

Sporty, Dynamic

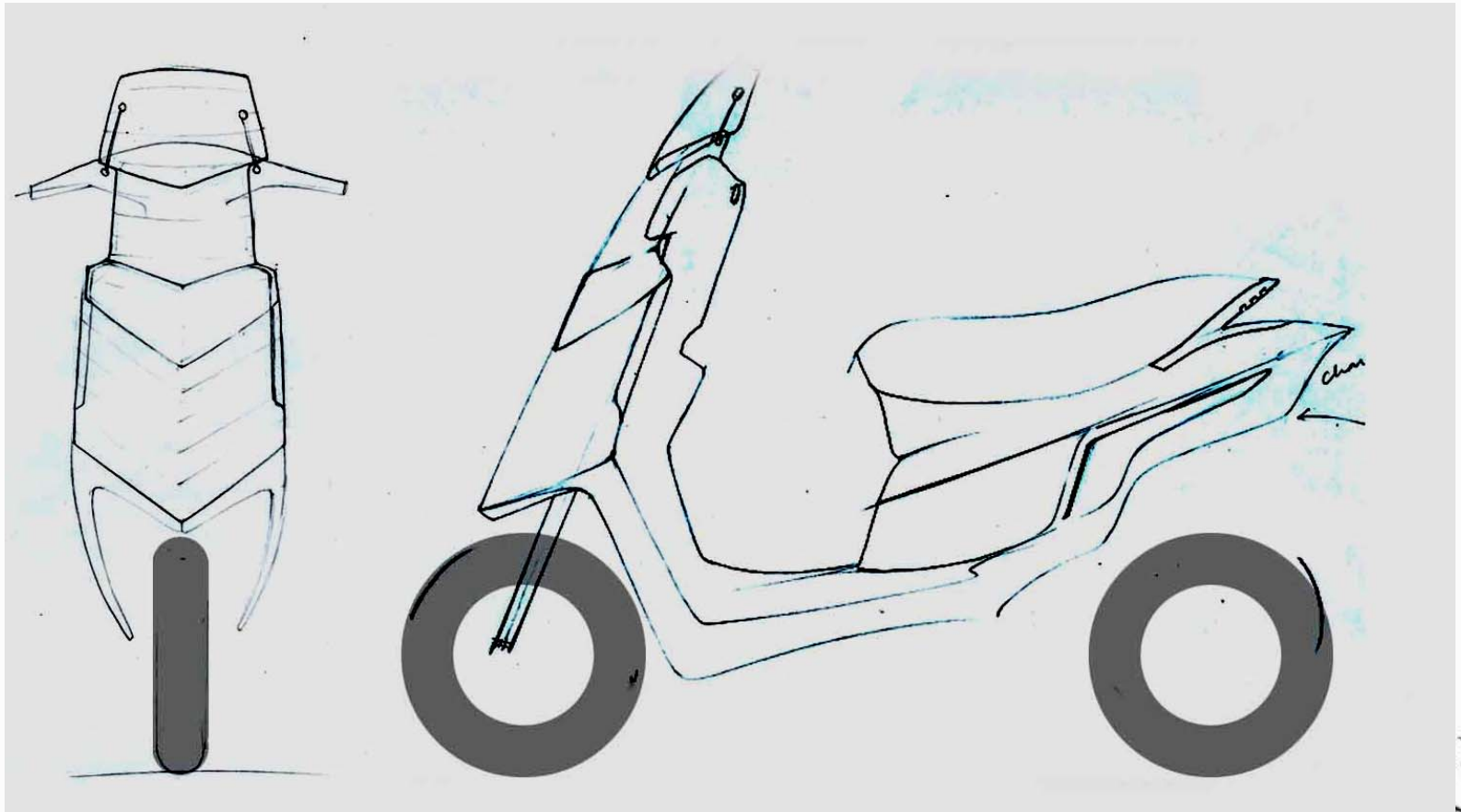


Refresh Design of Scooty Pep Plus



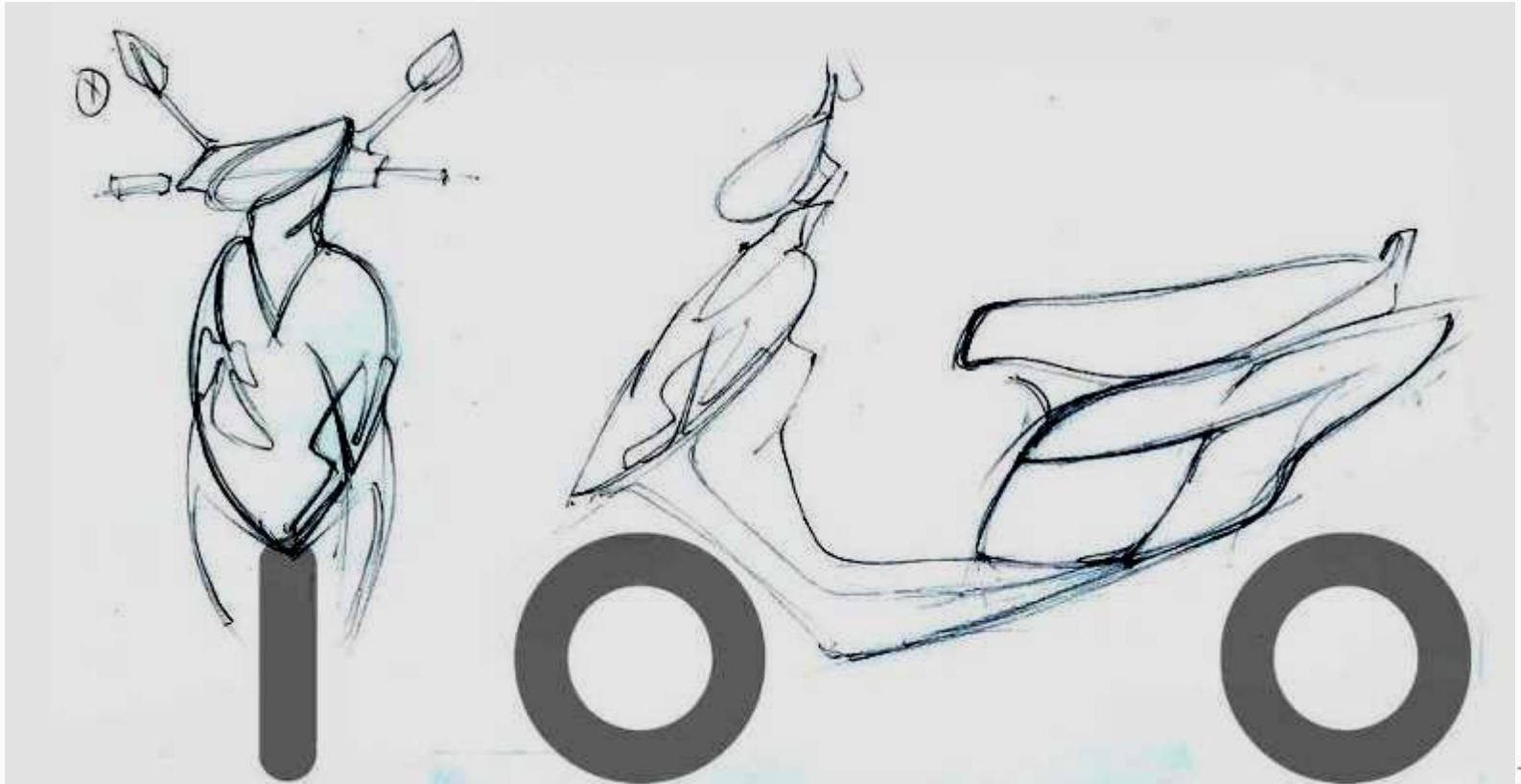
## FORM EXPLORATION

A sleek and light vehicle which is elegant and tech-savvy



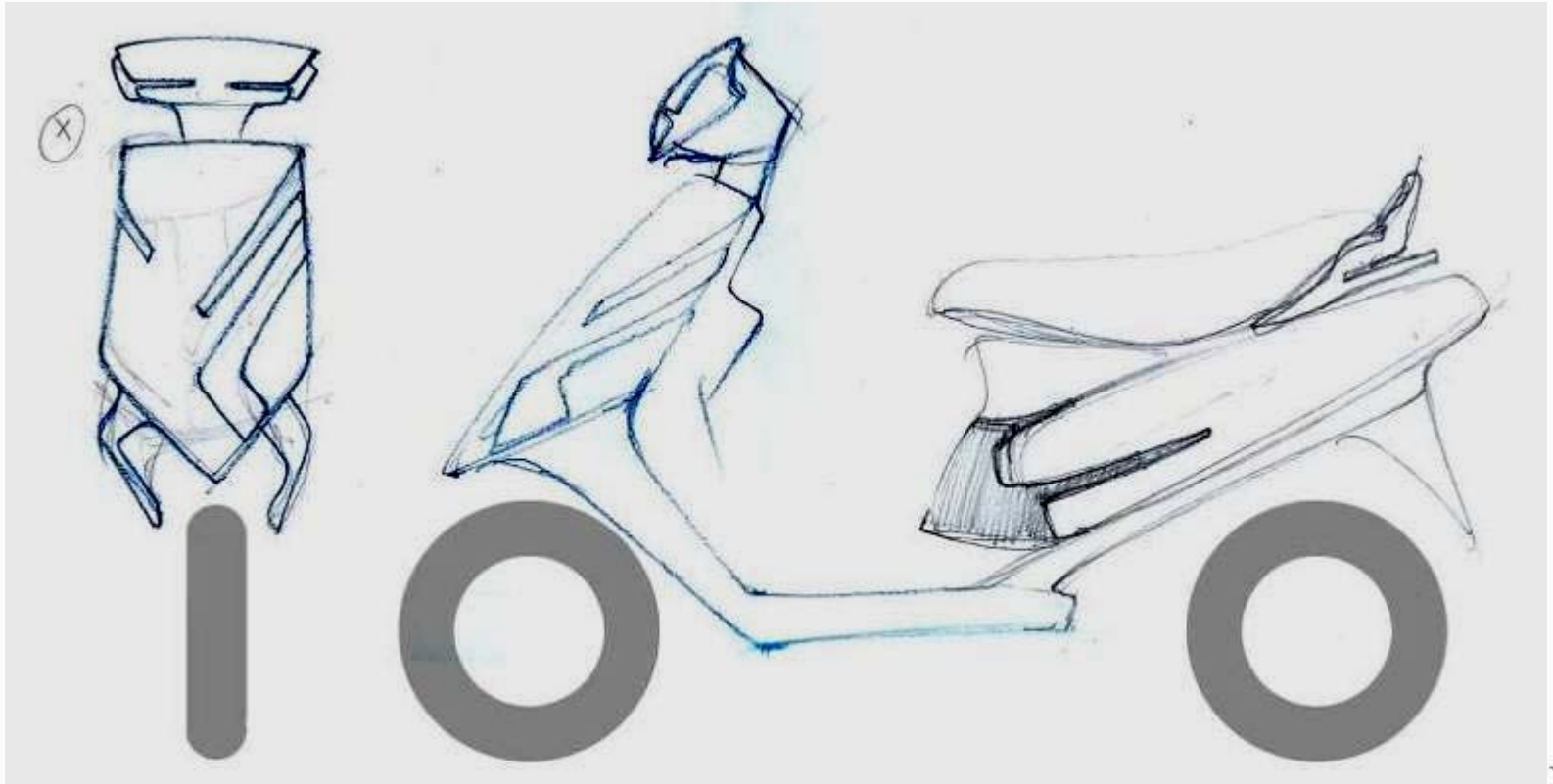
## FORM EXPLORATION

Asymmetrical front view to create something that is trendy and fun loving



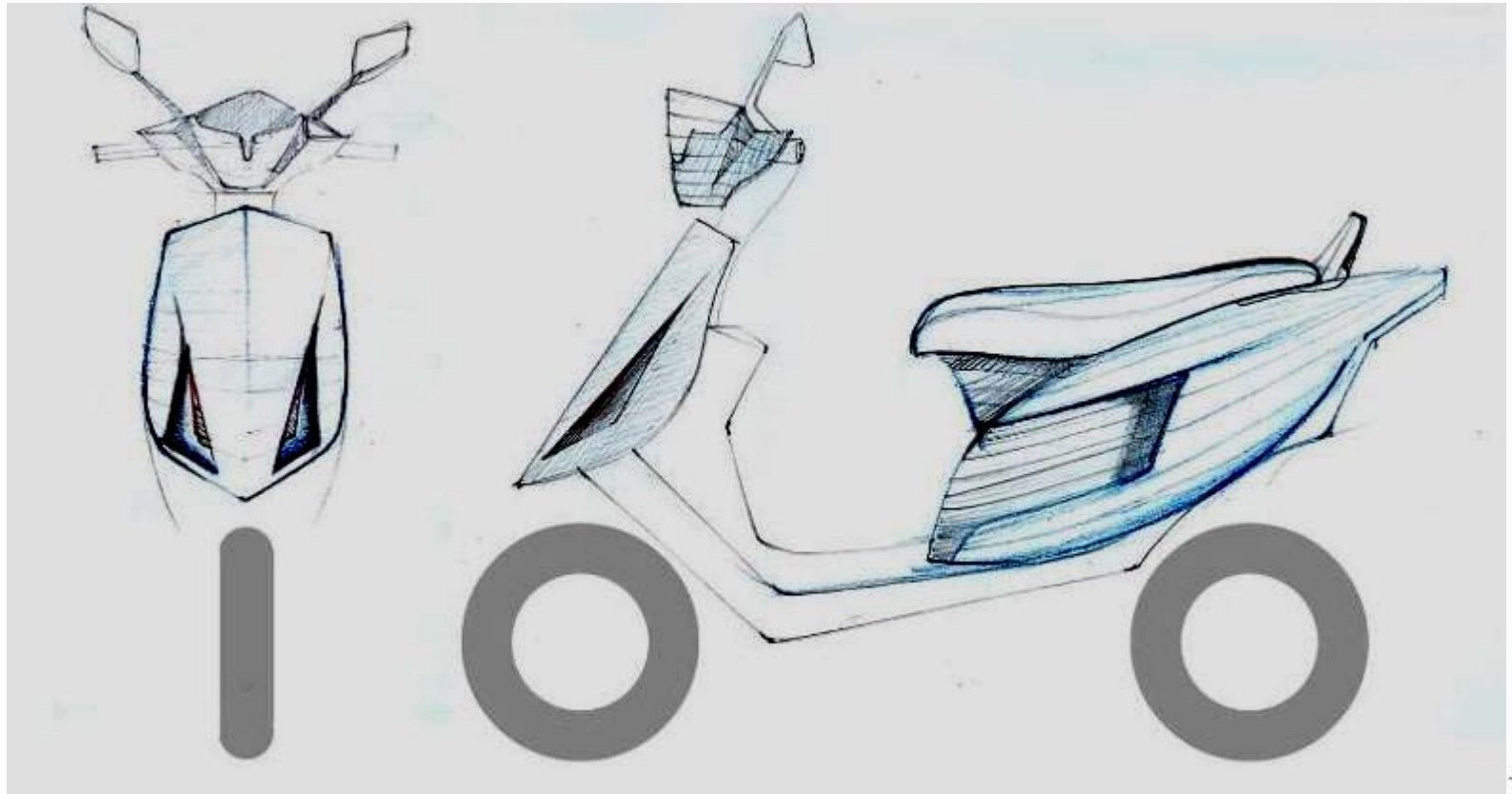
## FORM EXPLORATION

Hard from that is tech savvy



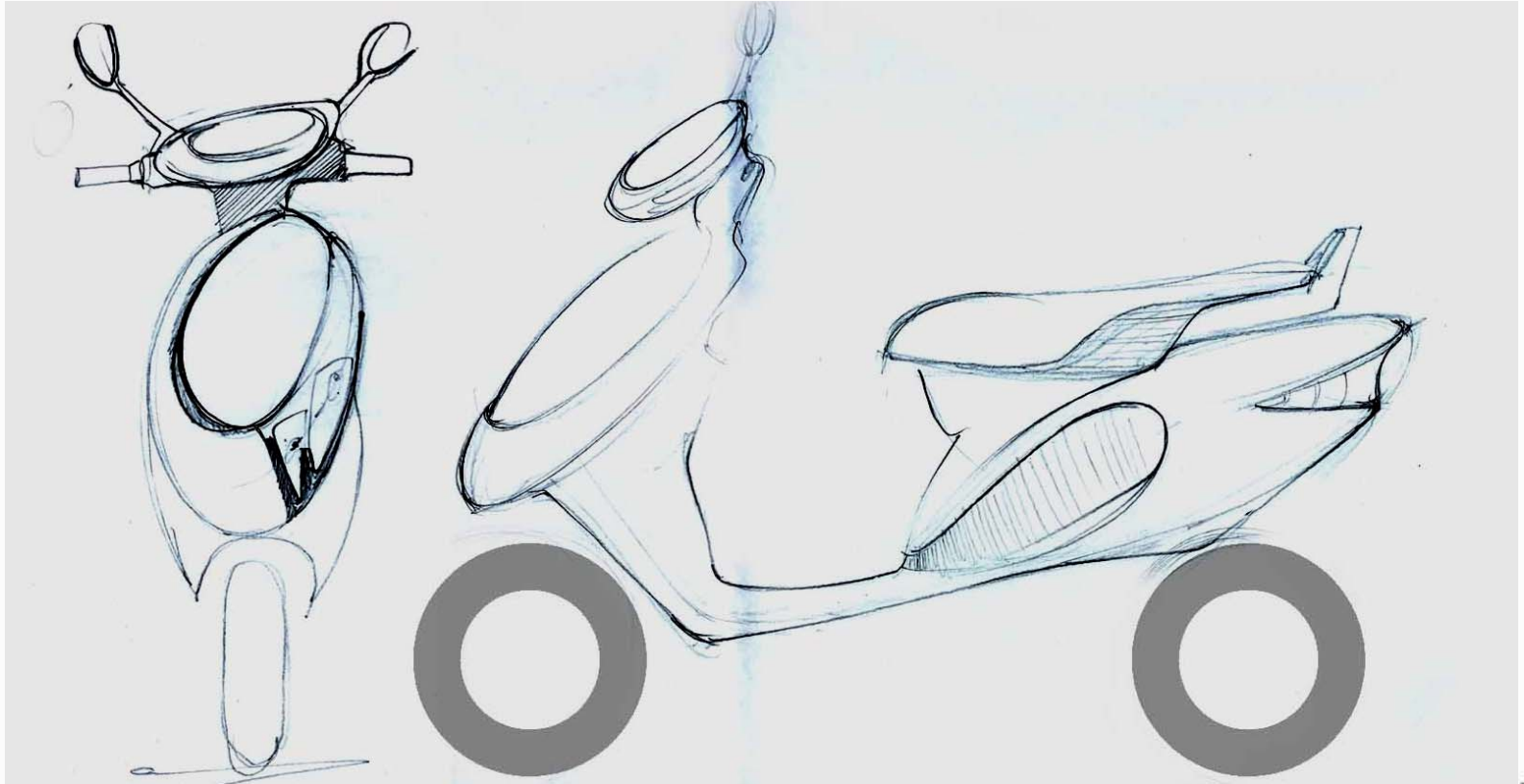
## FORM EXPLORATION

Serious and hard treatment of body panel



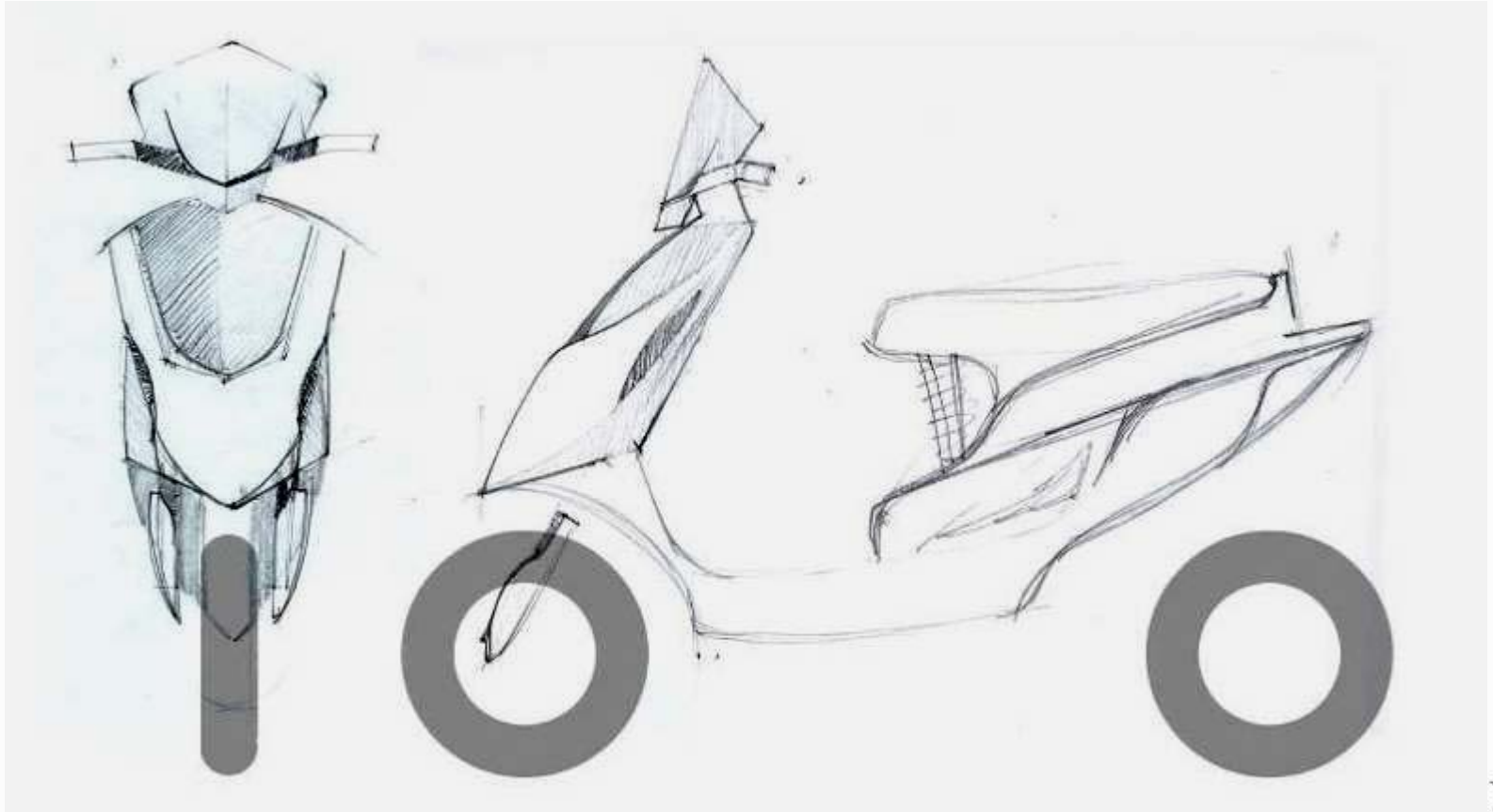
## FORM EXPLORATION

Asymmetrical front view to create something that is trendy and fun loving



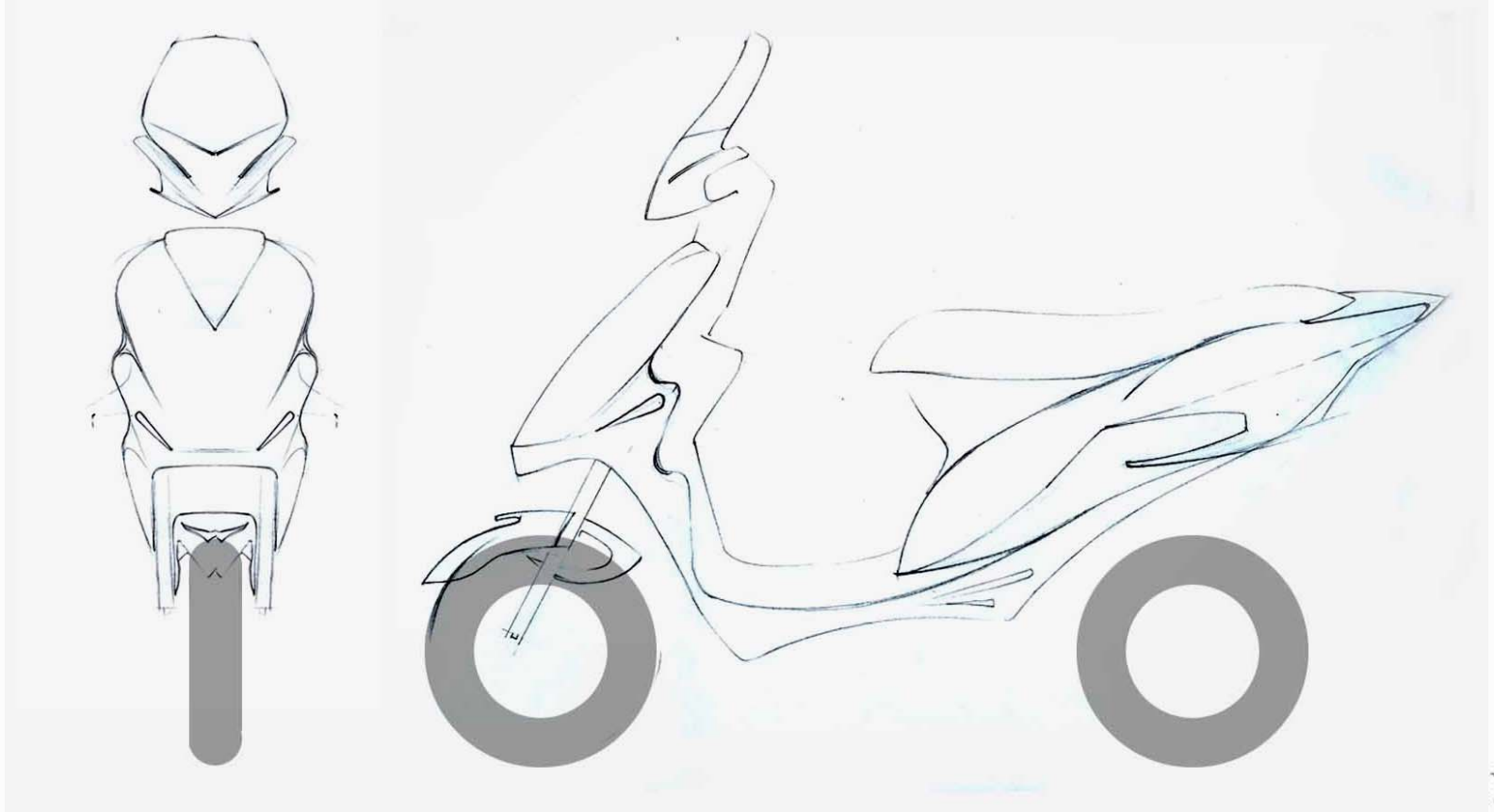
## FORM EXPLORATION

Serious, Masculine



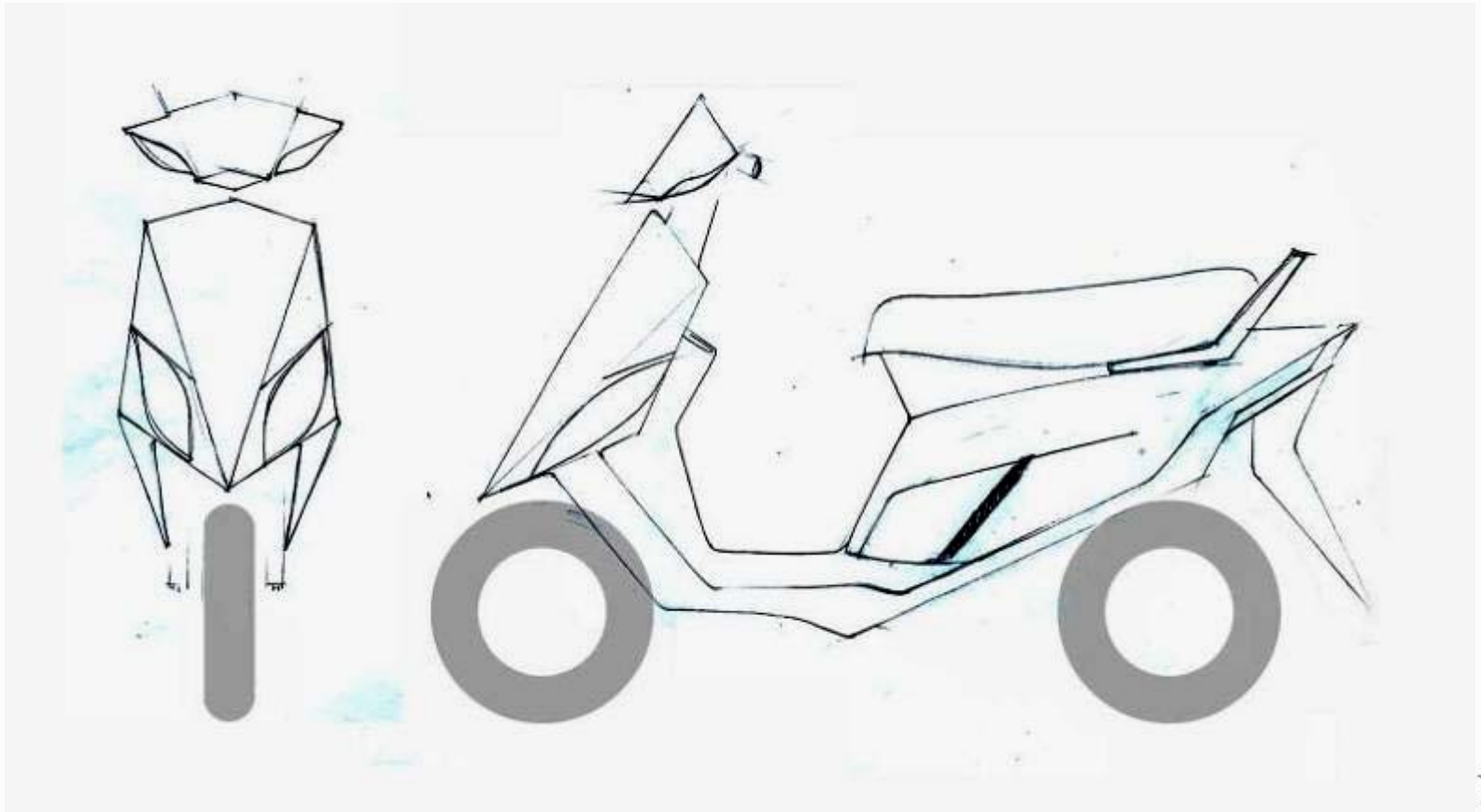
## FORM EXPLORATION

Sporty, Soft



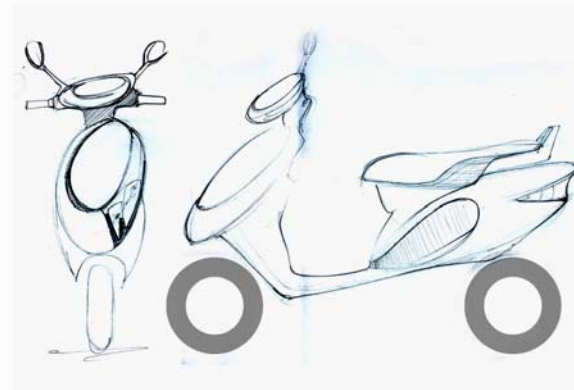
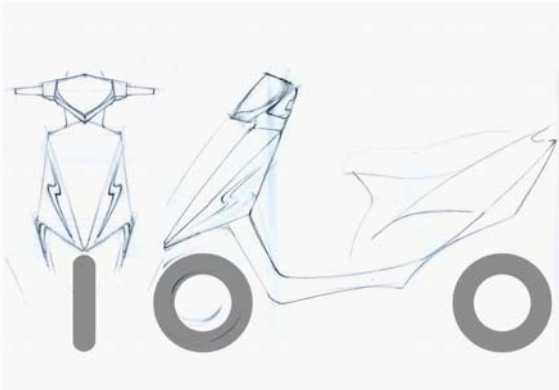
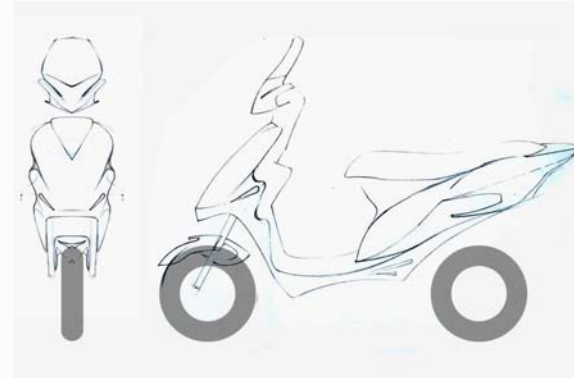
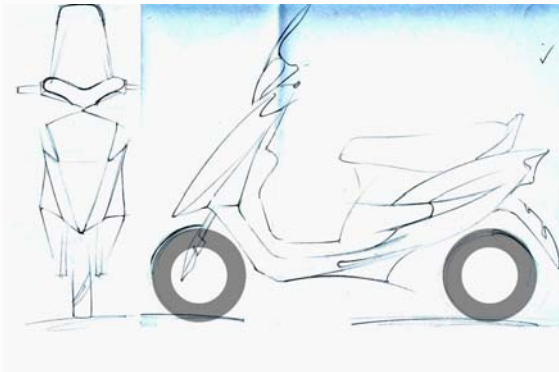
## FORM EXPLORATION

Hard, Serious

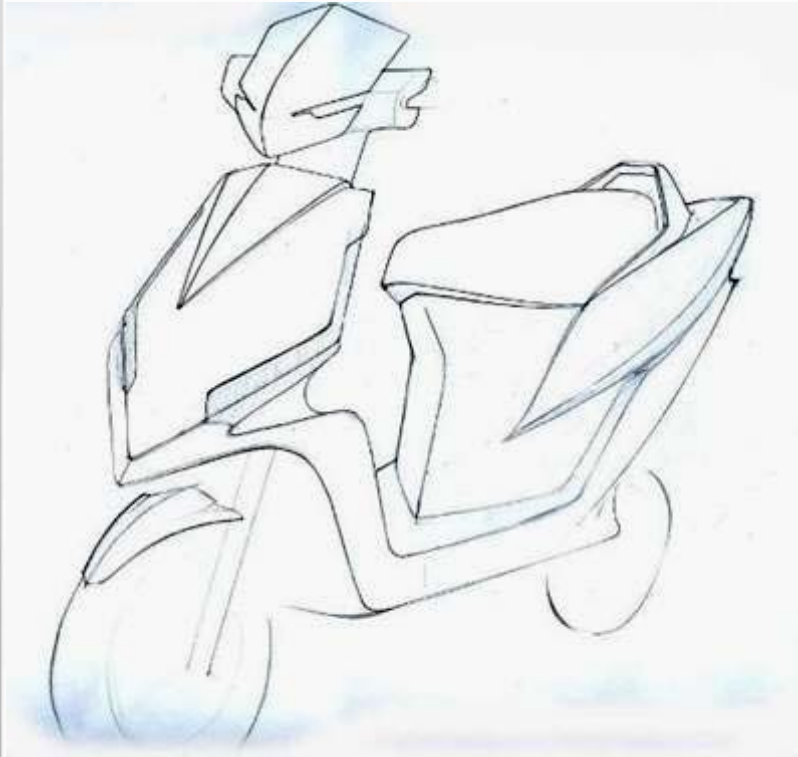


## 7.5 IDEATION IN SPECIFIC DIRECTION - SPORTY

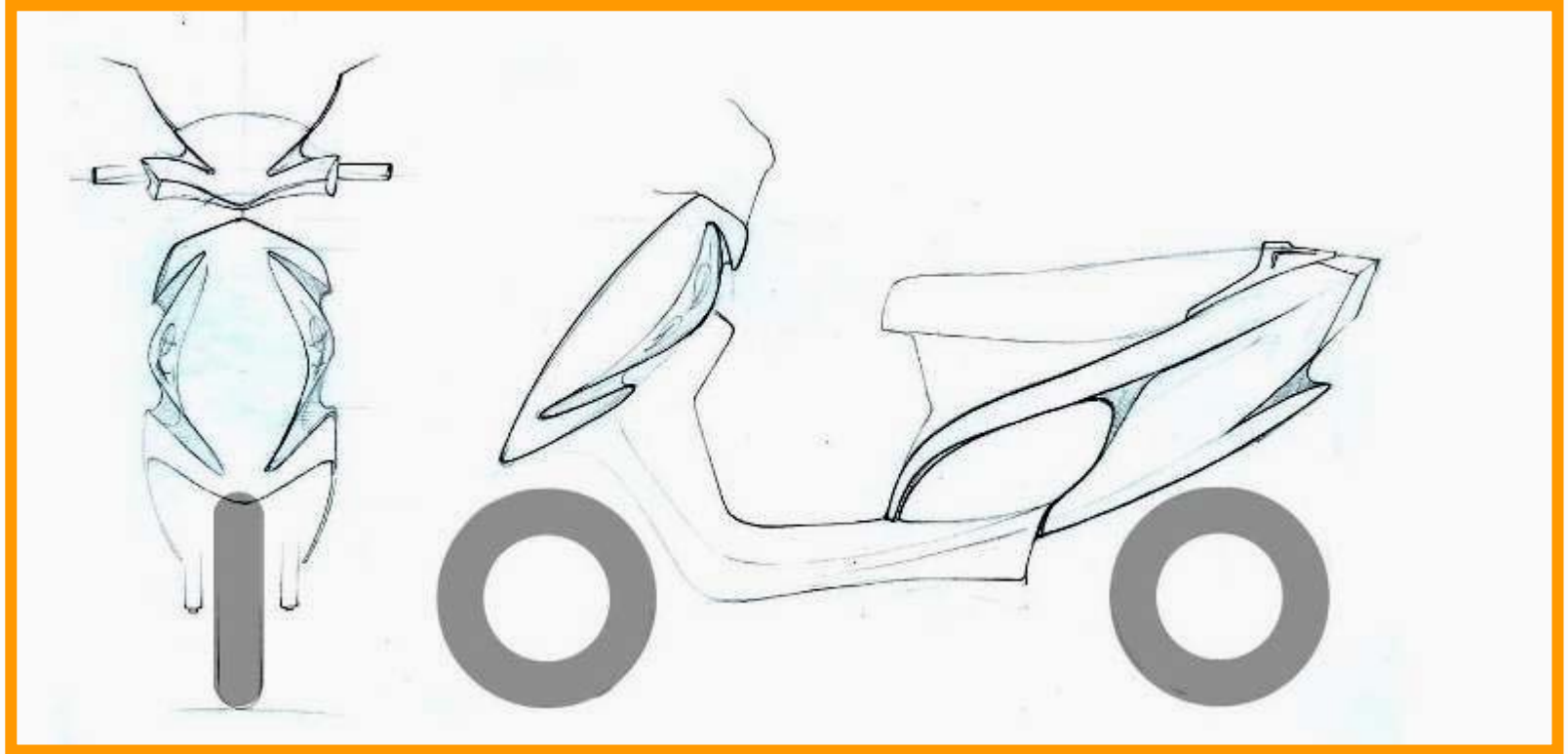
Four initial exploration which were found to have the potential in its form to further develop them into a sporty scooter which could accentuate in its form qualities like dynamism, speed and trendy nature



## IDEATION IN SPECIFIC DIRECTION - SPORTY



## IDEATION IN SPECIFIC DIRECTION - SPORTY



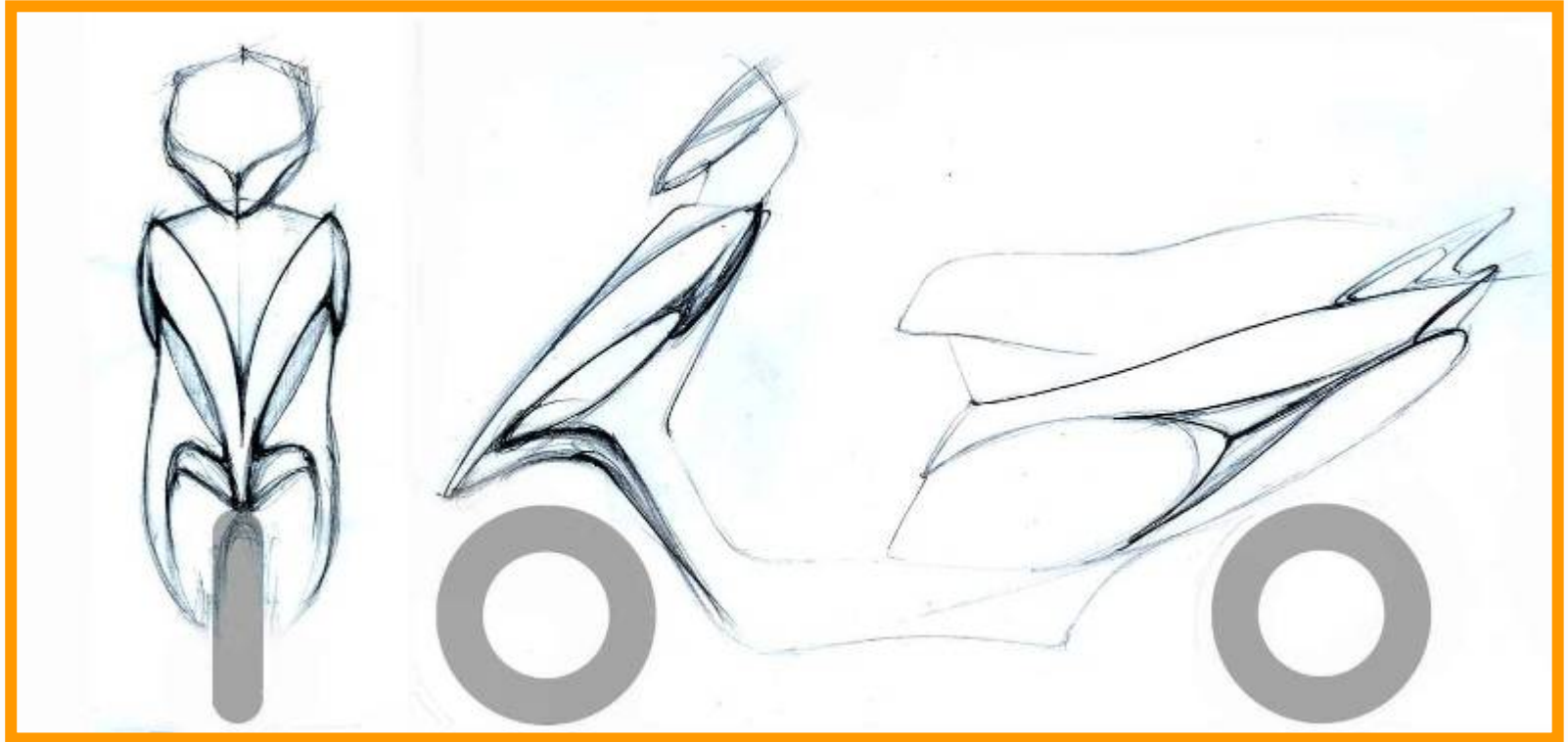
Frontal expression of an Urban insect with a dynamic identity

Soft edges

flow lines and sharp cut outs gives it an aggressive look



## IDEATION IN SPECIFIC DIRECTION - SPORTY



Aggressive and muscular ready to pounce

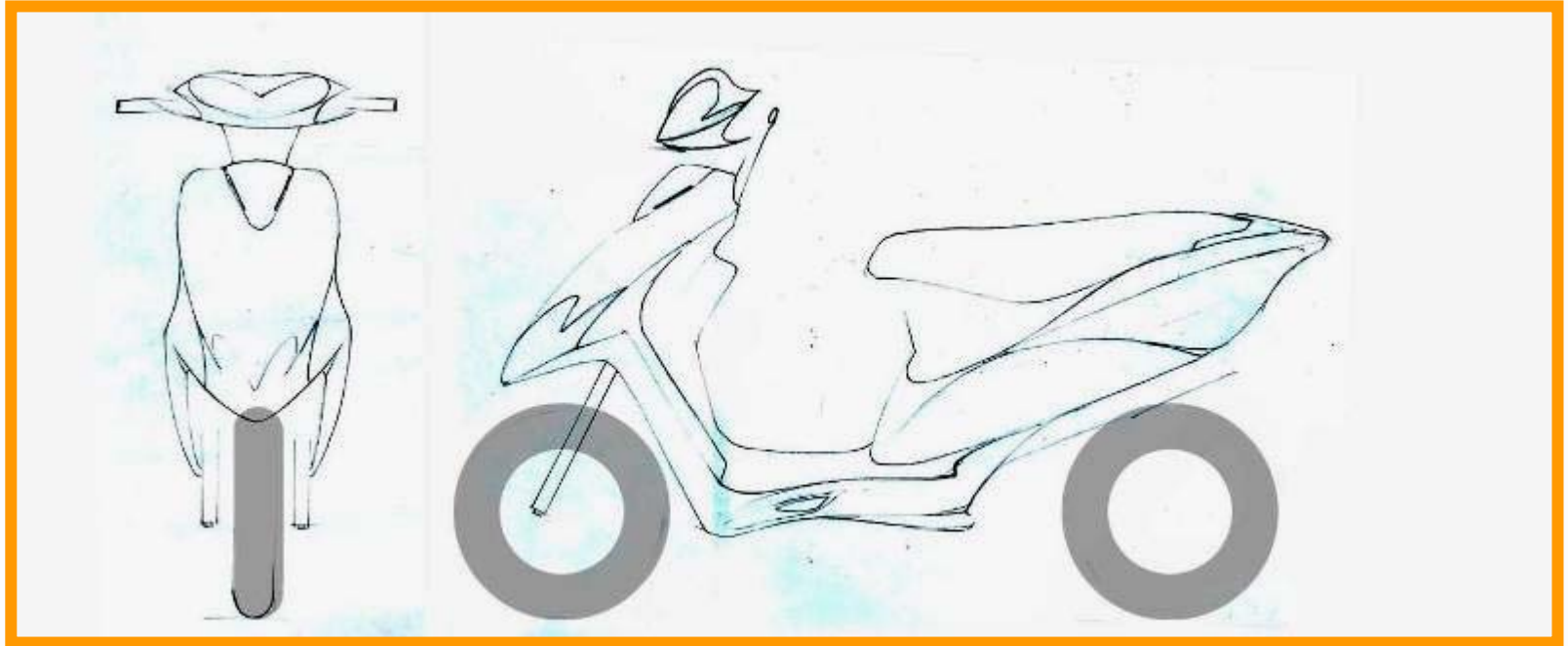
Angle of head gives it aggressive stance

Swiftness rendered due to lightness of rear

Sense of movement achieved due to streamlining of rear



## IDEATION IN SPECIFIC DIRECTION - SPORTY

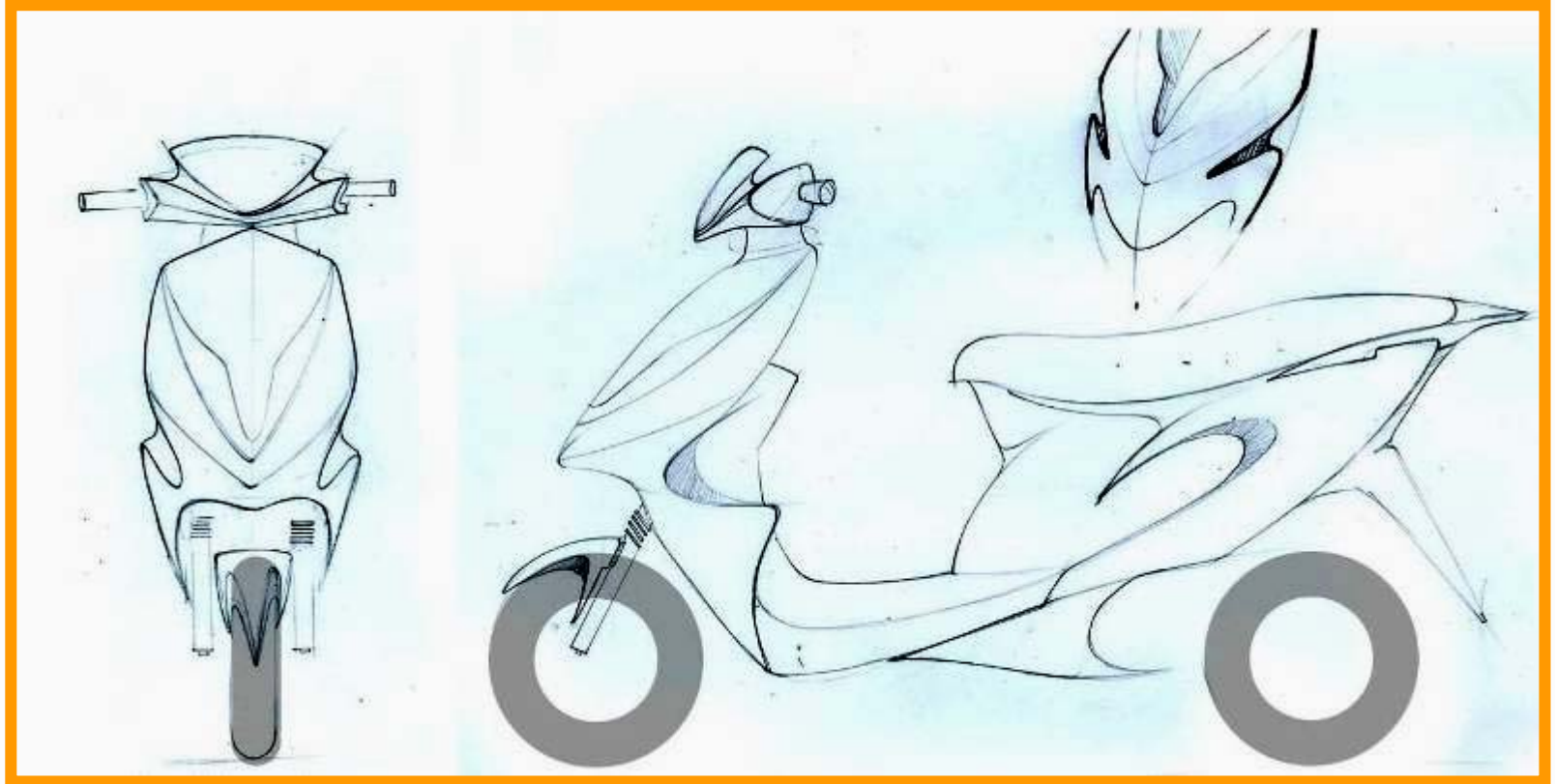


Soft feminine body panel gets a dynamic flair to it due to head lamp treatment

Frontal expression



## IDEATION IN SPECIFIC DIRECTION - SPORTY

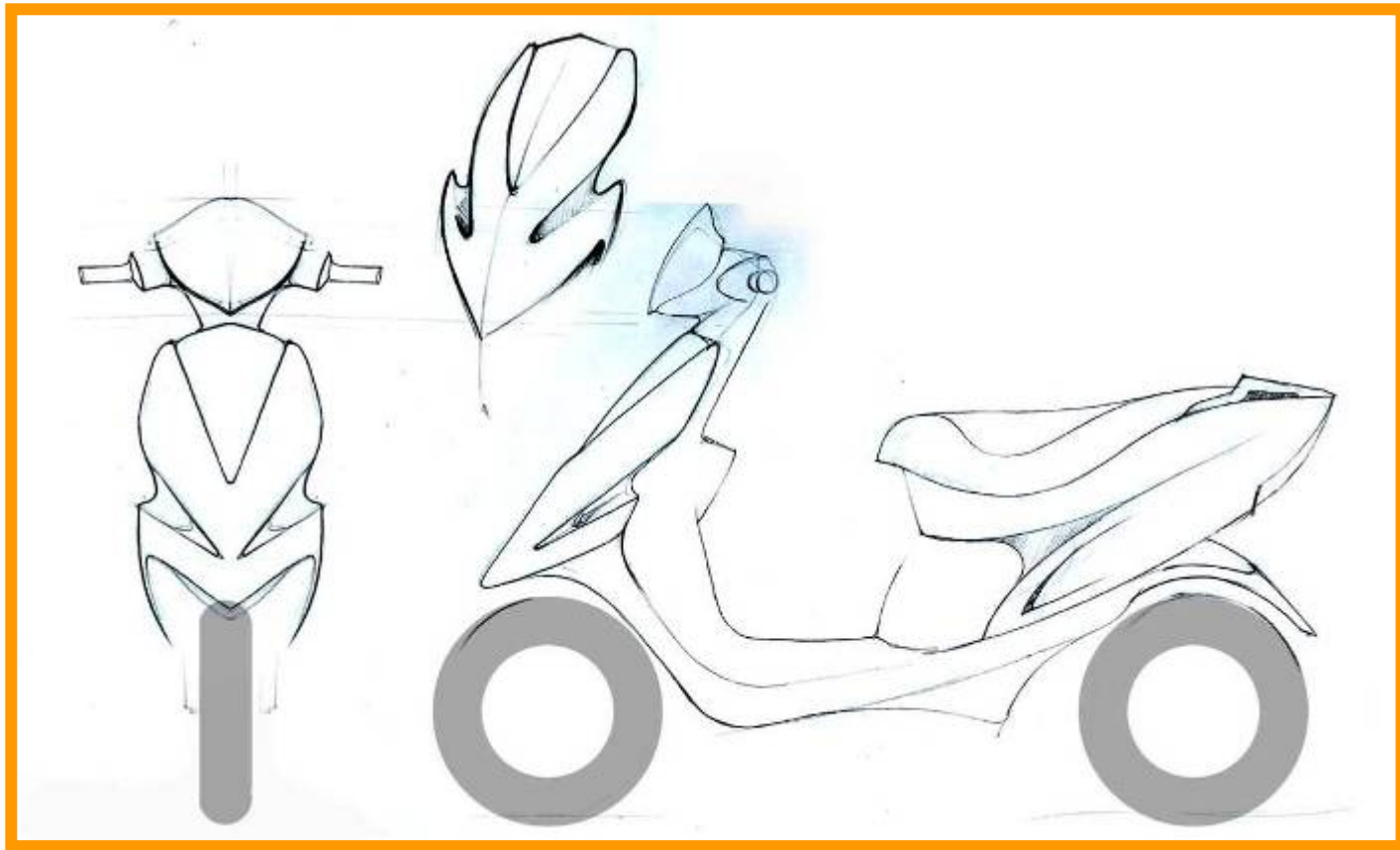


Masculine nature attained by increased shoulder width, Smooth surface transitions make it sporty and full of life

Surface behaviour treatment



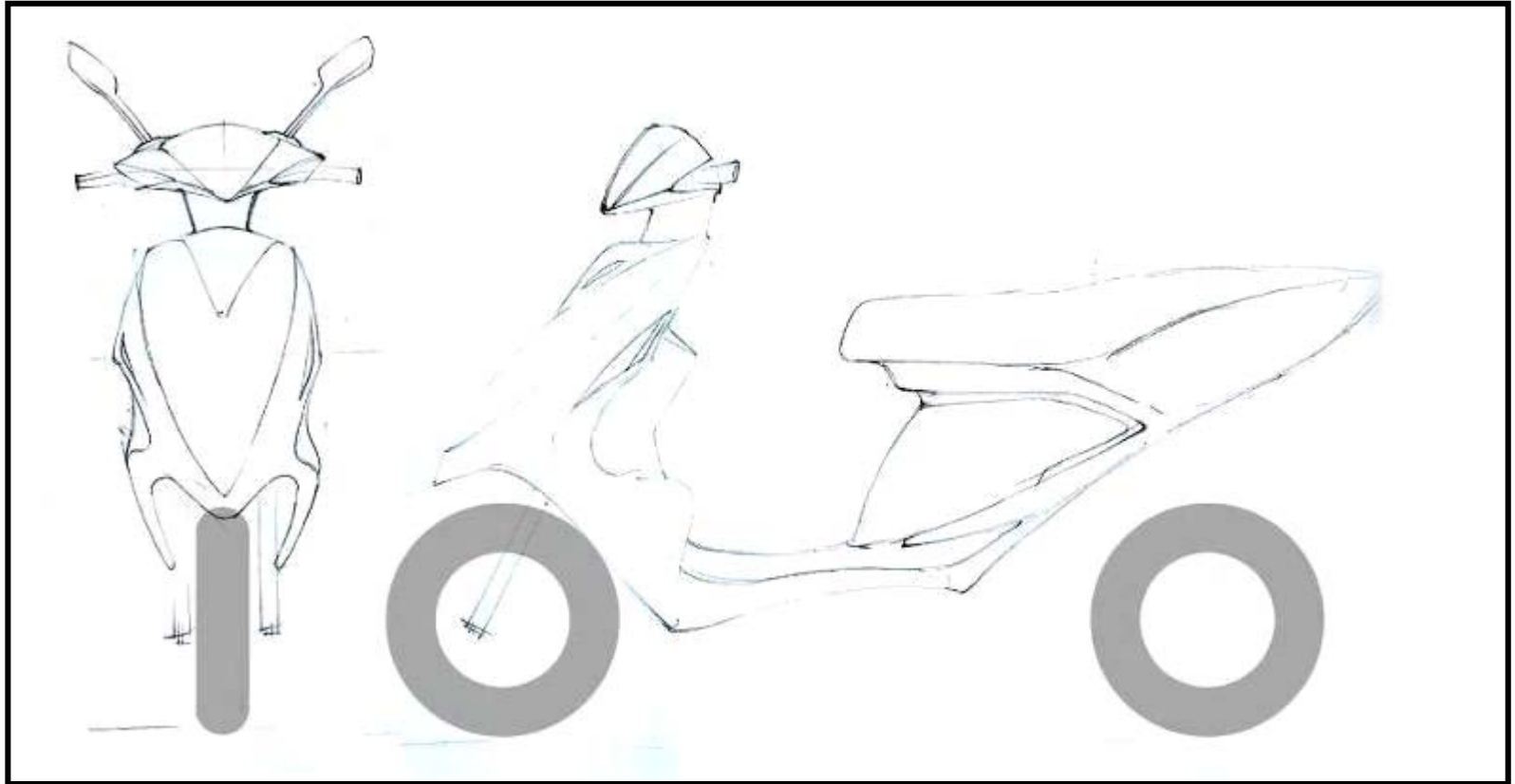
## IDEATION IN SPECIFIC DIRECTION - SPORTY



The form has a balance because lines are coherent through out. The soft sporty nature is seen in efficient surface transition. Requires further improvement



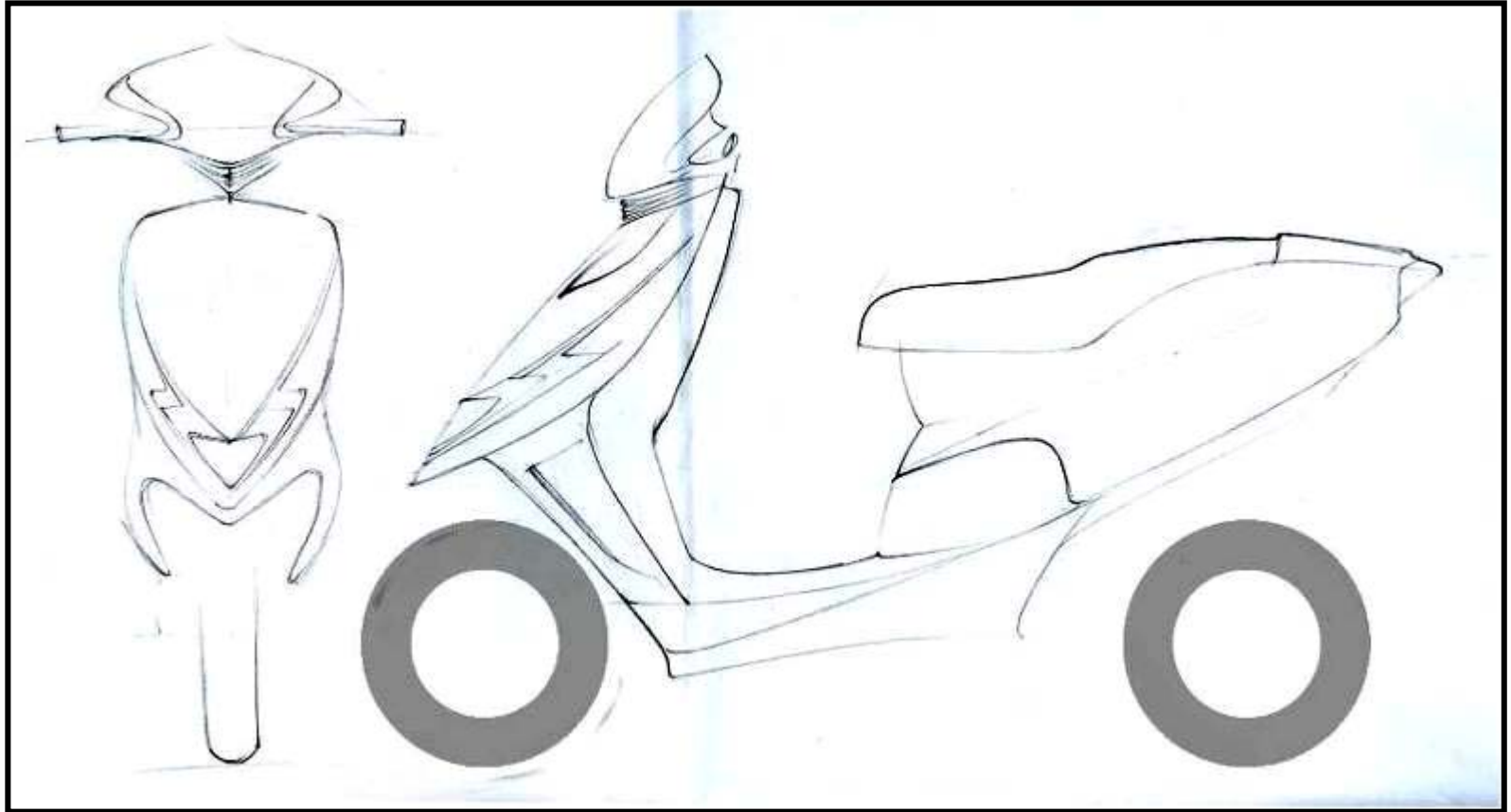
## IDEATION IN SPECIFIC DIRECTION - SPORTY



Rear is very light for the front half. The front half is overly bulky because of curvaceous nature and side fangs which enhance this.



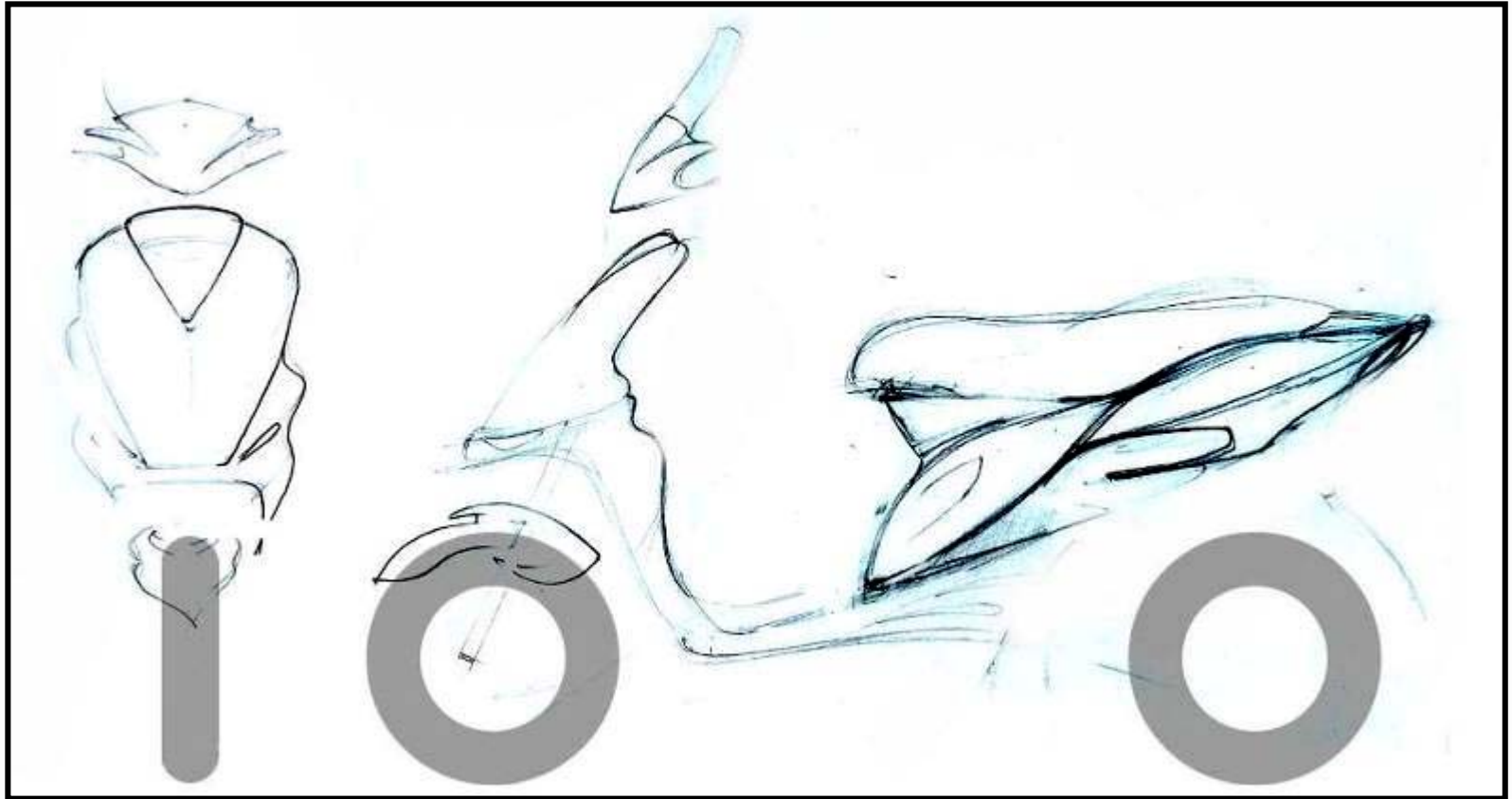
## IDEATION IN SPECIFIC DIRECTION - SPORTY



Huge head makes the form unstable. The front half is not coherent with the rear  
Surface treatment used to render sporty character which is not good



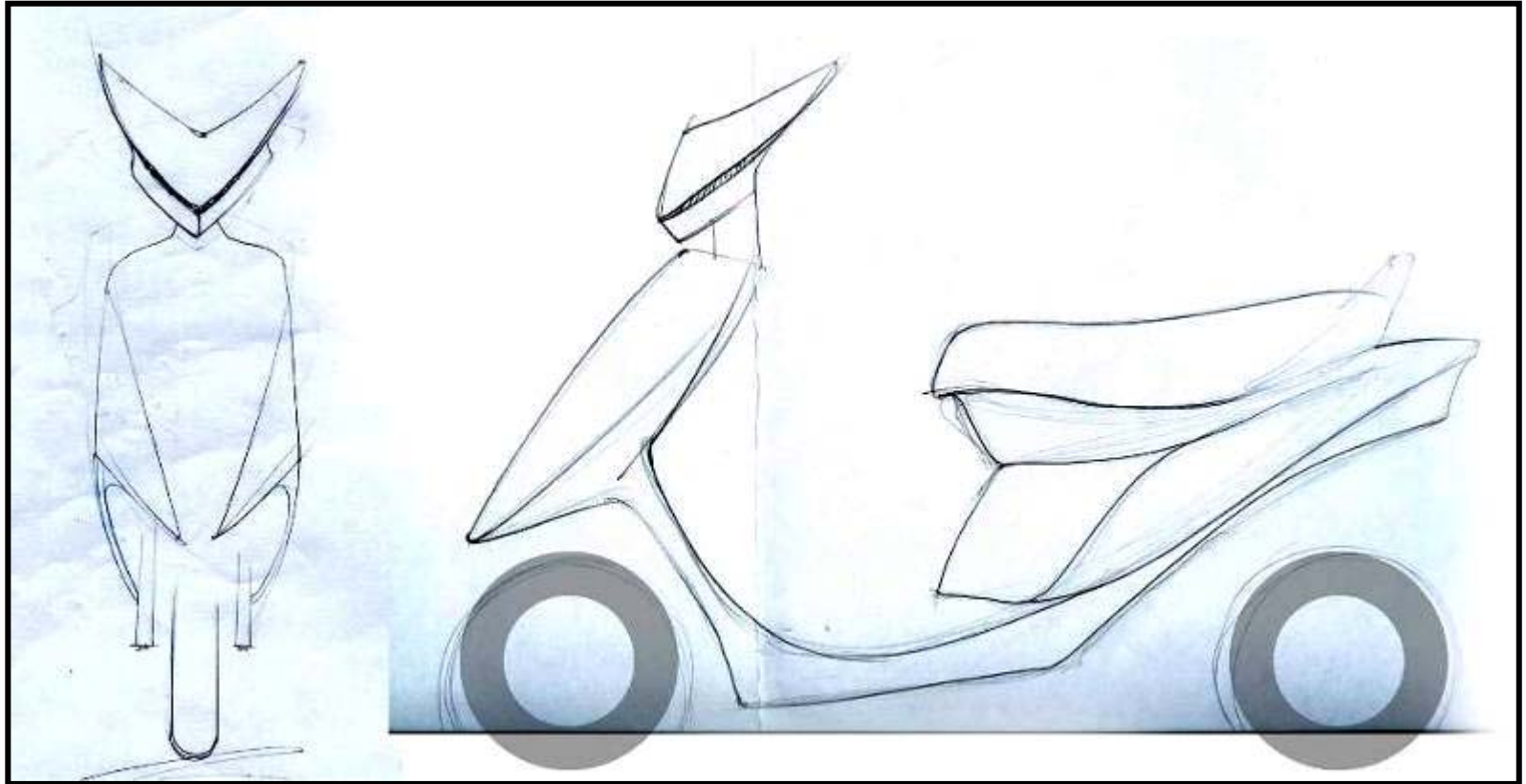
## IDEATION IN SPECIFIC DIRECTION - SPORTY



Front half having a soft dynamic touch but the the surface transition is not uniform and the overall form is not coherent



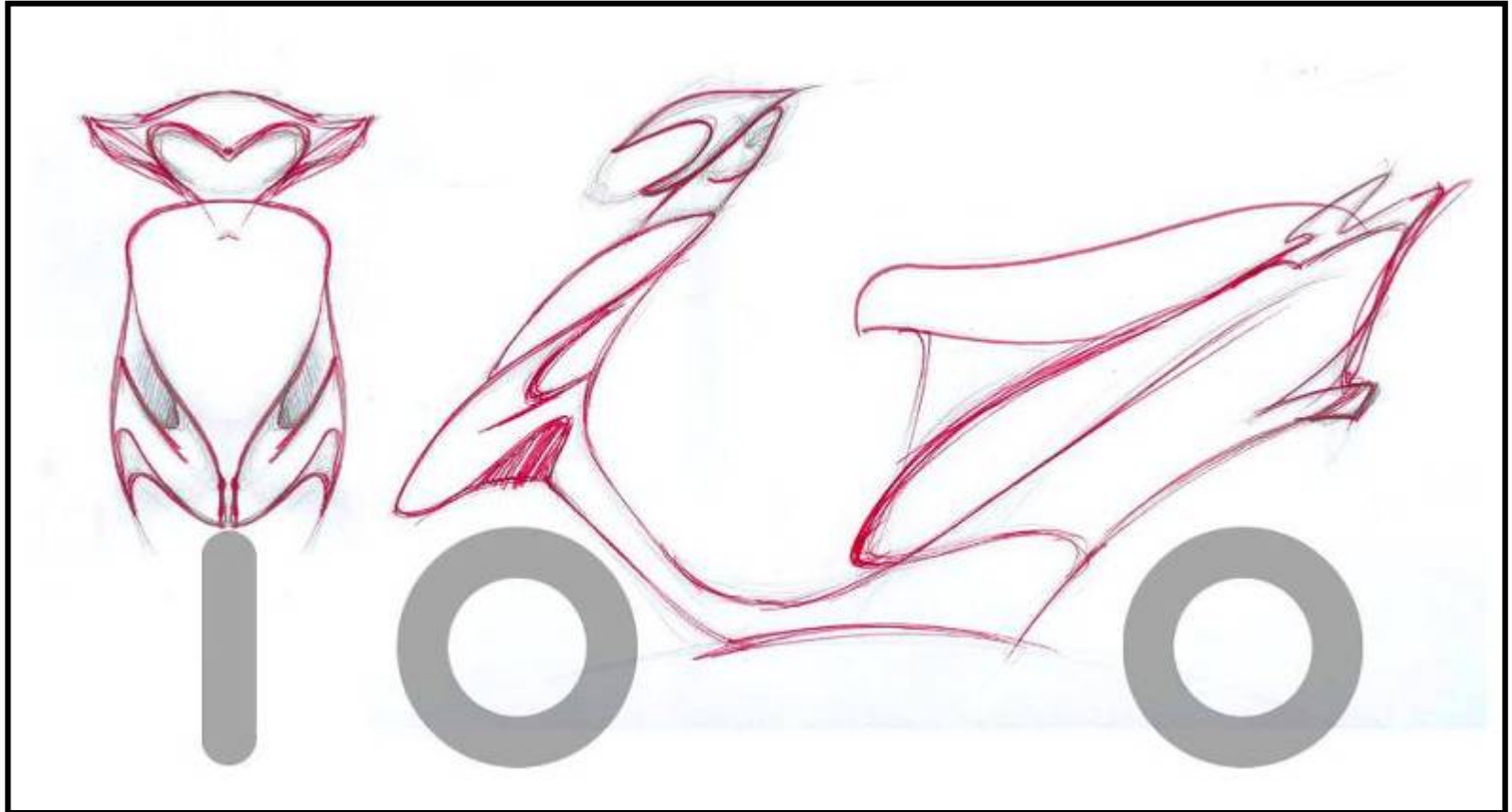
## IDEATION IN SPECIFIC DIRECTION - SPORTY



Sharp features and Angular cuts make it very dynamic and modern. The sleek eye line attained on fairing gives it a tech savvy quality. Rear half is not interesting



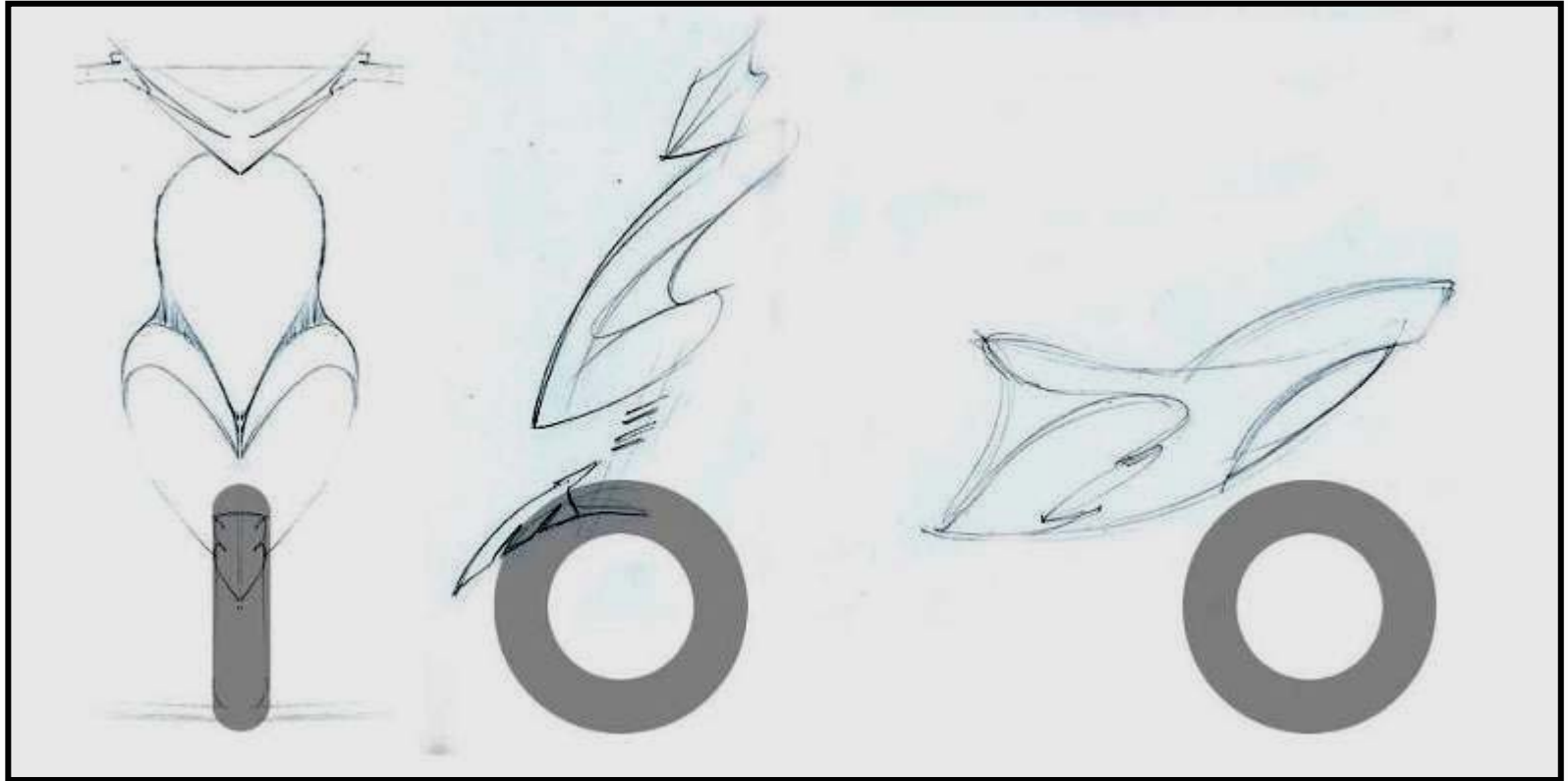
## IDEATION IN SPECIFIC DIRECTION - SPORTY



Dynamic frontal expression and sharp eyes gives it a aggressive look but the rest of the body is treated very soft and bulky



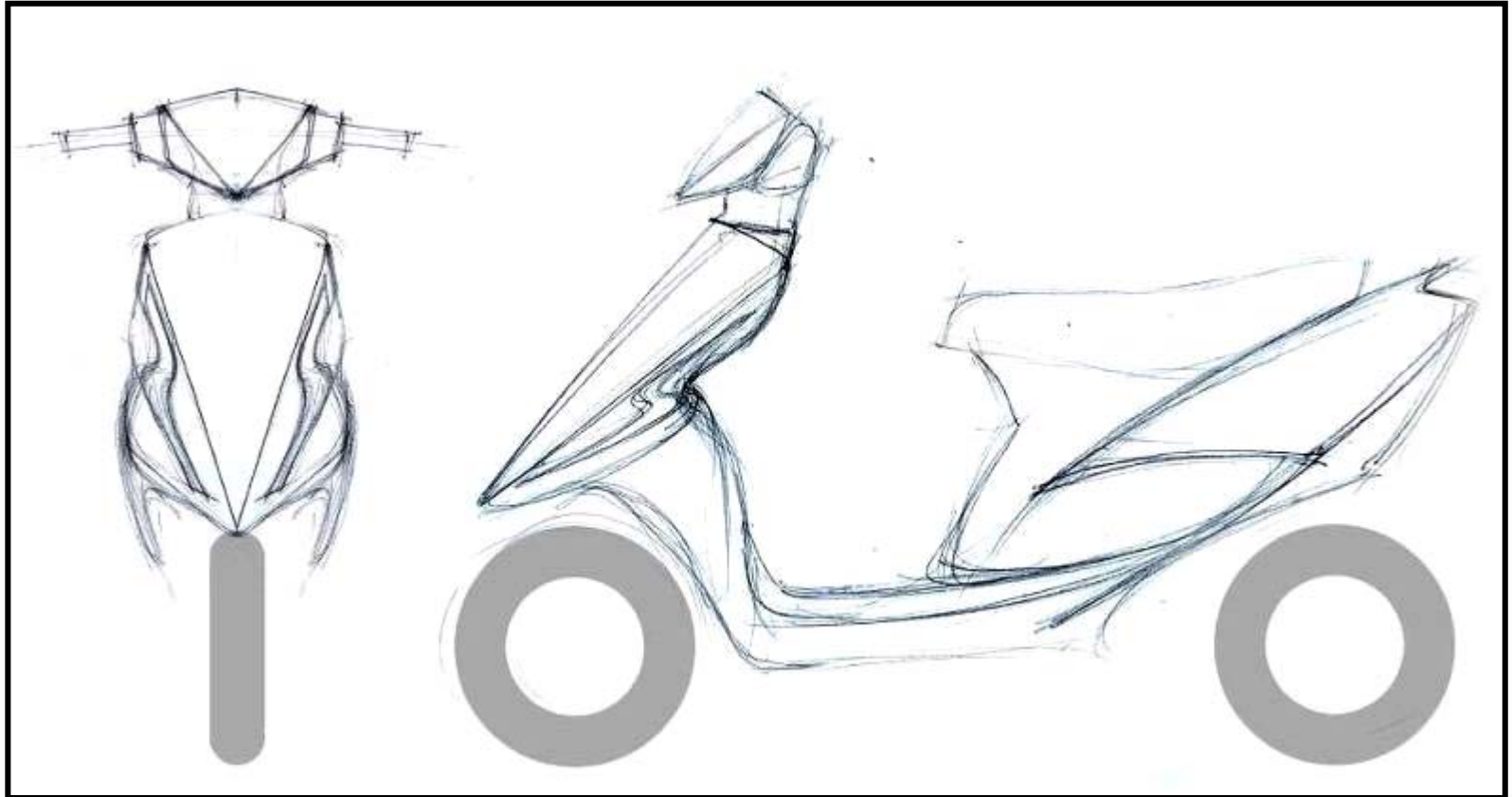
## IDEATION IN SPECIFIC DIRECTION - SPORTY



Has the grace of a deadly creature. But the front panel has very high variation in curves making the lower half heavy and the form stable



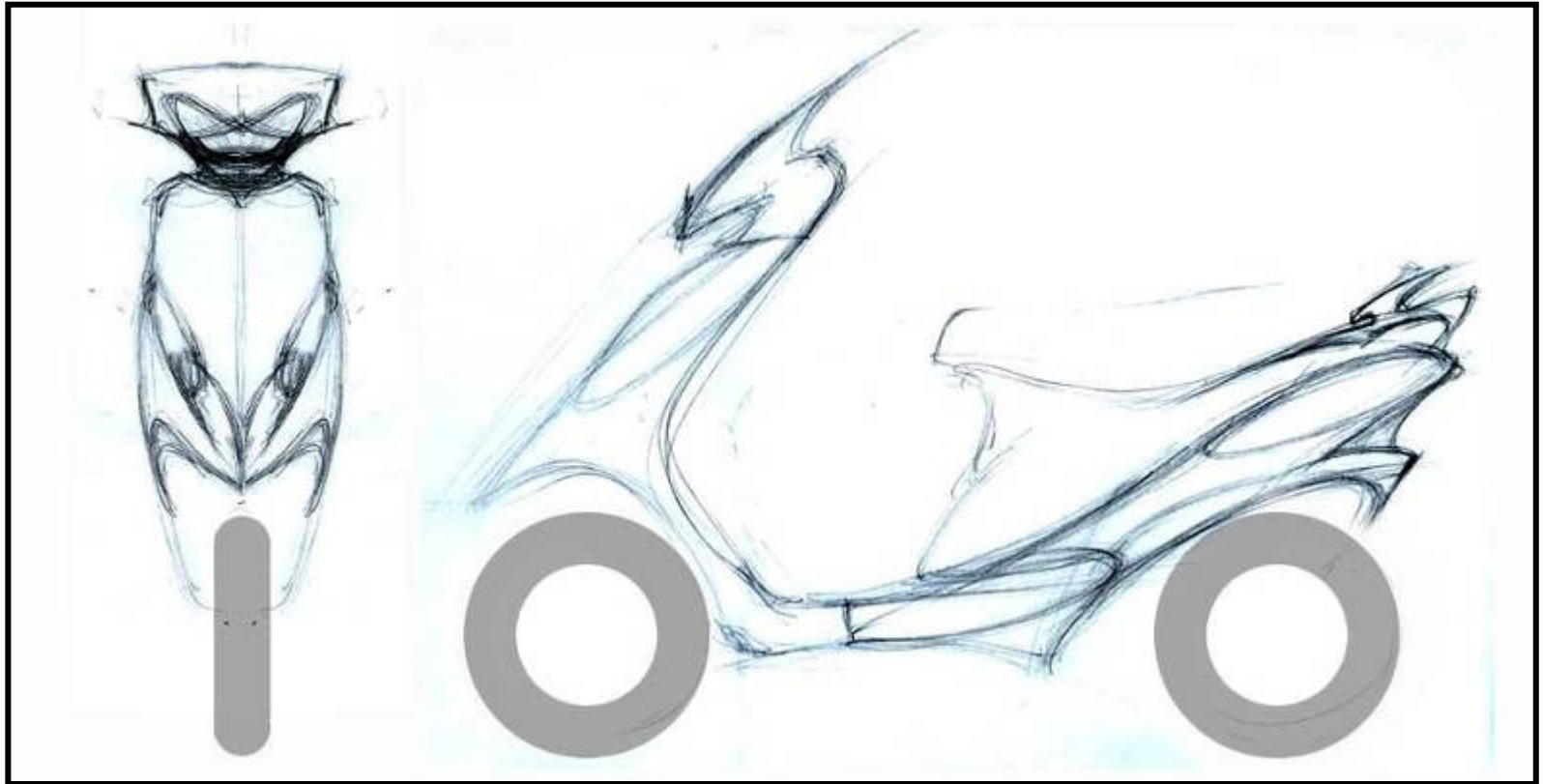
## IDEATION IN SPECIFIC DIRECTION - SPORTY



The for has a very sharp edge quality at certain places and sot nature at other ends. This makes the overall form incoherent



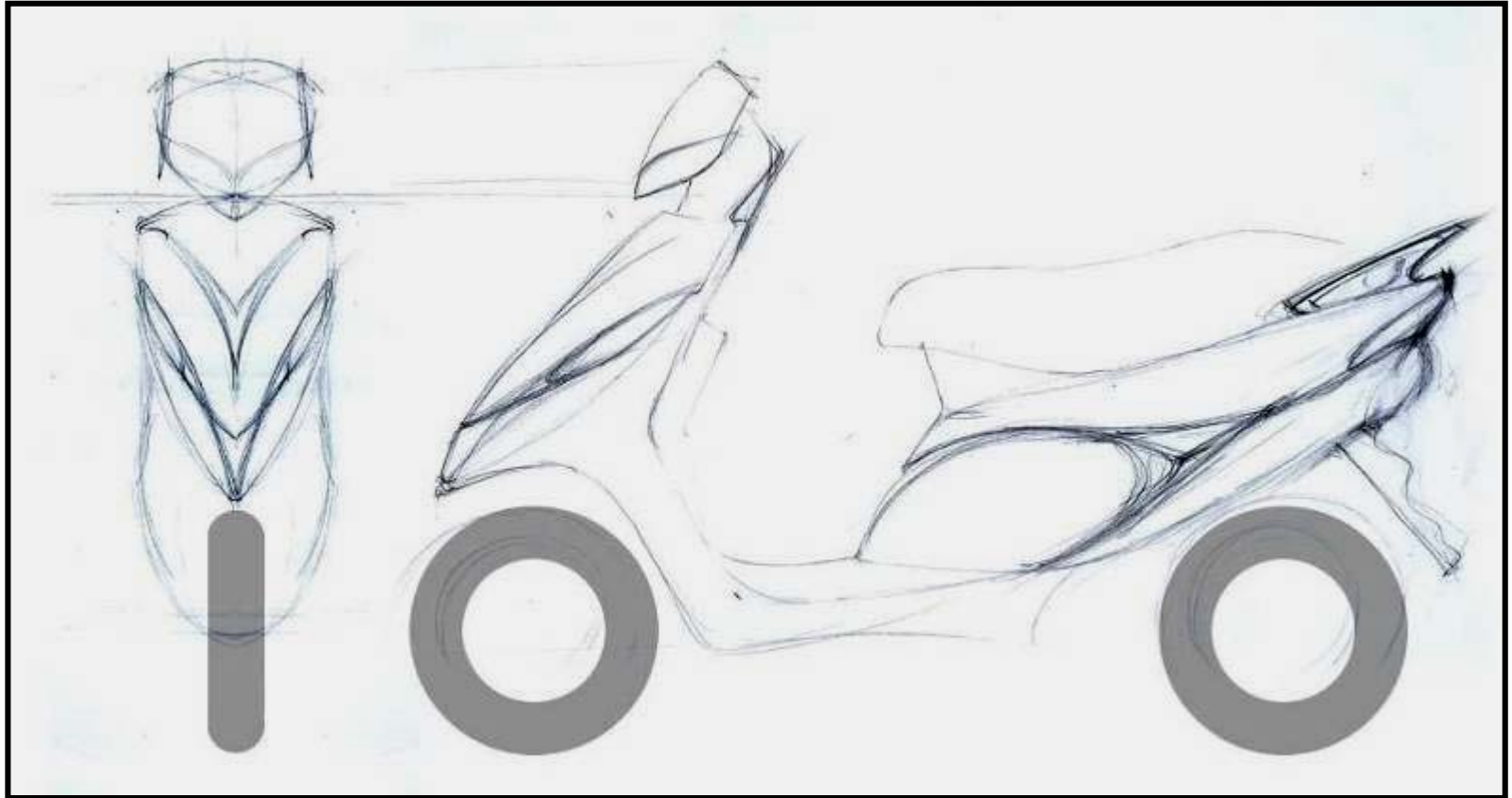
## IDEATION IN SPECIFIC DIRECTION - SPORTY



The proportion of the head lamp to the body is commendable and has achieved a lightness due to its slim nature. The grab handle is shaped to look aggressive



## IDEATION IN SPECIFIC DIRECTION - SPORTY

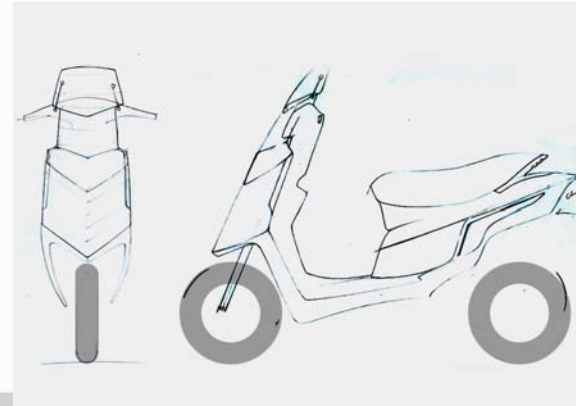
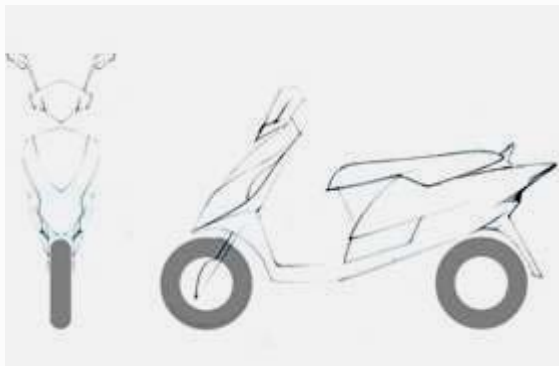
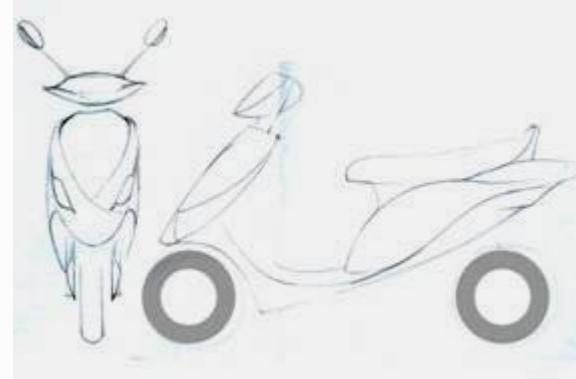
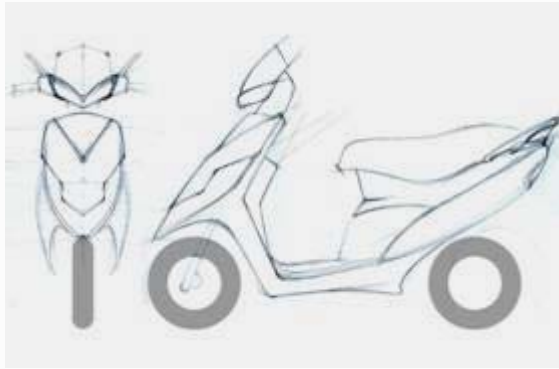


The form exploits frontal expression again to gather a dynamic and aggressive nature. The rear half attempted to look crisp but has lost it since the lines have become very loose

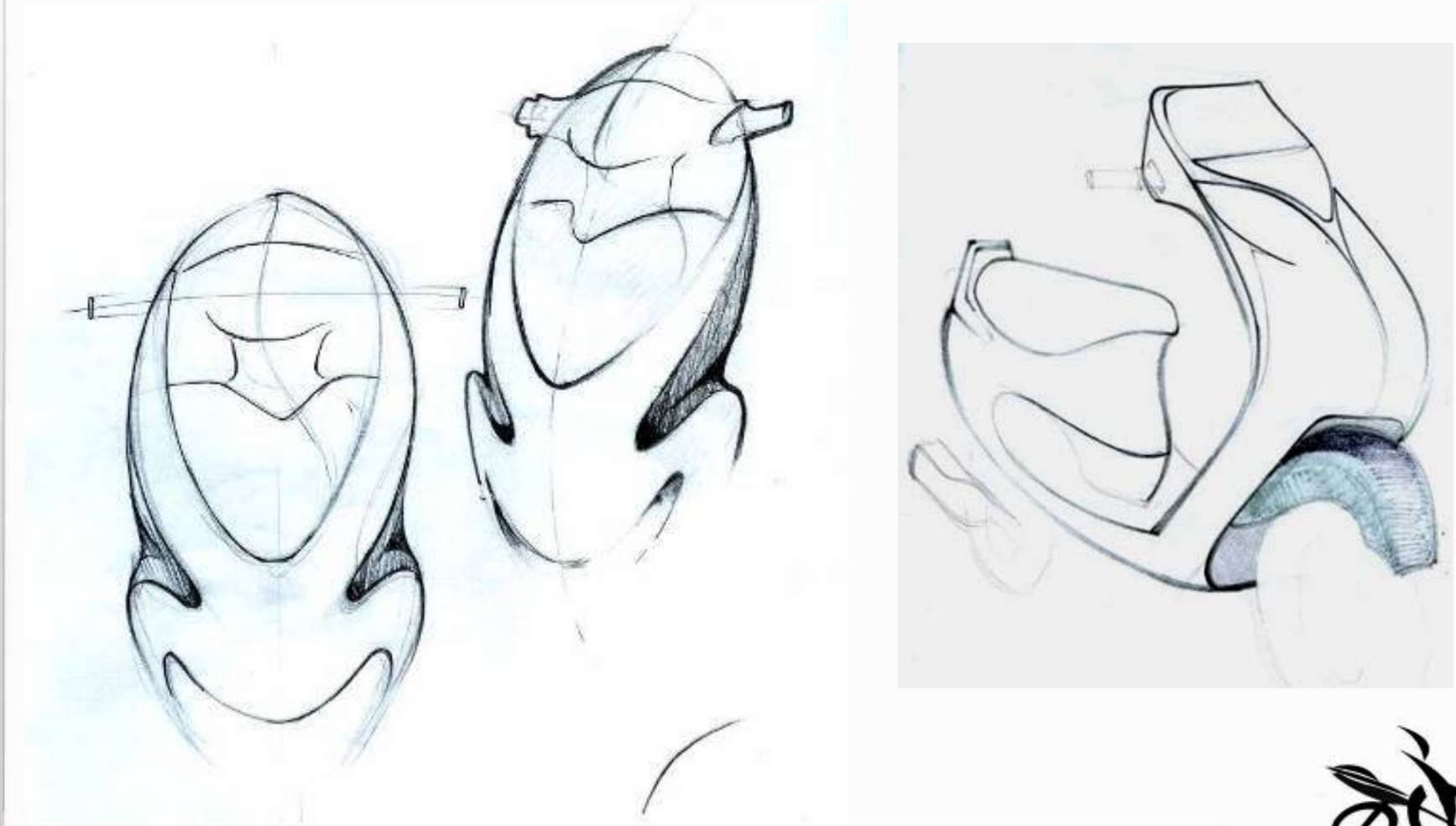


## 7.6 IDEATION IN SPECIFIC DIRECTION - ELEGANT

Four initial exploration which were found to have the potential in its form to further develop them into an elegant scooter which could accentuate in its form qualities like softness, feminine grace and youthful energy



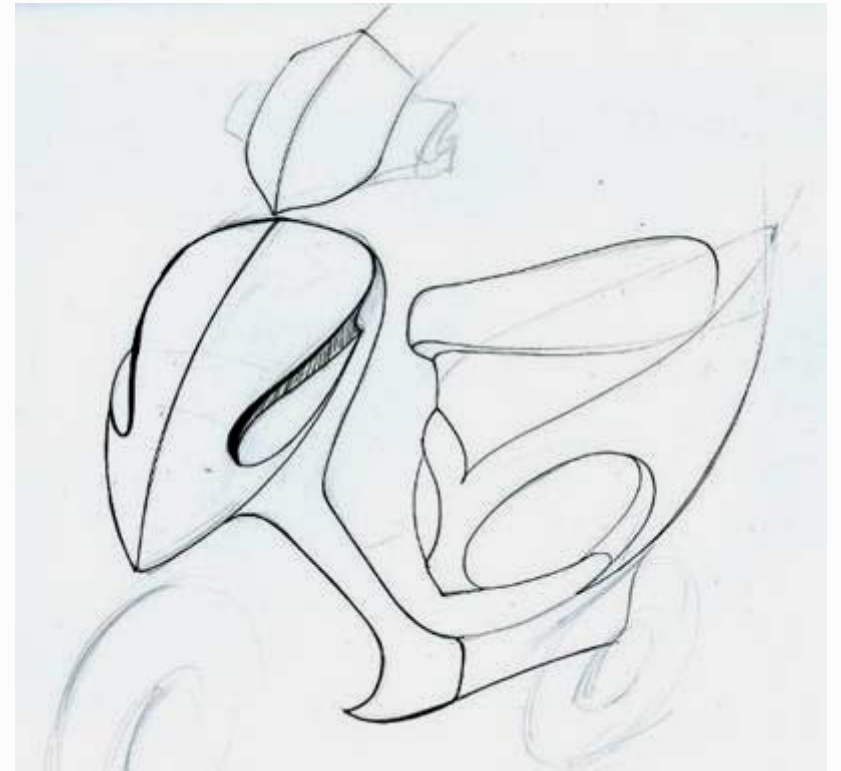
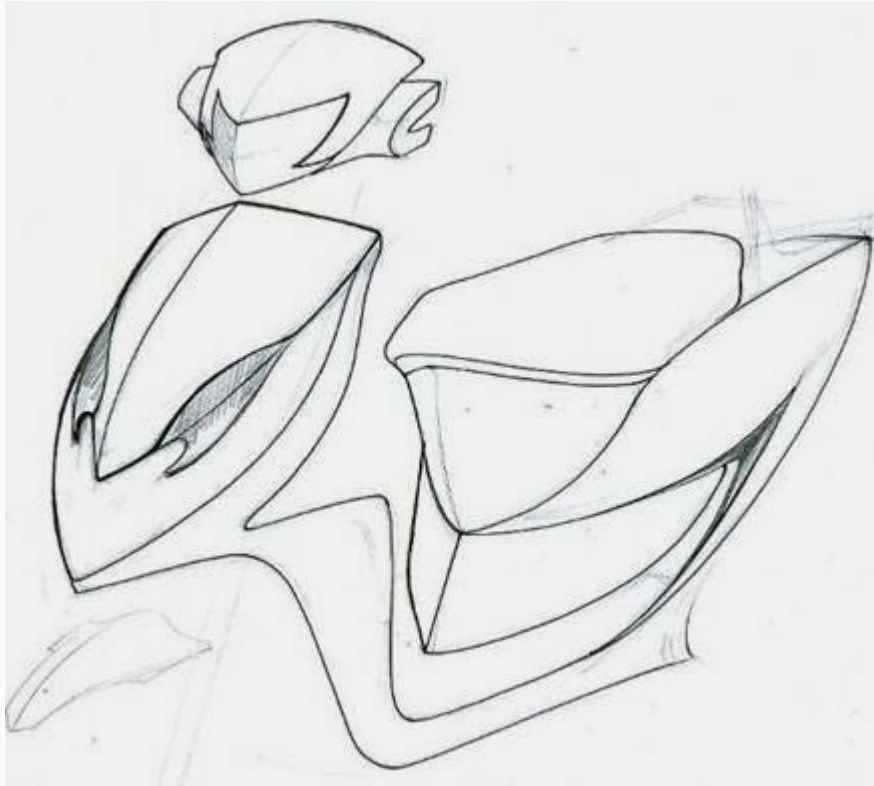
## IDEATION IN SPECIFIC DIRECTION - ELEGANT



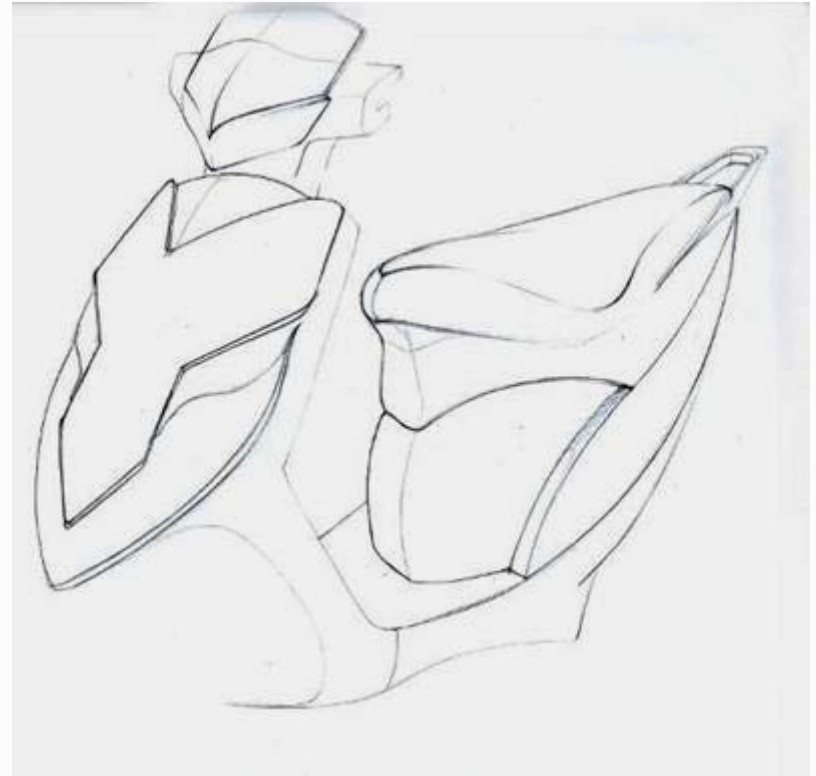
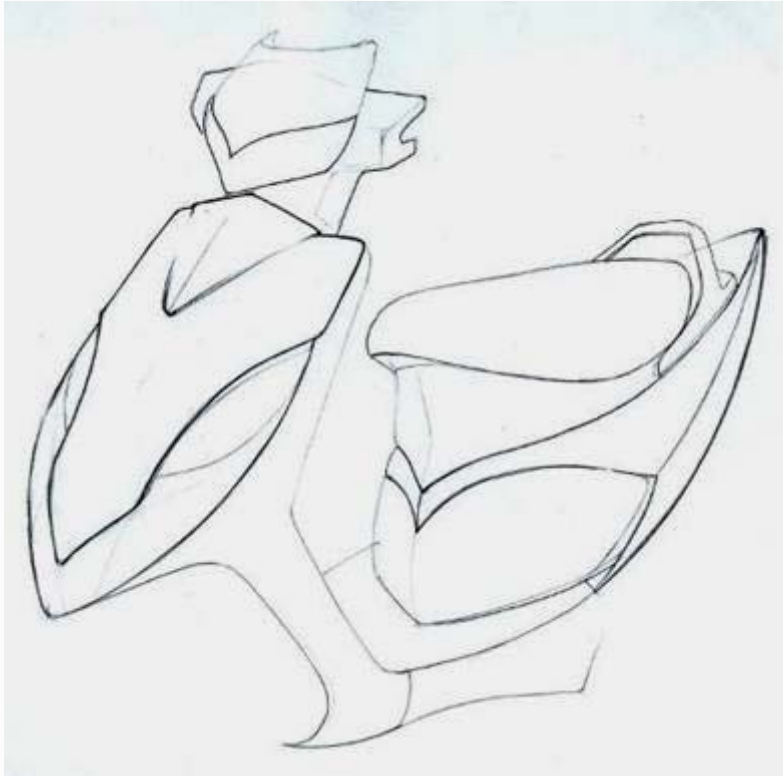
Refresh Design of Scooty Pep Plus



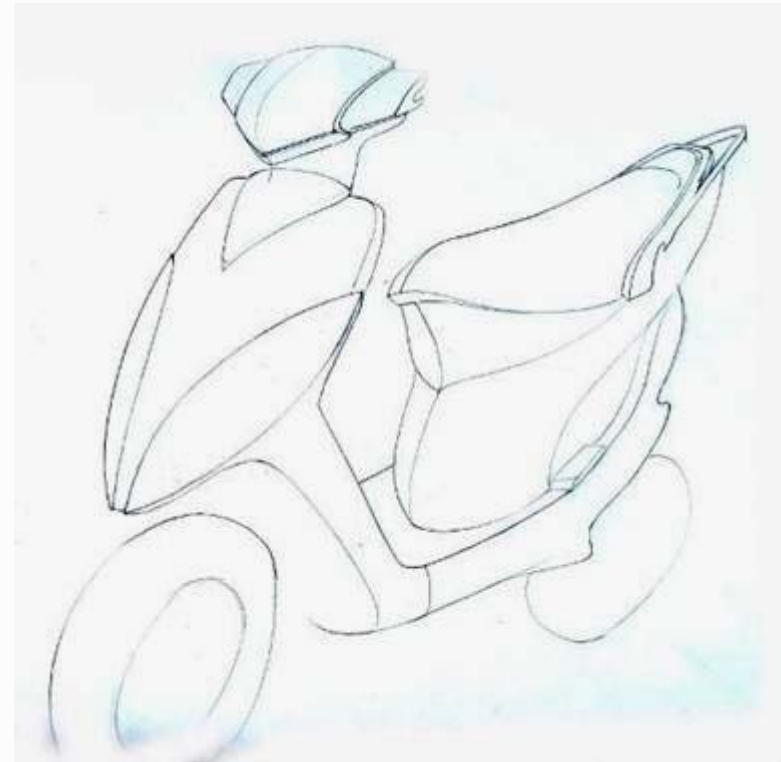
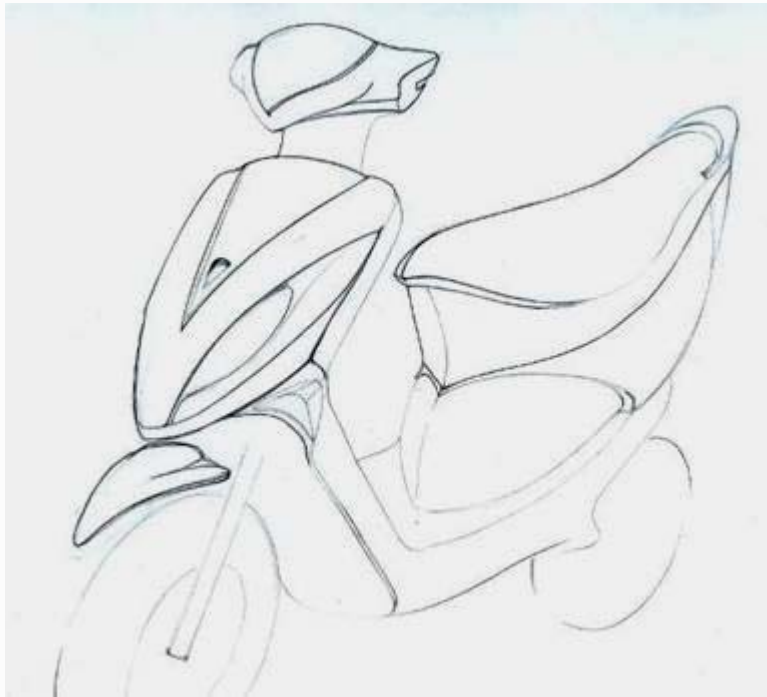
## IDEATION IN SPECIFIC DIRECTION - ELEGANT



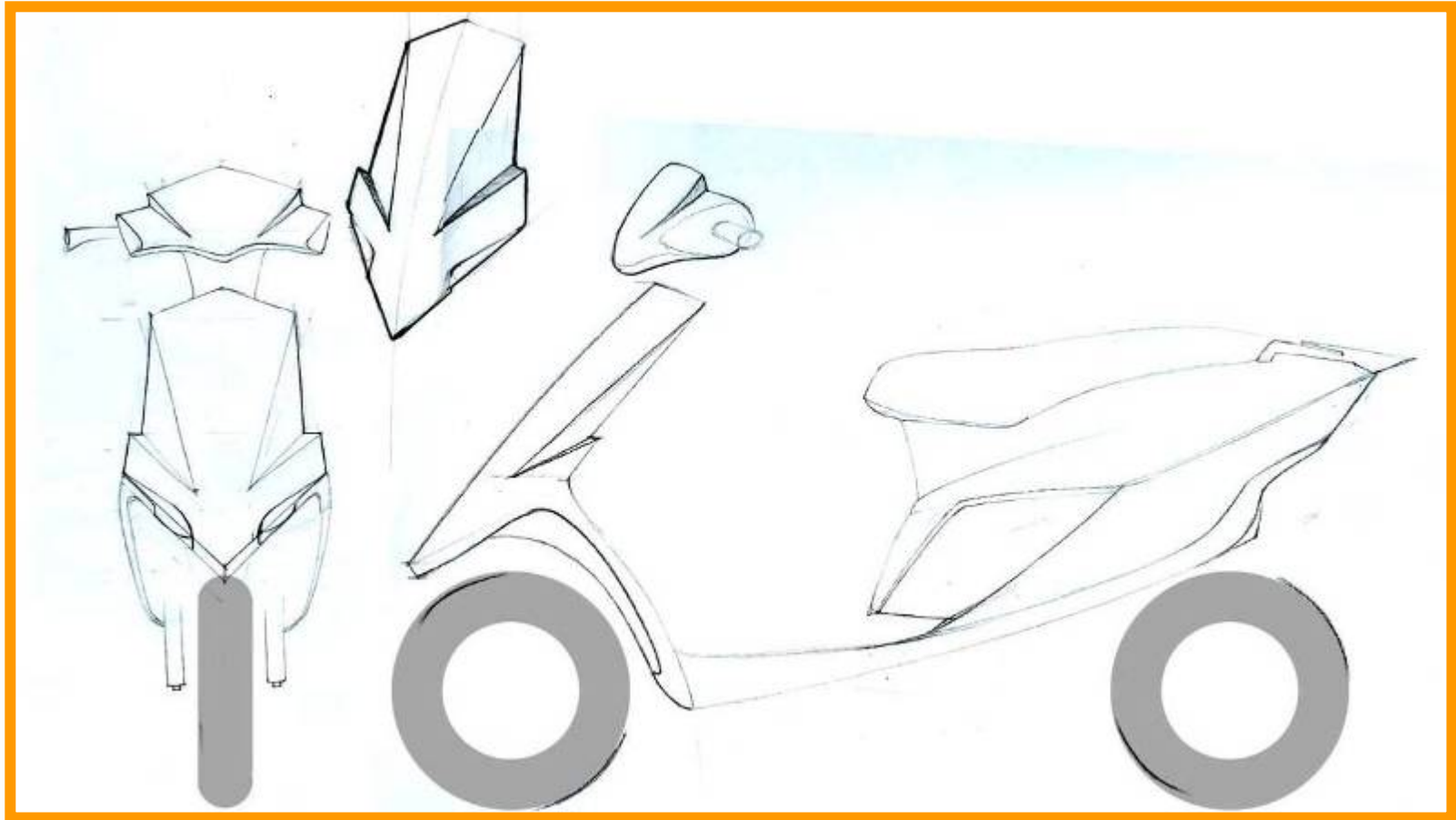
## IDEATION IN SPECIFIC DIRECTION - ELEGANT



## IDEATION IN SPECIFIC DIRECTION - ELEGANT



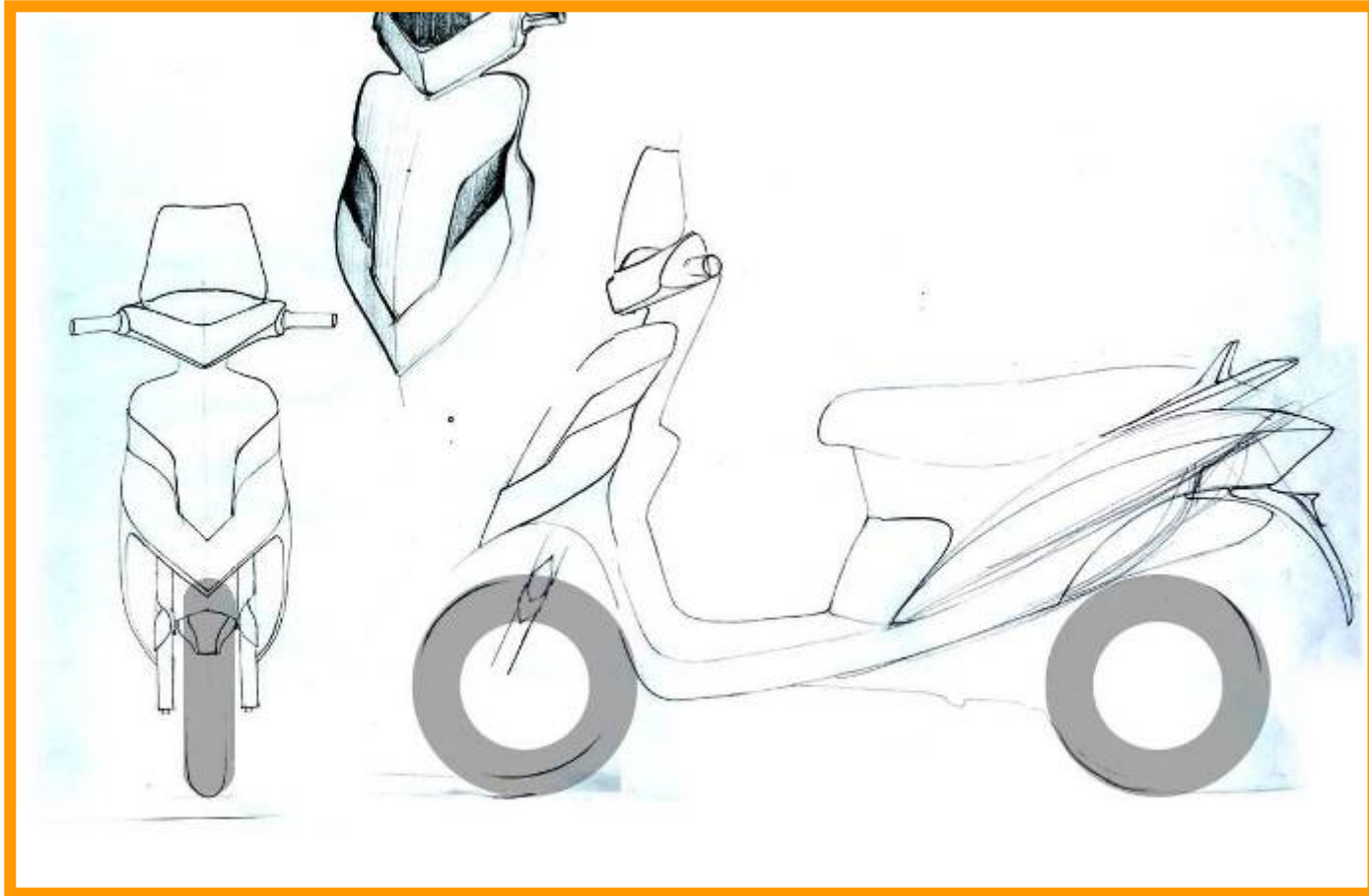
## IDEATION IN SPECIFIC DIRECTION - ELEGANT



Edge styling is used to attain a sharp and light form. The simplicity of surface gives it an elegance. But the rear is heavy



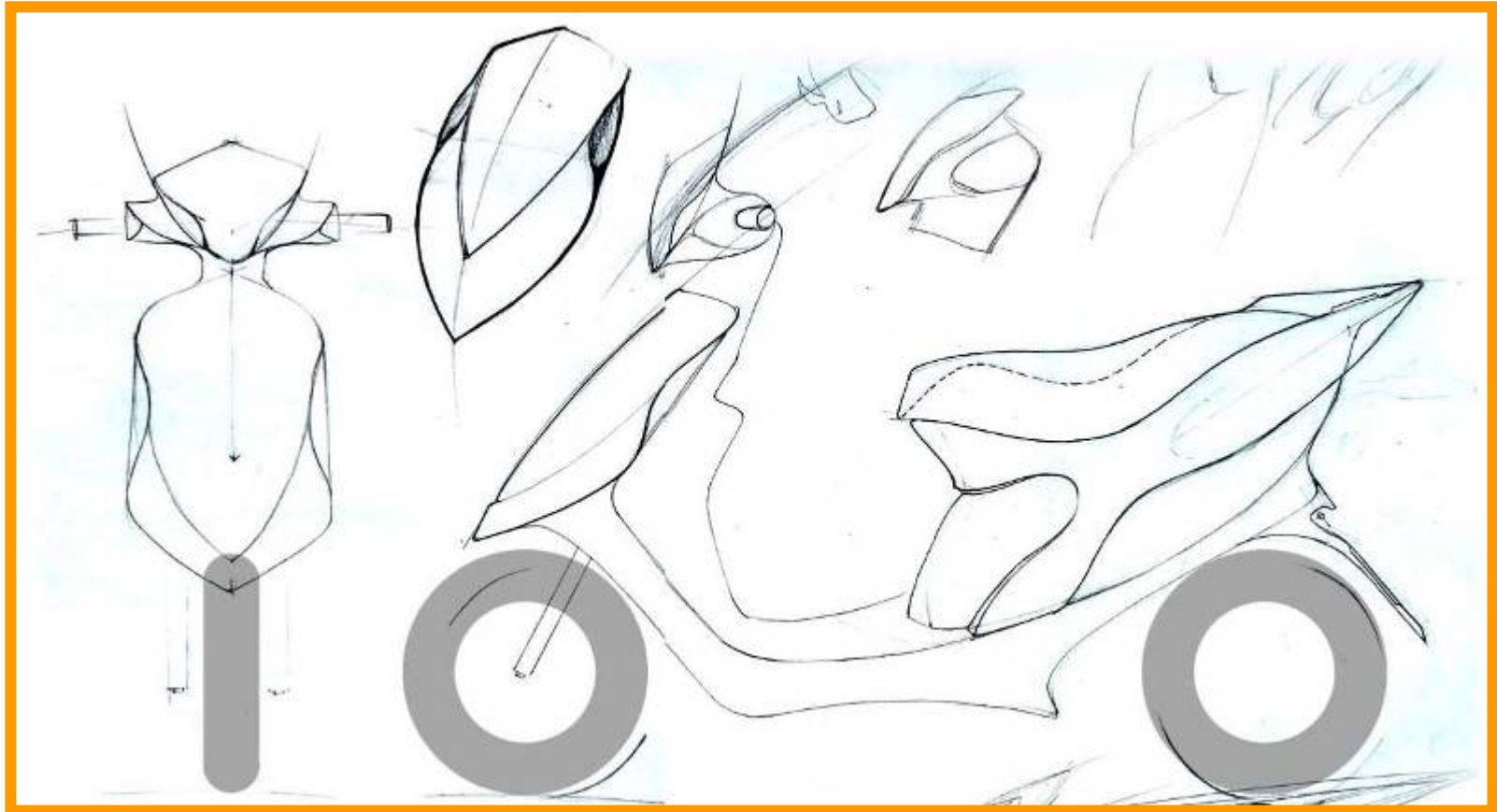
## IDEATION IN SPECIFIC DIRECTION - ELEGANT



Surface transition kept to the minimum by variation in depth instead of side cut out. The rear half is very heavy and needs correction. Name plate can be incorporated.



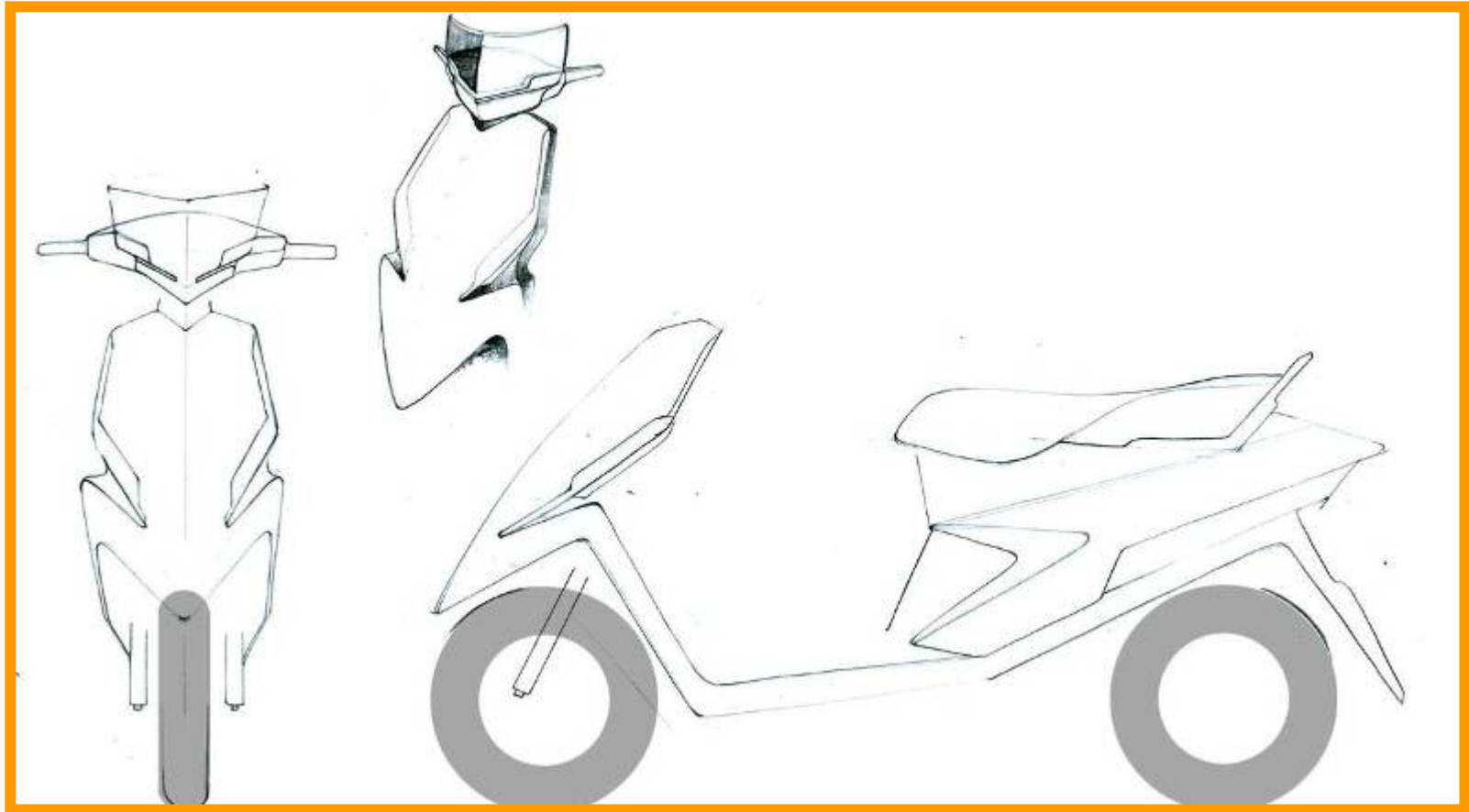
## IDEATION IN SPECIFIC DIRECTION - ELEGANT



Minimum surface transition used to capture the essence of Scooty pep. The inclination of head varied to do away with the reserved nature of the former sketch. The rear panel partition lines are exaggerated.



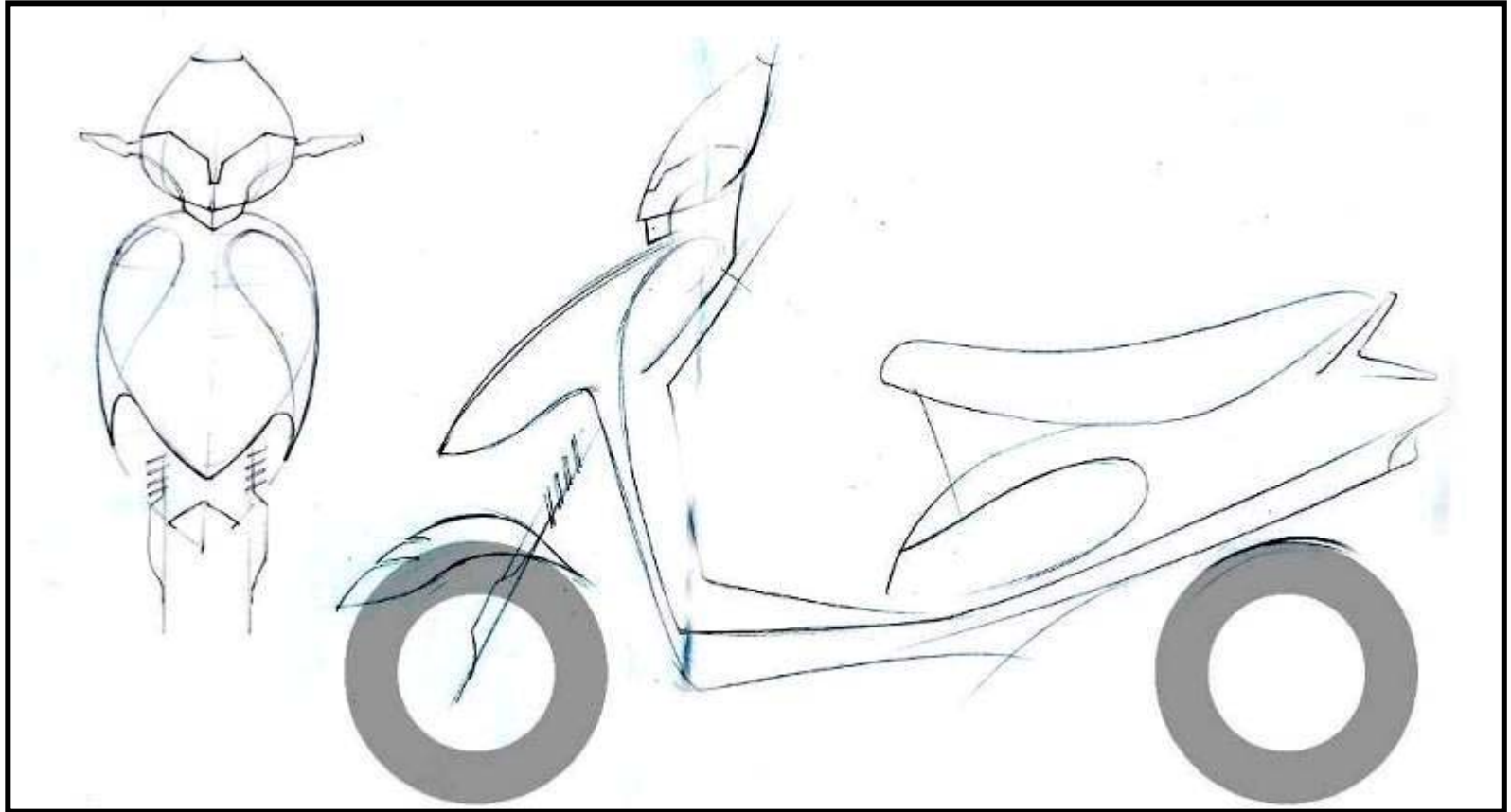
## IDEATION IN SPECIFIC DIRECTION - ELEGANT



Sleek, tech-savvy and elegant. The surface is maintained as one through out with sleek indicators at the sides. Clean lines well tight over a slim mass makes it a expression of youthful elegance



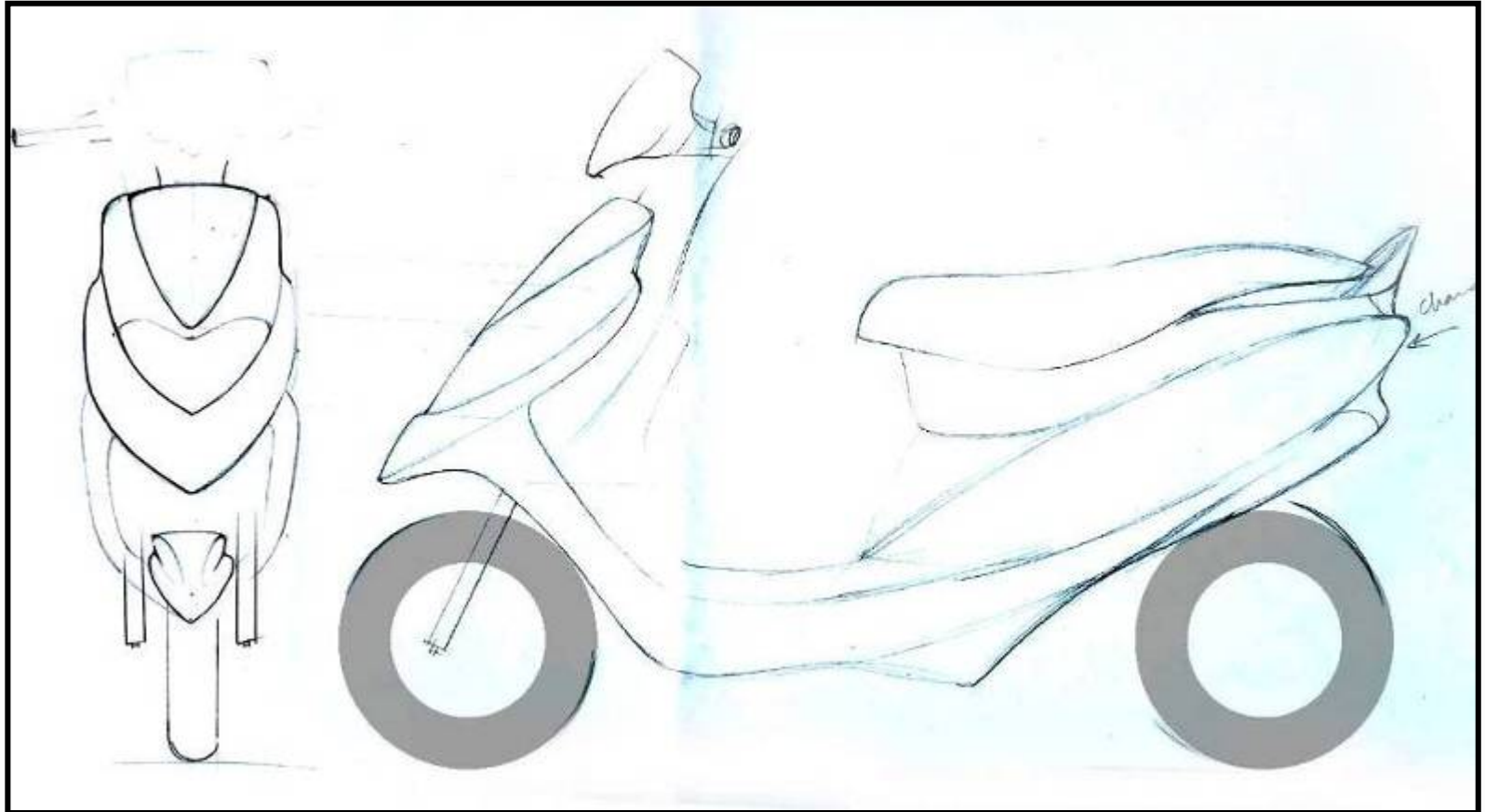
## IDEATION IN SPECIFIC DIRECTION - ELEGANT



The front panel is made shot to introduce a fender. But this may loose the scooty its identity.  
The mass front panel is not balanced



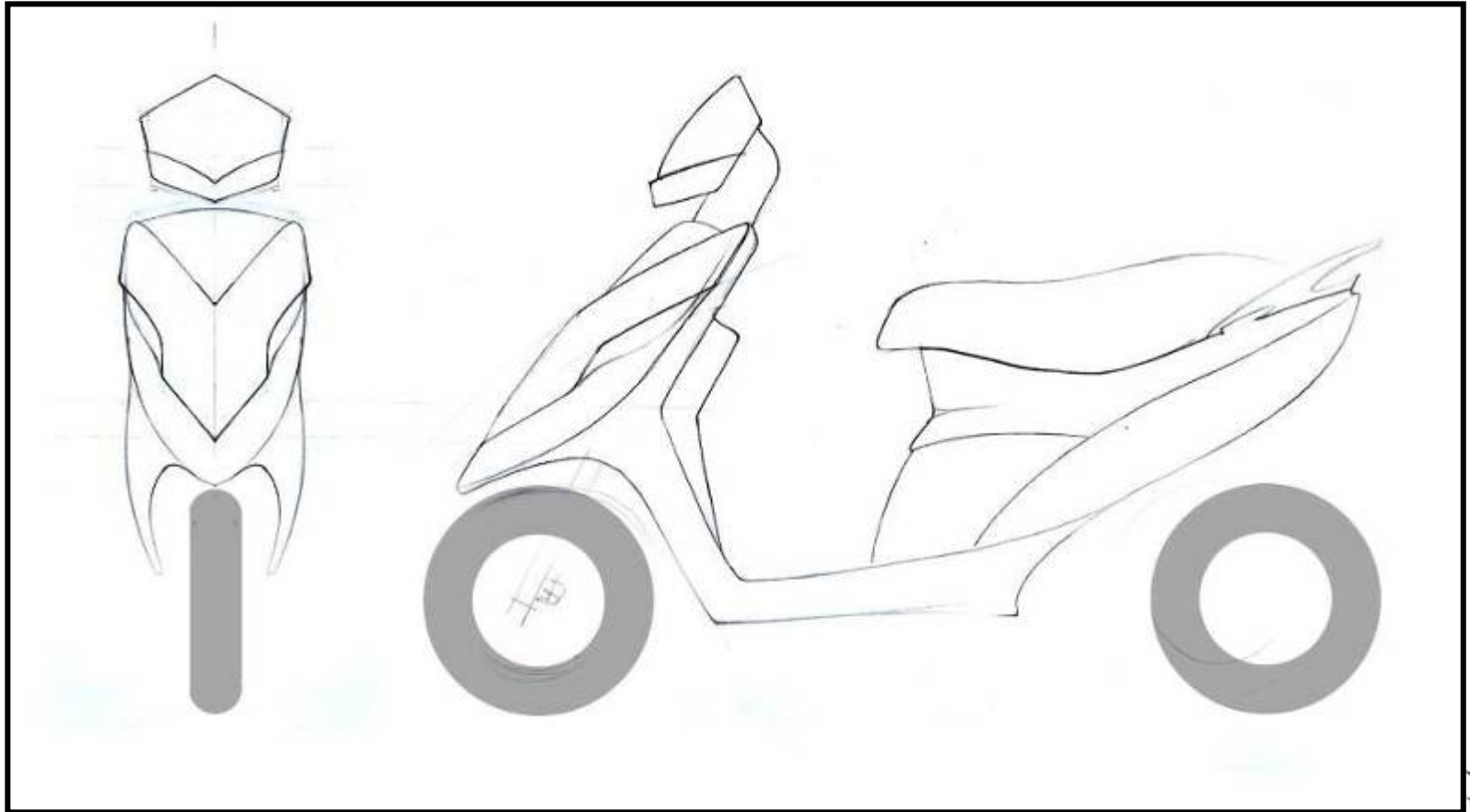
## IDEATION IN SPECIFIC DIRECTION - ELEGANT



Trendy, fun-loving due to loud surface transitions and highly curvaceous body surfaces. Smooth edge quality make it soft



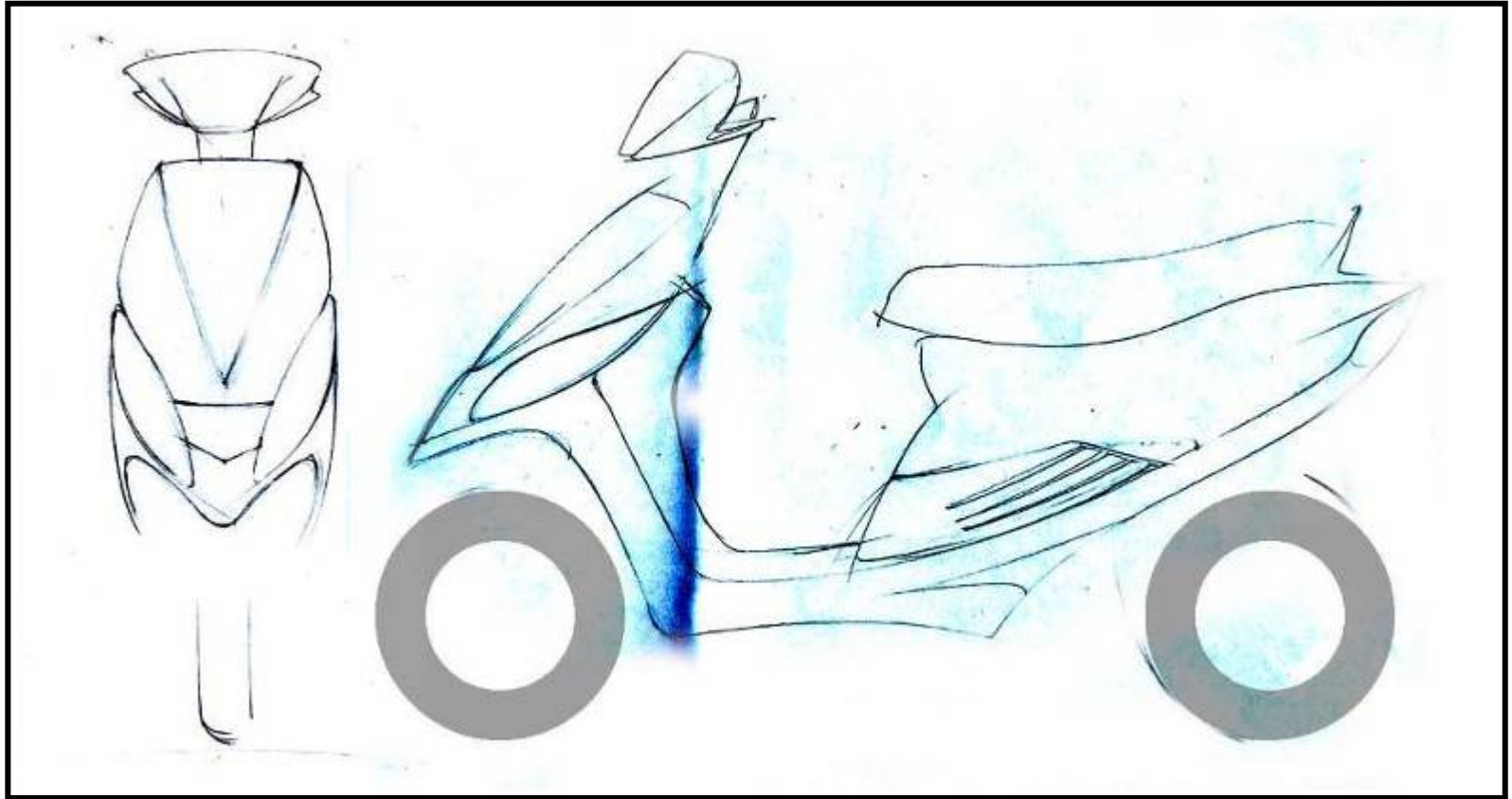
## IDEATION IN SPECIFIC DIRECTION - ELEGANT



Lines look more mature and serious. The form is not energetic



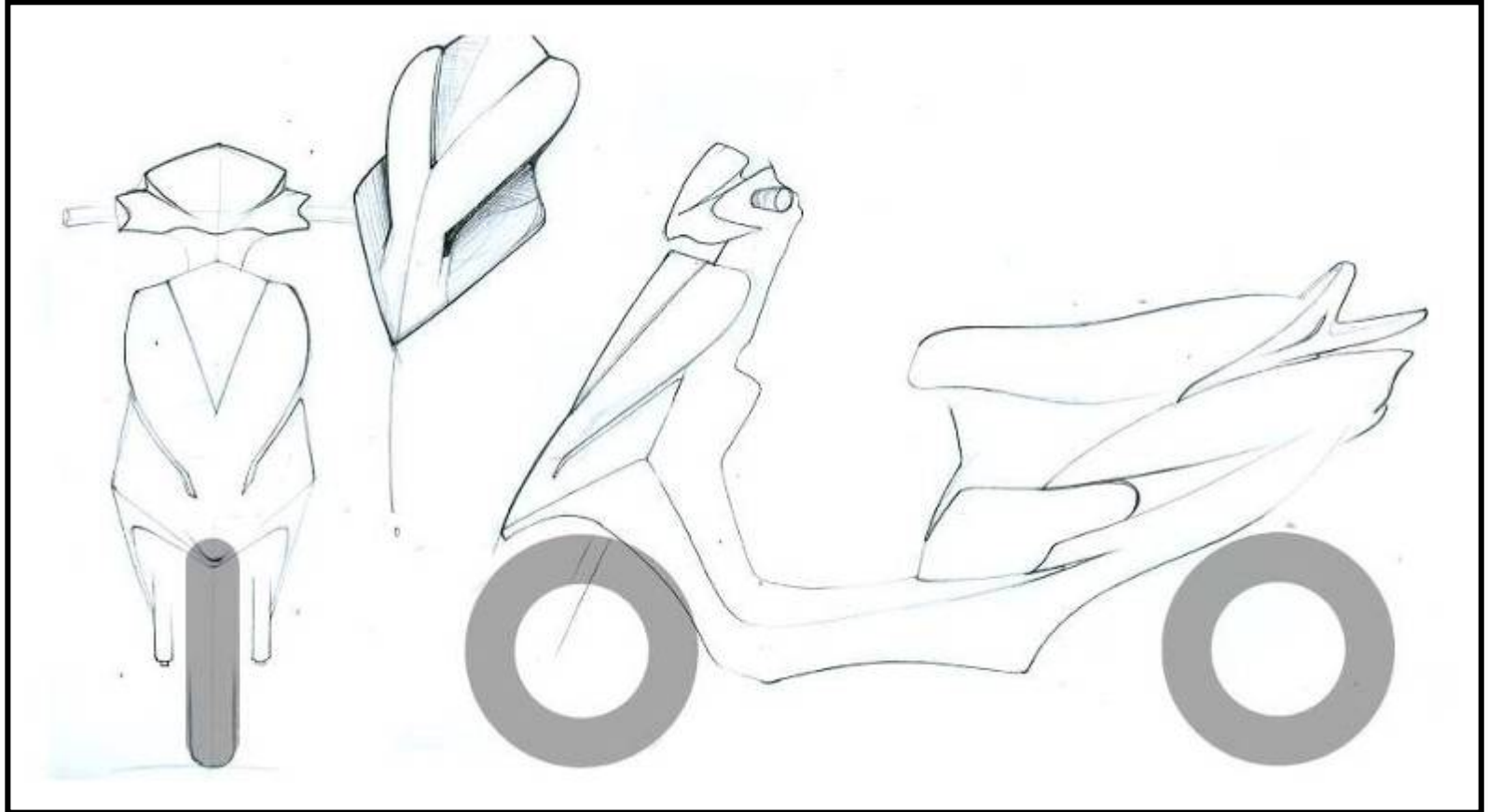
## IDEATION IN SPECIFIC DIRECTION - ELEGANT



Bulky and very poor approach of using fins. The mass which is raised above at the rear is heavy and causes the vehicle to be perceived as unstable



## IDEATION IN SPECIFIC DIRECTION - ELEGANT

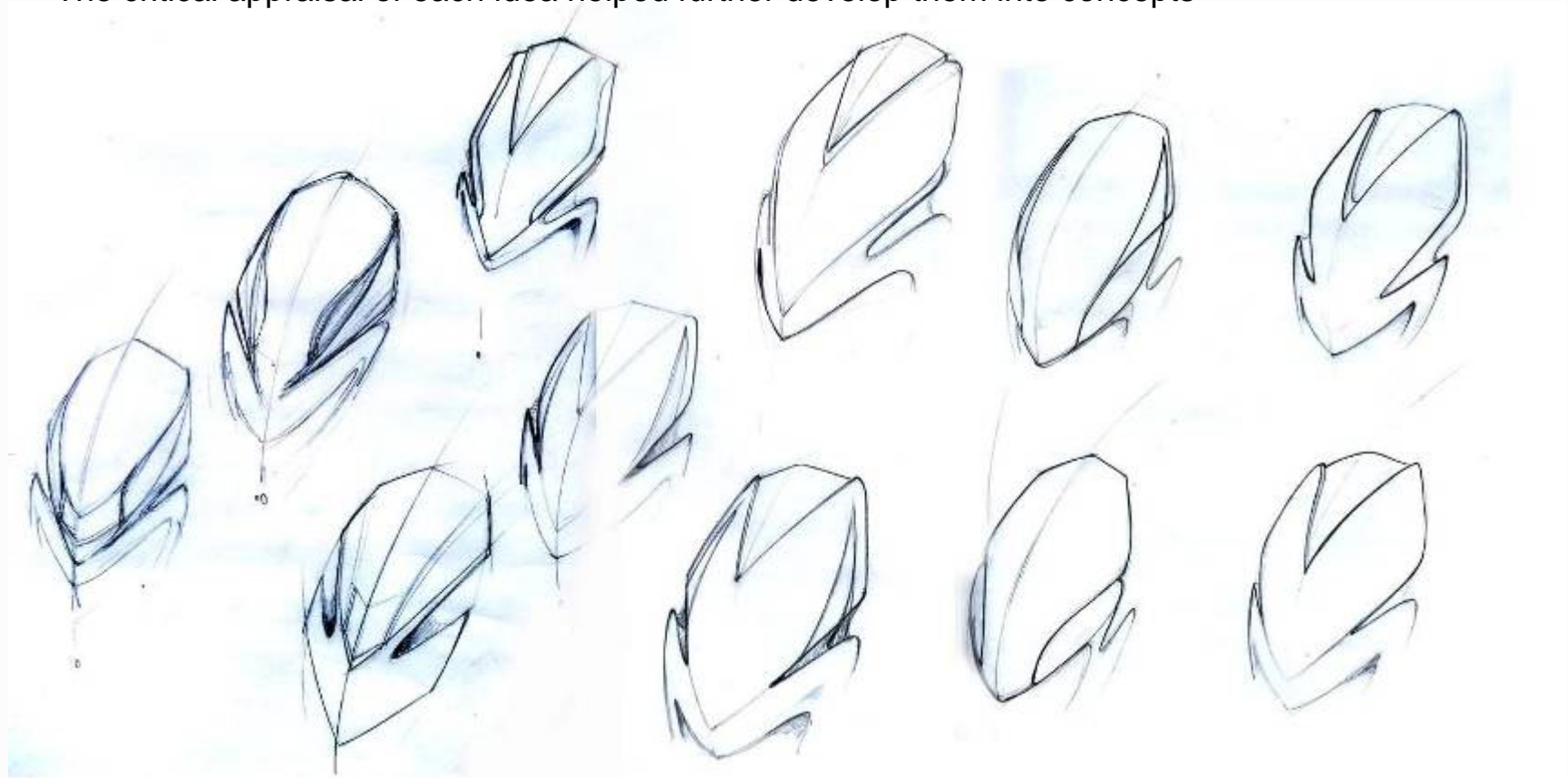


The form looks trendy and reflects energy. Maybe the design is too loud for an elegant concept.



## 7.7 CONCEPTUALISATION

The critical appraisal of each idea helped further develop them into concepts



## CONCEPT 1/01 - Sporty



## CONCEPT 1/01 - Sporty



Option 01



Option 02



## CONCEPT 1/01 - Sporty

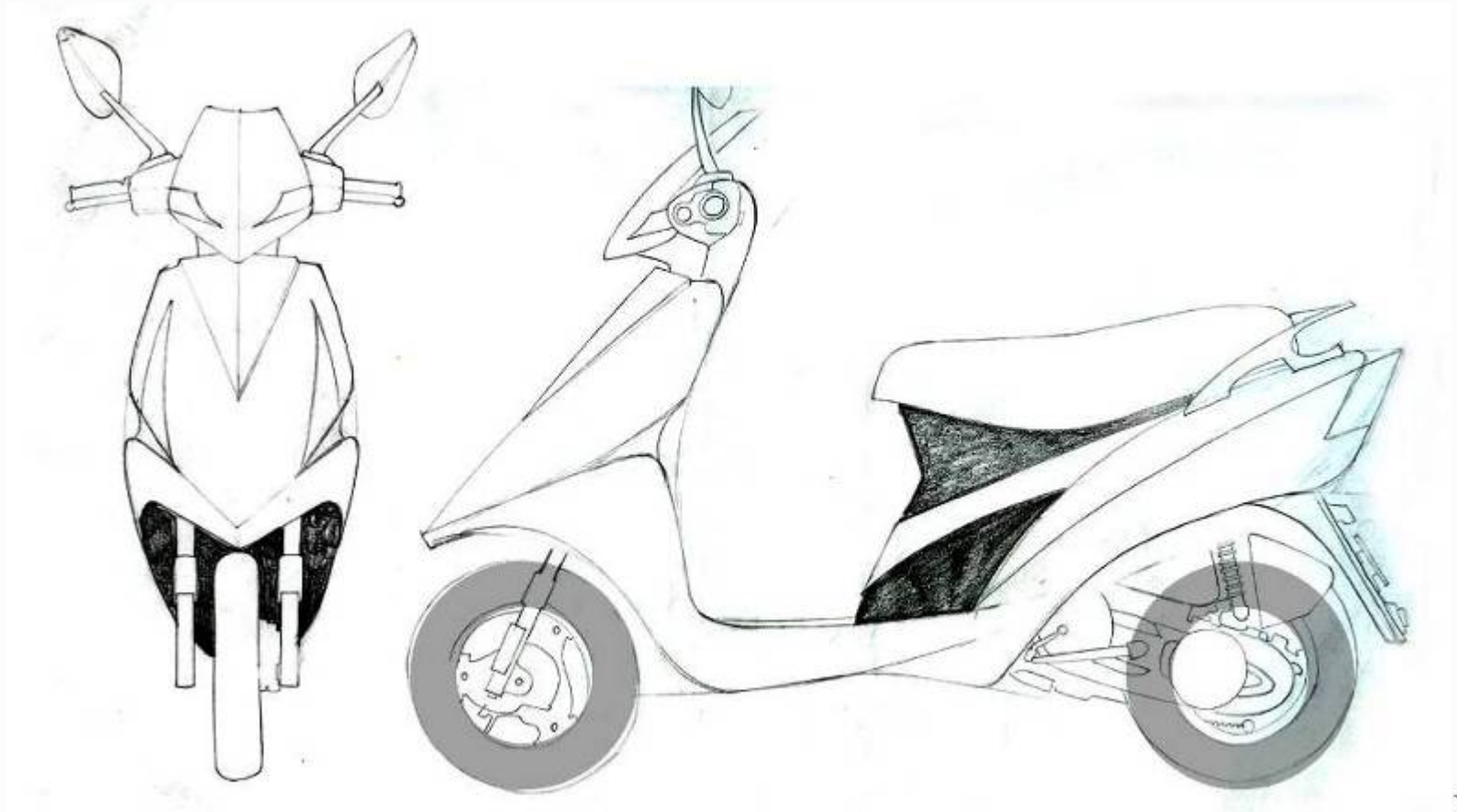
- Enraptures tradition of Scooty being a trend setter
- Seamless fairing screwed to the main frame by means of silver eyes shapes holders. The head light is placed behind this fairing
- V neck on front panel is embossed to avoid surface break
- The indicator lights are designed to adorn the side lengths. The strip of LED lights give a sexy appeal to the vehicle
- Prominent wavy surface transition in the break up of front panel with the side panels is exploited to add a sporty flair to the vehicle
- Edge quality is not very sharp or too soft but maintained blunt
- Backward sweep of fairing provides a dynamic stance to the vehicle

### Drawbacks

- The joints for the head light could make it look shabby. Either the fairing which would act as a second screen would reduce the optical quality of head lamp or the need for water tight housing gives little opportunity to make the light seamless
- The panel sides used for positioning the indicator lamps are highly prone to scratches
- The rear cowl is heavy for the lightness depicted in the front half



## CONCEPT 1/02 - Sporty



## CONCEPT 1/02 - Sporty



Option 01



Option 02



## CONCEPT 1/02 - Sporty

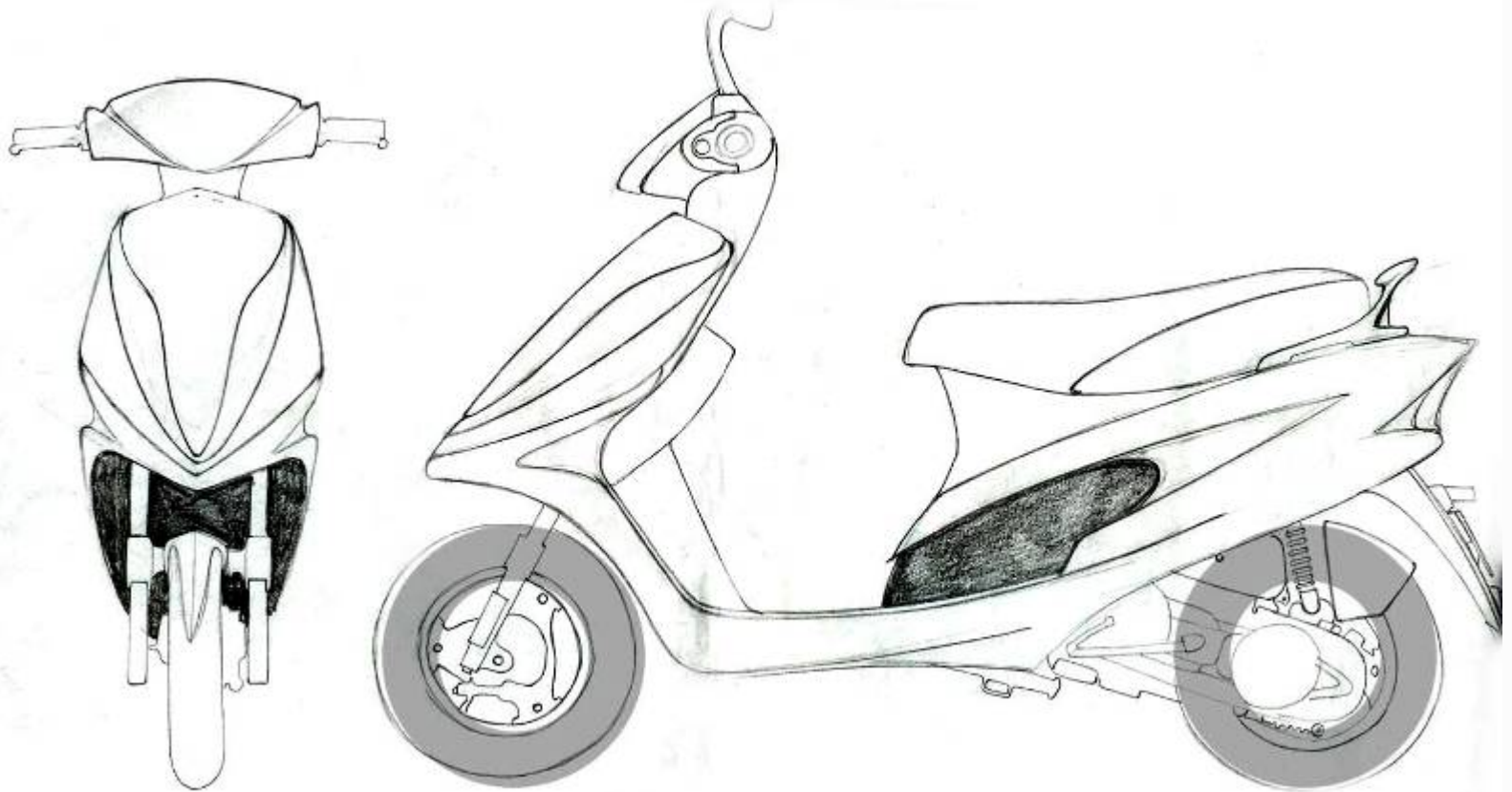
- Sharp head styling gives the head lamp and the front panel a very mean look
- The form is more aggressive than sporty because of the edge details
- The stance is again very dynamic
- Indicator lights have been placed away from the side edges
- In option-2 the rear half has been improved to attain a better balance

### Drawbacks

- The rear half is heavy and makes the form look unstable
- Too many surface transitions at the rear half makes the form incoherent and disturbing to the visual flow of lines
- The front panel is too curvaceous and makes the form heavy



## CONCEPT 1/03 - Sporty



## CONCEPT 1/03 - Sporty



## CONCEPT 1/03 - Sporty

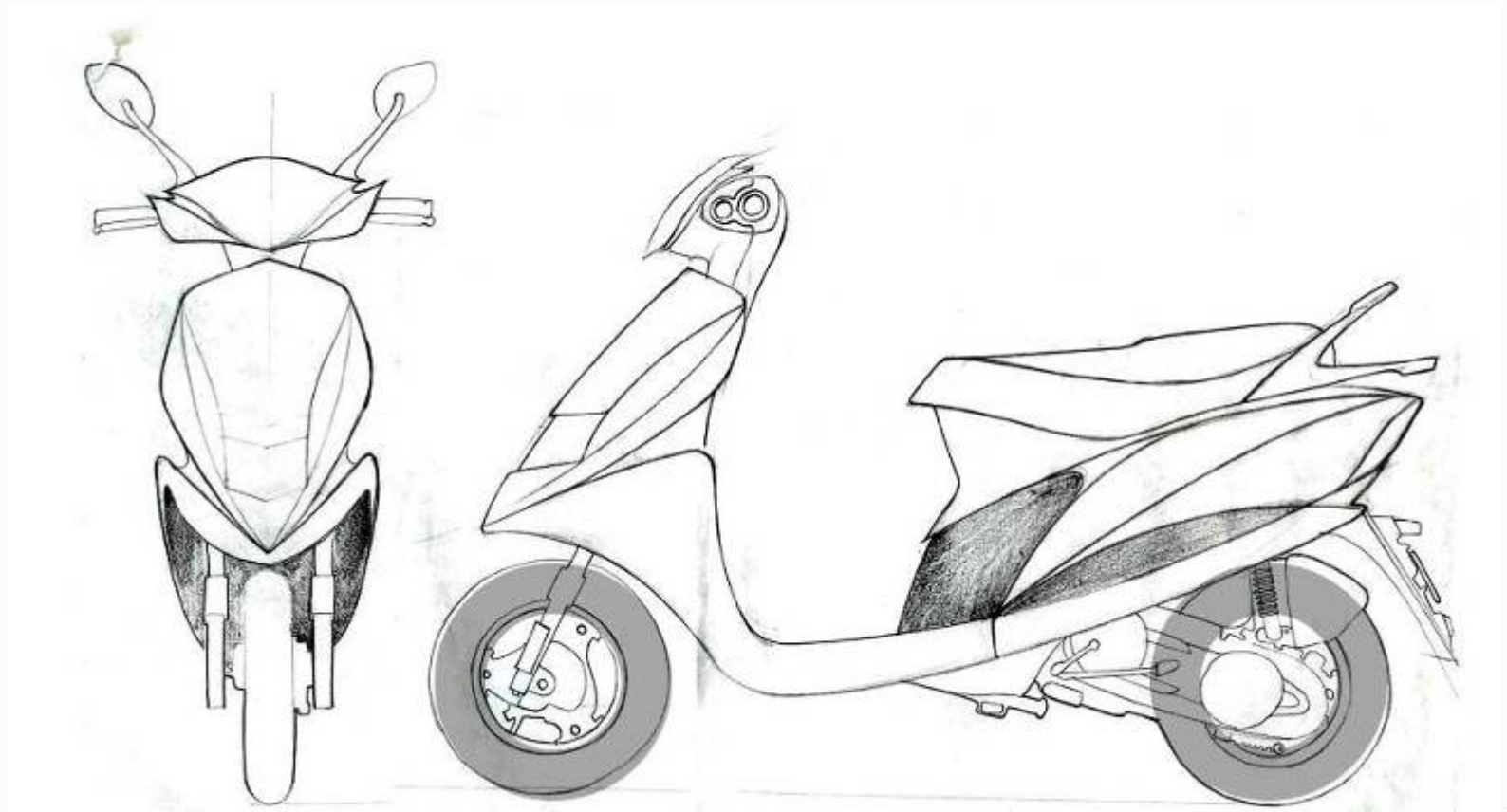
- The front panels have surface transitions that dictates a sporty overtone to satiate the needs of the younger generation
- The chest of the front panel has a subtle bulge at the centre and the styling lines all over the front panel is coherent
- The surface transition is not loud since there is no surface break up or colour variation
- The rear mass is balanced and the muscular pinch at the rear gives a dynamic attitude

### Drawbacks

- The indicator lights need to be designed so that the form lines don't alter
- The head lights on the handle bar restricts the curvature and the form may look more close to its theme if the head lamp is brought down to the front panel



## CONCEPT 1/04 - Sporty



## CONCEPT 1/04 - Sporty



Option 01



Option 02



## CONCEPT 1/04 - Sporty

- Razor sharp edge styling gives the form the expression of a dynamic creature
- A depression in the front panel is incorporated for the name board
- Indicator lights are thin and shaped to add to the dynamic nature of vehicle

### Drawbacks

- The rear cowl has very good surface sweep but the rear is looking very huge because of additional grey area
- The idea of name board is far fetched for reality since the regulation the usage of bent nameboards and also the name boards would no longer manufactured in individual companies



## FINAL CONCEPT - SPORTY



Refresh Design of Scooty Pep Plus



## CONCEPT 2/01 - Elegant



Refresh Design of Scooty Pep Plus



## CONCEPT 2/01 - Elegant



Option 01



Option 02



## CONCEPT 2/01 - Elegant

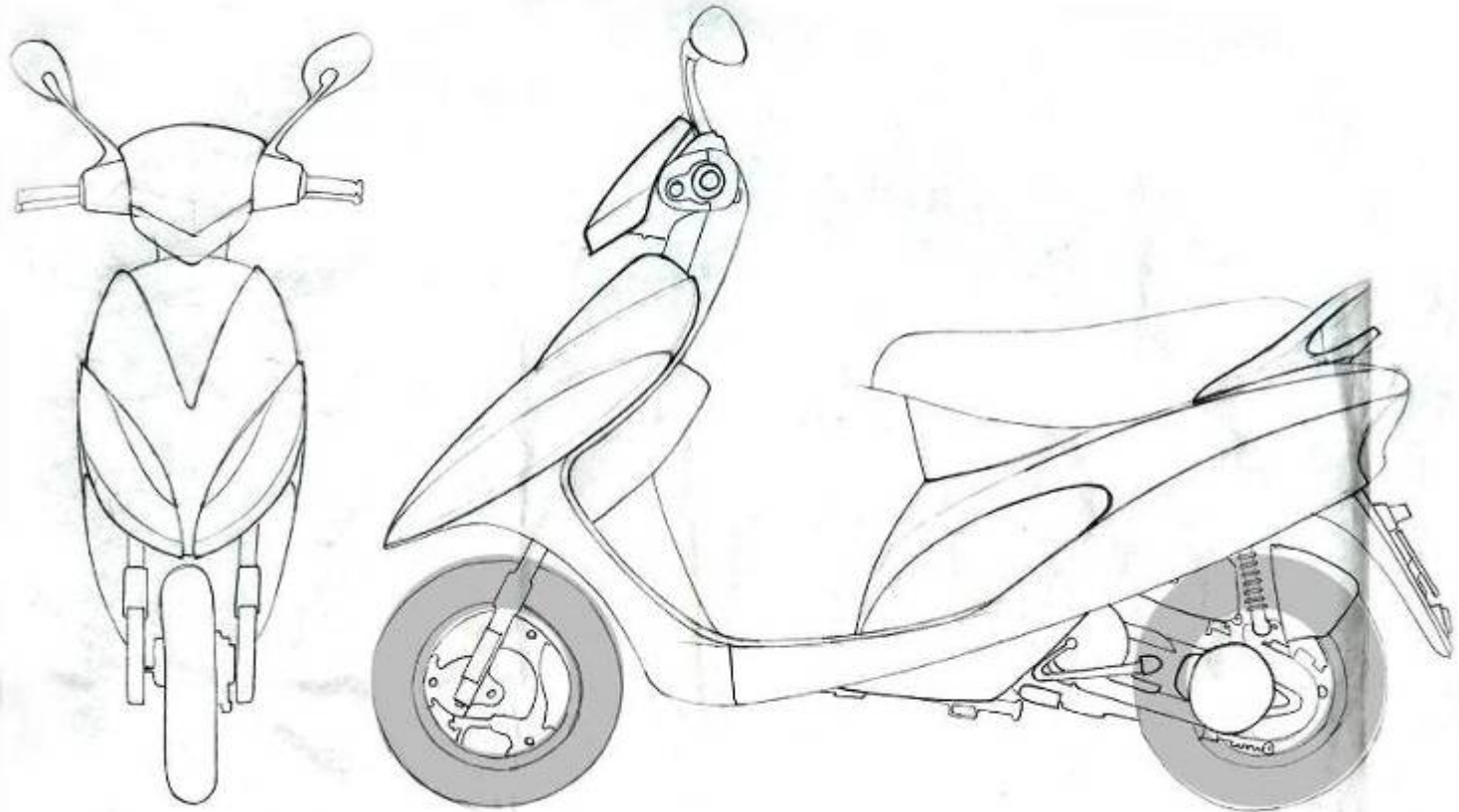
- Much more pure interpretation of refresh design since the idea stays very close to the existing identity of Scooty Pep+
- In option -2 , soft nature of Scooty has been replaced with crisp lines to look modern
- Minimum surface transition and flushed surface joints have been done to give it elegance
- The rear looks very massive for the front. But graphics can be placed to reduce this surface area
- The head lamp has an assertive stance and follows the language of the form

### Drawbacks

- The head lamp lacks the power of character



## CONCEPT 2/02 - Elegant



## CONCEPT 2/02 - Elegant



## CONCEPT 2/02 - Elegant

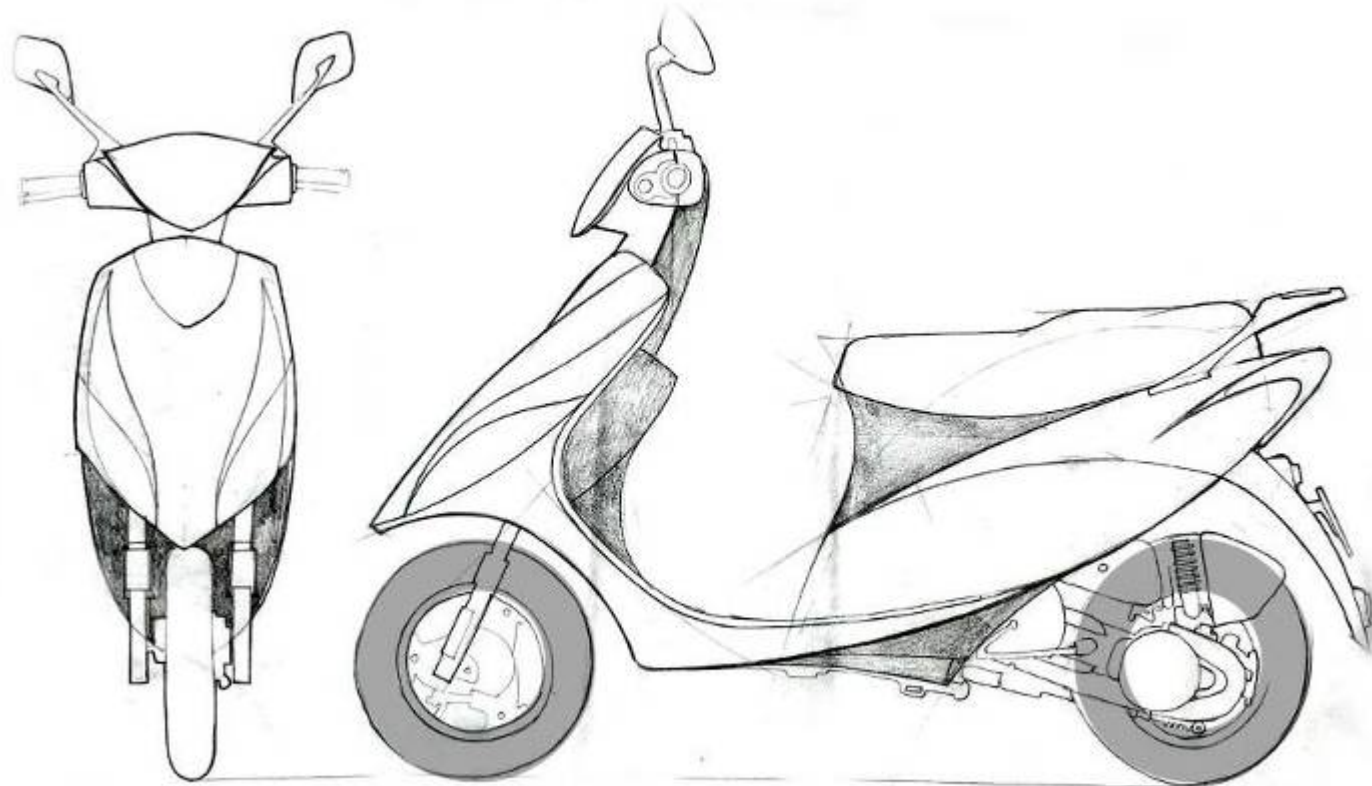
- The front panel has been resolved to look feminine and elegant
- The indicator lights are so positioned that they are seen as a 3D bulge on the front panel instead of flushing with the panel. But the flow line extends to form the body panel and hence looks pristine
- Simple curves to get a streamlines surface
- The mass of the rear half has been ideally reduced
- Provision for pillion rider leg space incorporated with the form has been thought of

### Drawbacks

- The seat appears to be misfit for the cowl. It is too bulky and soft
- The tail lamp needs to be designed to suit the overall expression



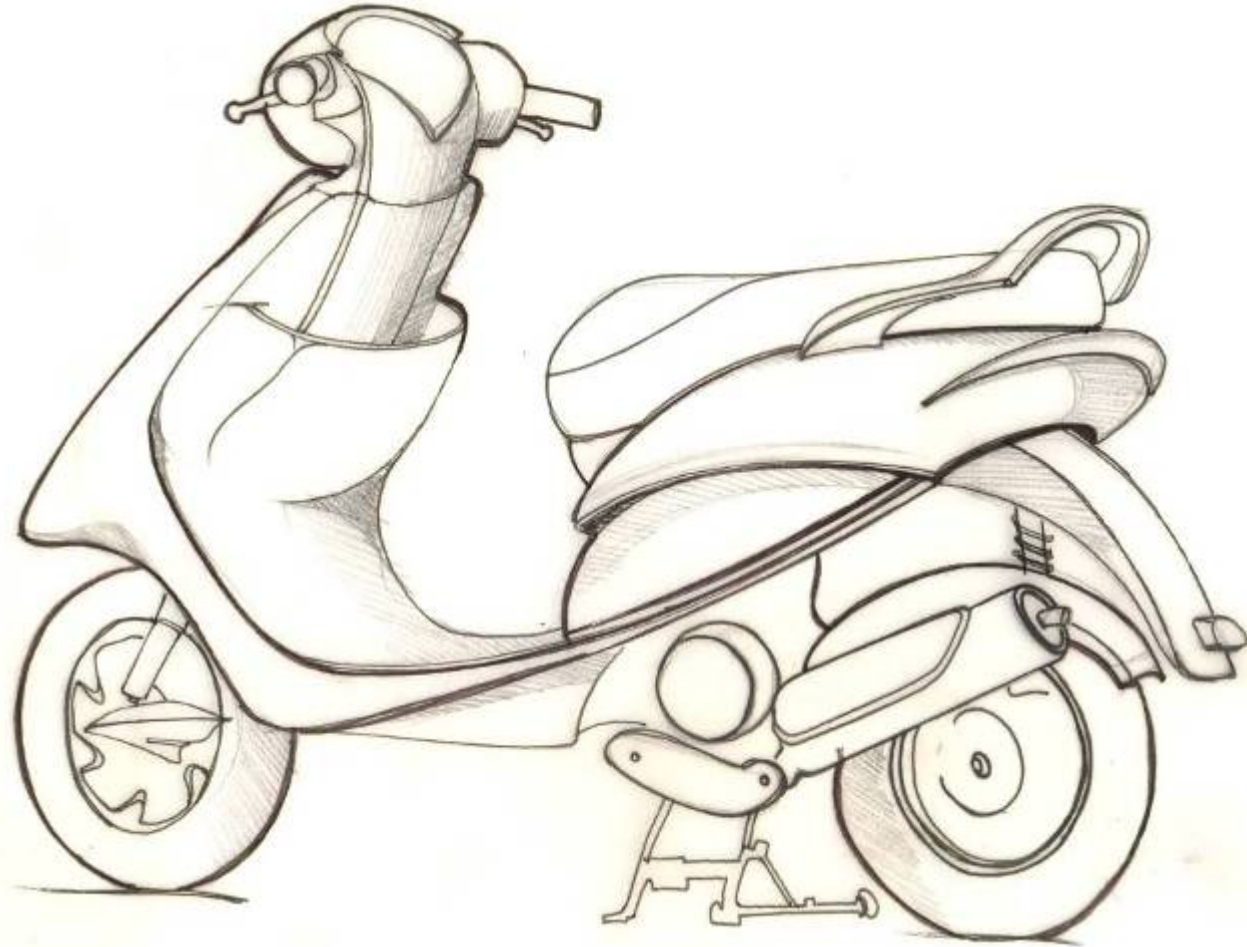
## CONCEPT 2/03 - Elegant



Refresh Design of Scooty Pep Plus



## CONCEPT 2/03 - Elegant



## CONCEPT 2/03 - Elegant

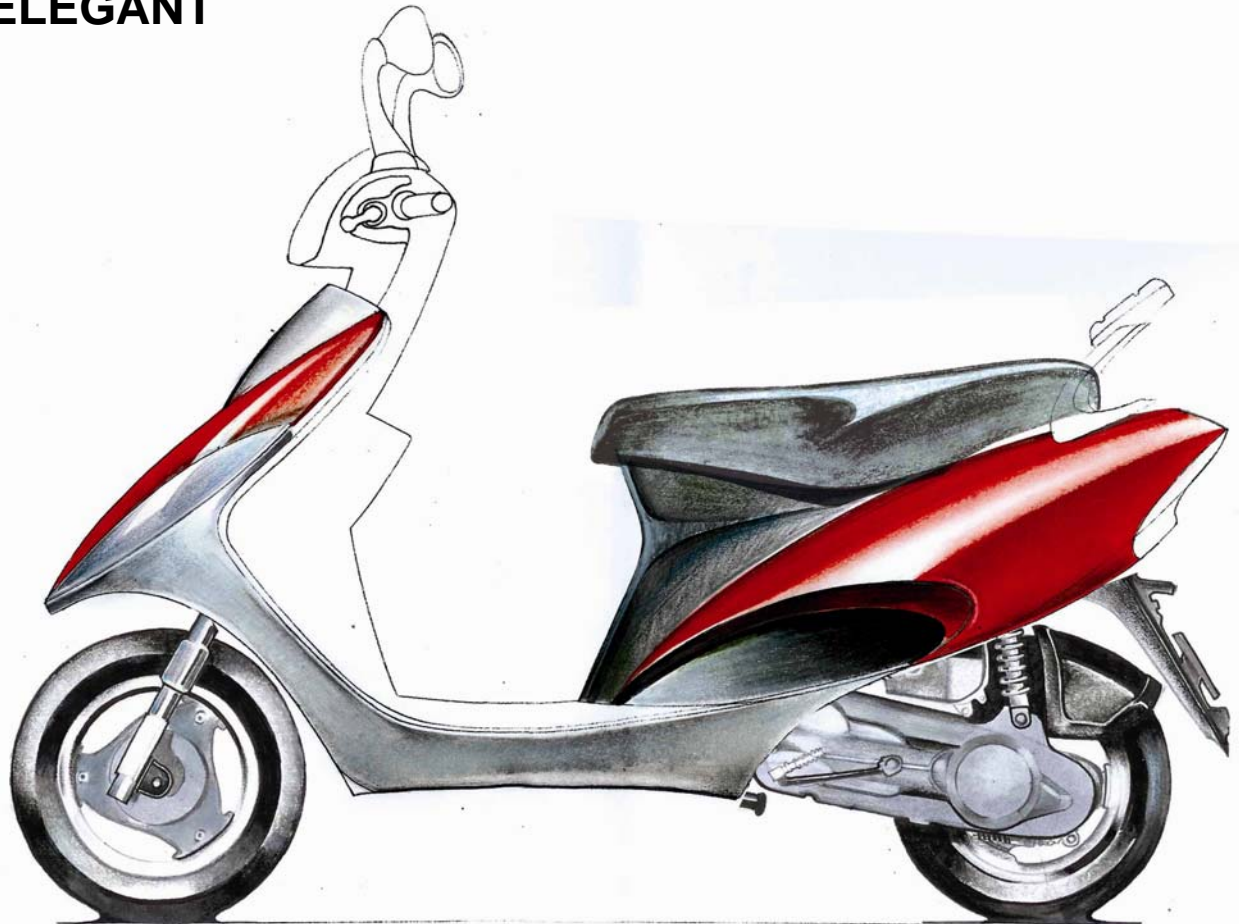
- Simple flowy line depicts the streamline nature of the body
- The indicator lights have a feminine expression and this has been enhanced by the embossed feature that extends it to the top
- The rear half has been cut in the mass by a single curve midway to wrap around the entire rear mass
- The nature of the curve has been extended to the mudguard, the section of which almost follows a circular one. This helps incorporate pillion rider leg space into the form

### Drawbacks

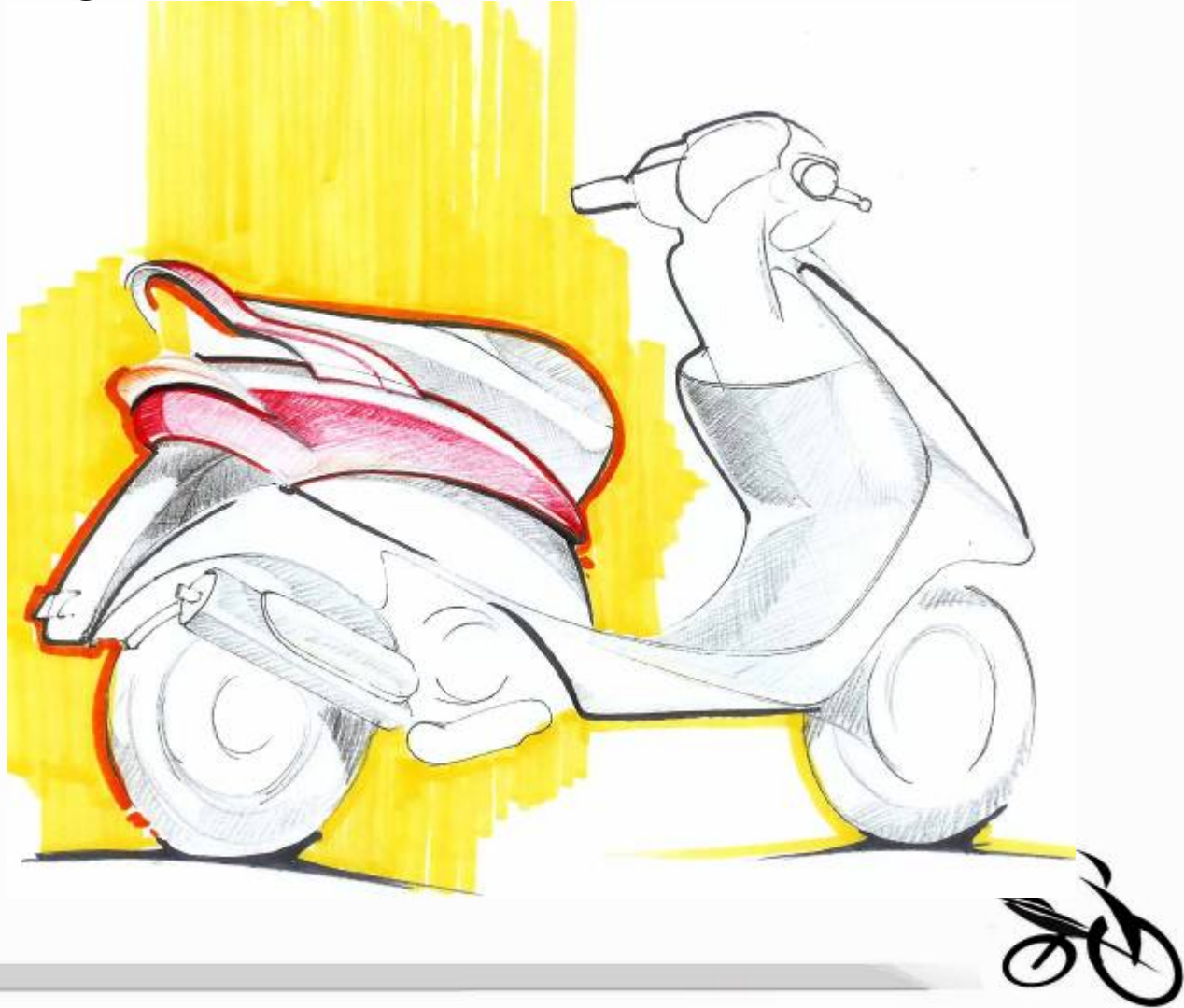
- The volume of the rear half due to absolute midway cut may look bulkier in 1:1 scale model
- The head lamp needs to be redesigned to suit the expression of the entire form
- The front panel is little too wide and the form looks bulkier because of this



## FINAL CONCEPT - ELEGANT



## FINAL CONCEPT - ELEGANT



## 8.0 SELECTION OF ONE CONCEPT

CRITICAL APPRAISAL OF SCOOTY PEP PLUS

MARKER RENDERING

CONCEPT REFINEMENT

CLAY NODELLING AND SKETCHING

FINAL MOCK-UP

COLOUR OPTIONS



## 8.1 CRITICAL APPRAISAL OF SCOOTY PEP +

- Feminine looks with soft quality of surface which makes it very bulbous and present trend as per user expectation is towards a crisper look
- Tapered nose and the neck curvature are the characteristic features of the Scooty stance
- Colors and decals add to the trendy nature of Scooty Pep
- The width renders a quality of lightness and sleekness to the vehicle





A very characteristic **highlight** in front partly obstructed by indicator

Too many **surface transitions** causing break in visual continuity



**Rear half** appears too bulky for the front half.

The **tail lamp** is a derivative of flow lines of the rear and stands in conjunction with the grey area on the side cowl



Recessed **shoulder** gives a characteristic stance.

**Step through** is longer than most vehicles and curvaceous





Bulkiness of the **seat** is complementing the bulk of the rear half of Scooty. This enhances mass at rear.



The tapered **nose** looks inappropriate its flow line not matching with the other surface in the front panel.

Nose is so positioned that the driver hardly sees the wheel turning



Happy looking **headlamp unit**

Better detailing with the water-tight joints could have avoided the evident surface breaks

Thick supports for the mirrors impart a heavy look



## 8.2 CONCEPT SELECTION



Both the scooters have  
recessed shoulders which is characteristic stance to Scooty.  
eliminated the tapered nose.  
bulky seat.

The dynamic features give a sleek and sharp quality  
Maintains the intrinsic qualities with a crisper look.  
There is scope for reducing bulk of seat

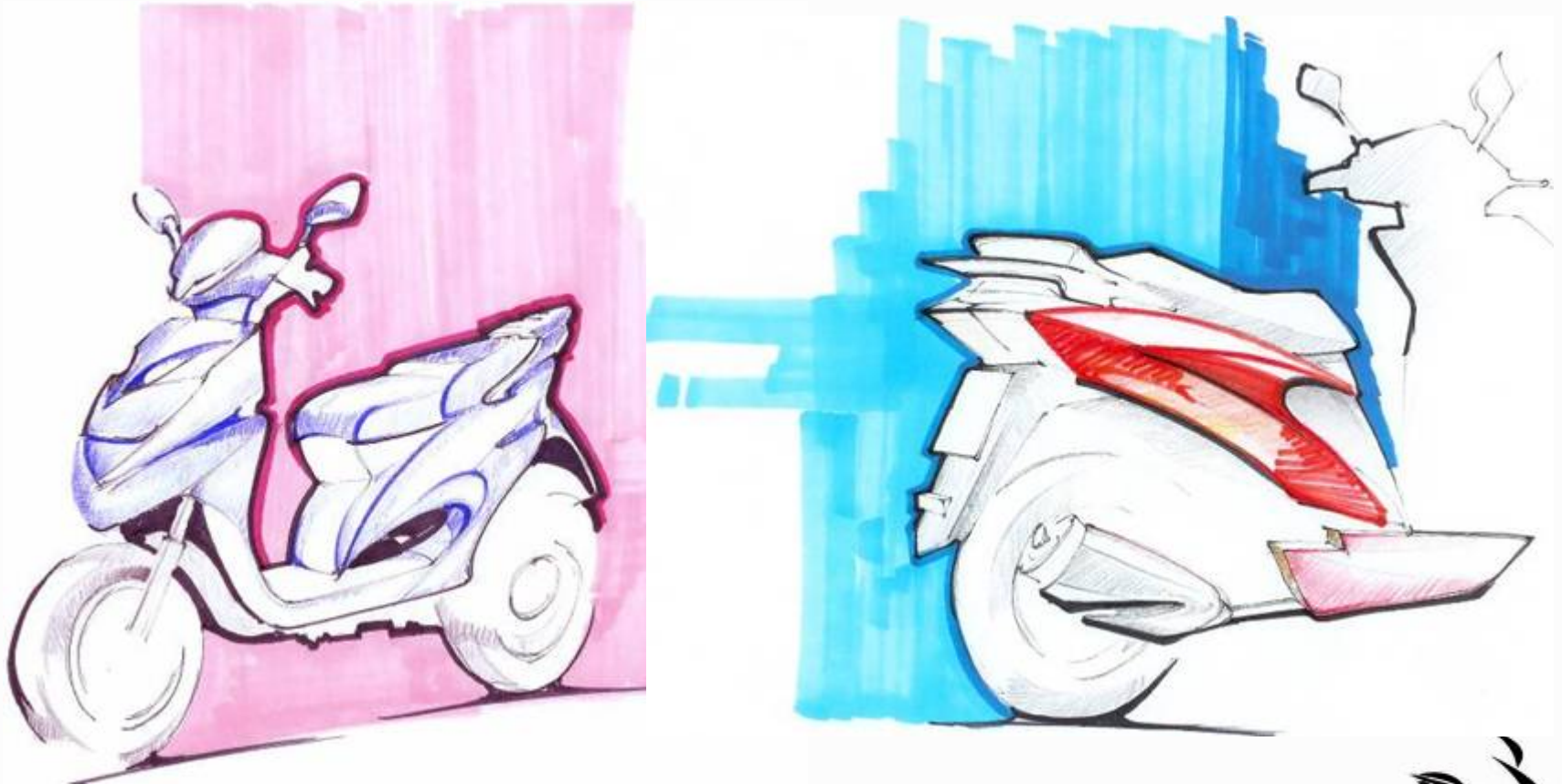
The rear looks bulkier than Scooty  
Haven't evolved enough for a refresh since lines follow  
the same soft nature where the young generation is  
looking for something that is sharp and crisp.  
Seat bulk if reduced will not look appropriate

**Concept 01 was selected and was taken ahead for further refinement.**



## 8.3 MARKER RENDERING

Many initial conceptual sketches were coloured using markers, colour pencils and dry pastels.



## 8.3 MARKER RENDERING

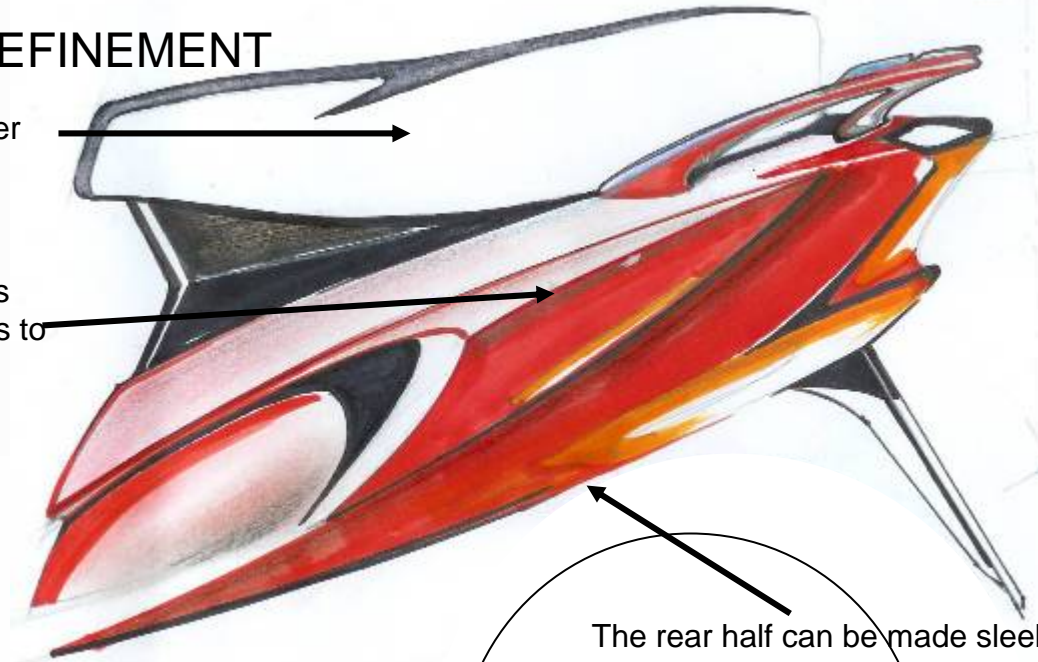
Many initial conceptual sketches were coloured using markers, colour pencils and dry pastels.



## 8.4 CONCEPT REFINEMENT

Seat can also be improvised further to look sleek

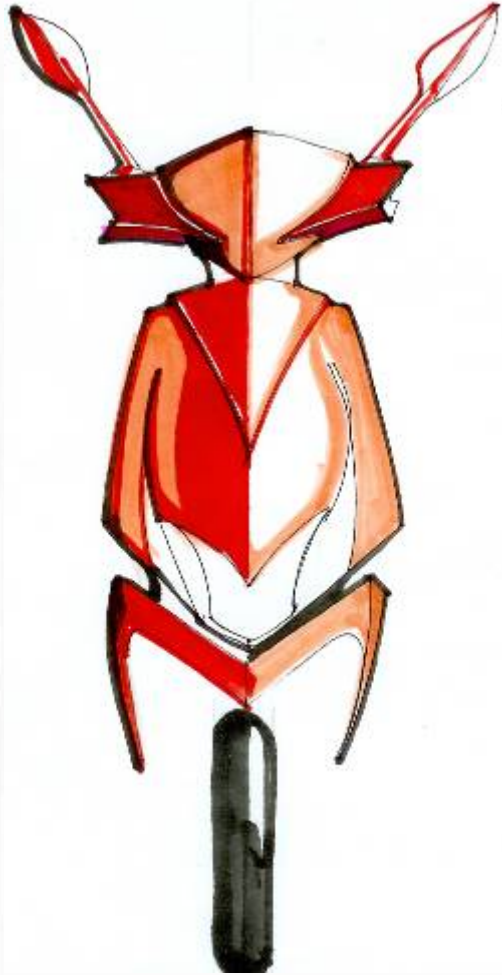
The muscle on the sides increases the width of the rear half which has to be reduced for sleeker look



The rear half can be made sleeker by removing lower region of rear panel. This also gives a sporty stance



## 8.4 CONCEPT REFINEMENT – sketching

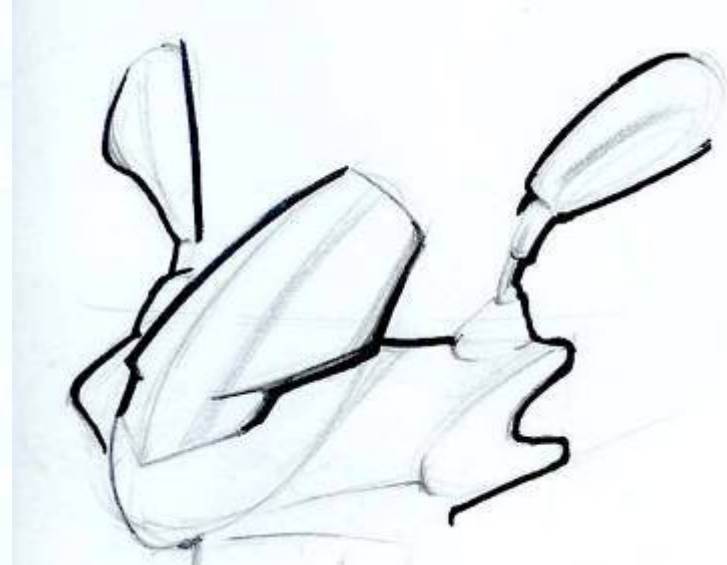
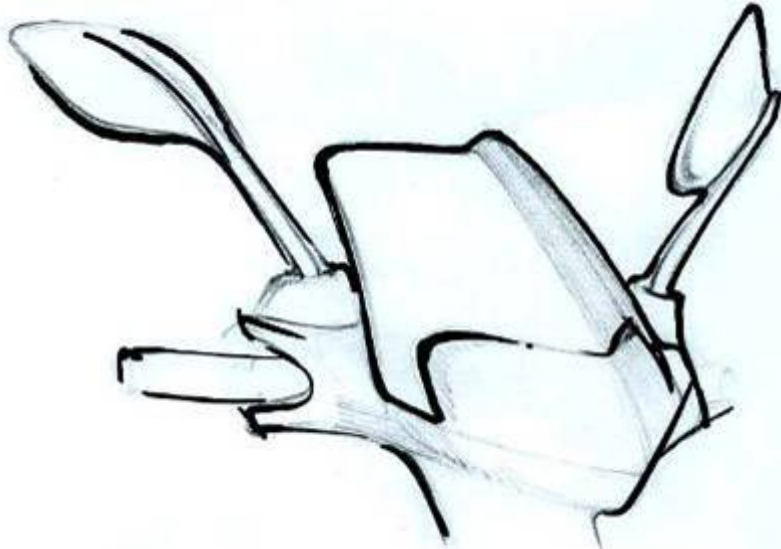
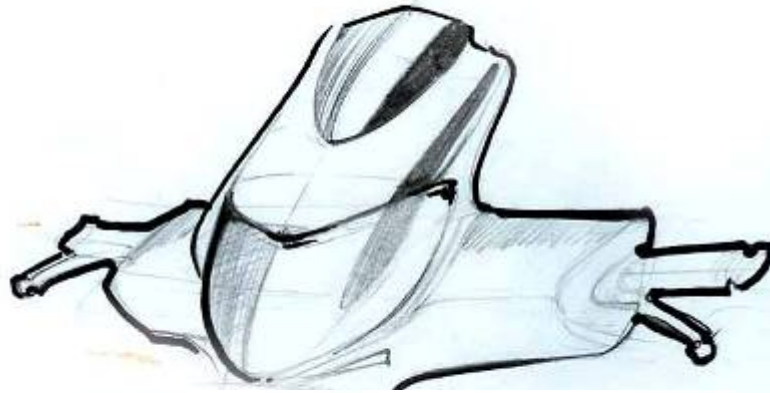


## 8.4 CONCEPT REFINEMENT – sketching



8.4

## CONCEPT REFINEMENT – sketching



## 8.5

## CONCEPT REFINEMENT

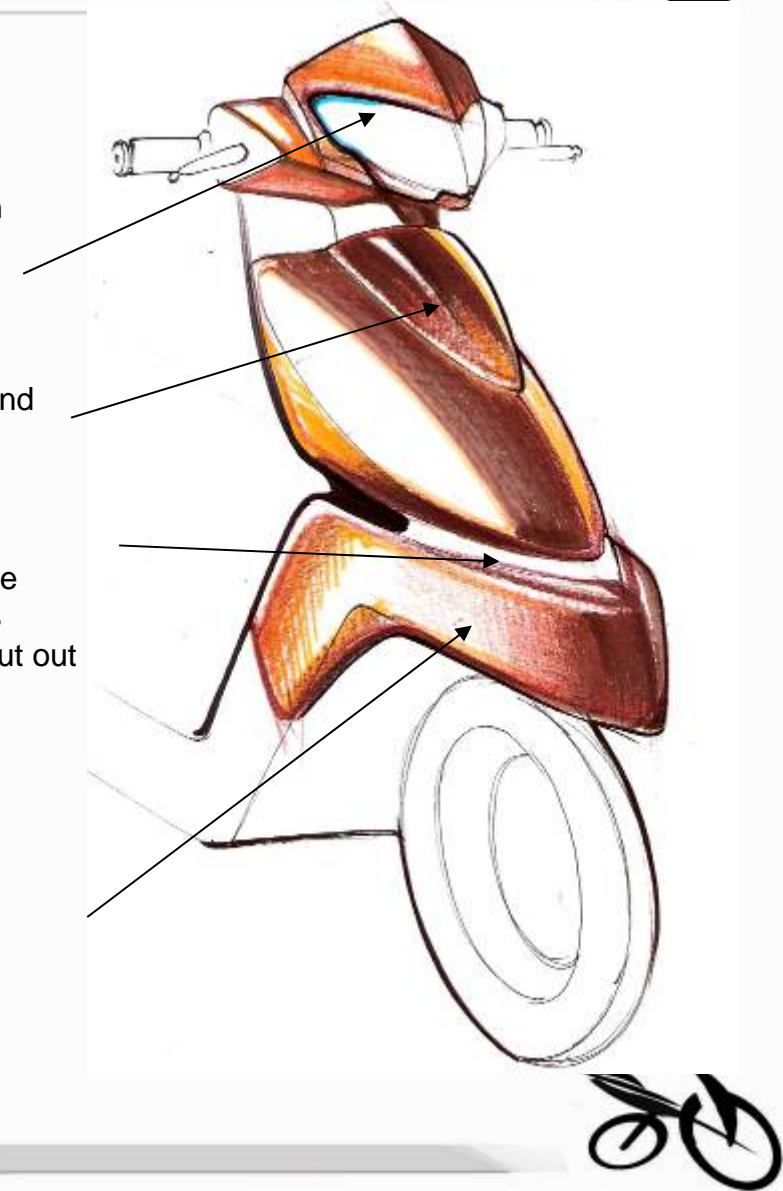
## Clay modelling and sketching

The lens area has been carved to an assertive in the face attitude. The chin delivers a modern look.

Surface curvature is too much and makes the vehicle look bulky

The two surface curvatures on the same panel was exploited for a cut out feature.

Attempt to retain the nose of Scooty but too many surface transition clutters the front panel



## 8.5

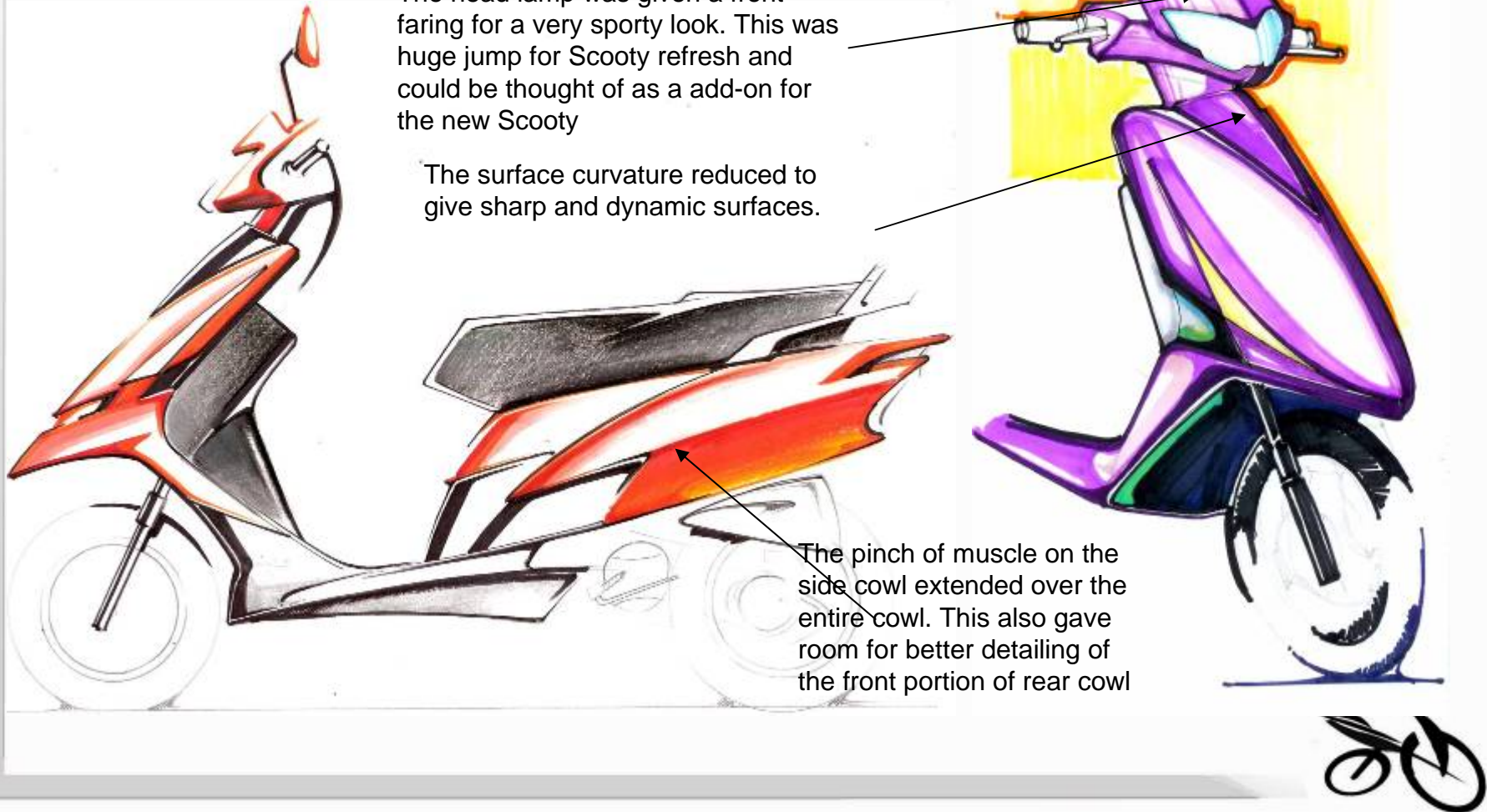
## CONCEPT REFINEMENT

Clay modelling and sketching

The head lamp was given a front faring for a very sporty look. This was huge jump for Scooty refresh and could be thought of as a add-on for the new Scooty

The surface curvature reduced to give sharp and dynamic surfaces.

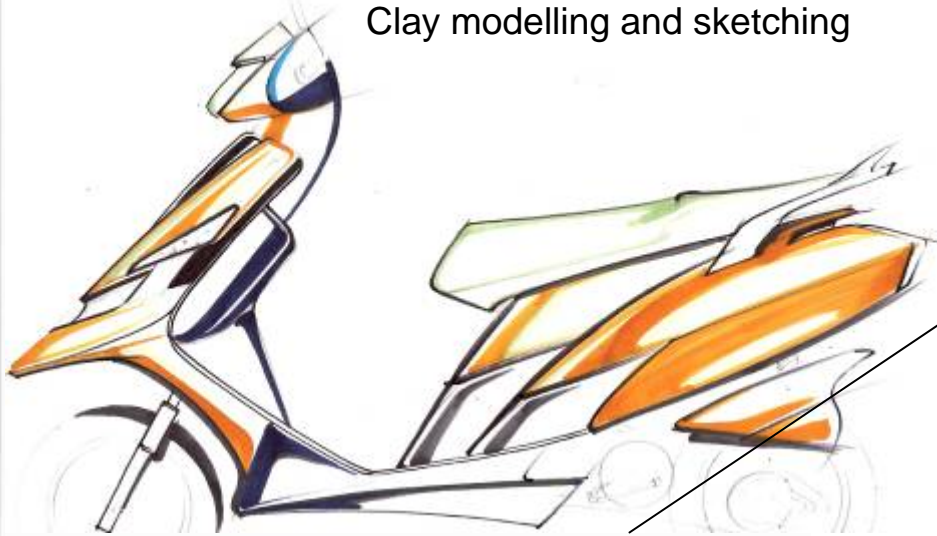
The pinch of muscle on the side cowl extended over the entire cowl. This also gave room for better detailing of the front portion of rear cowl



## 8.5

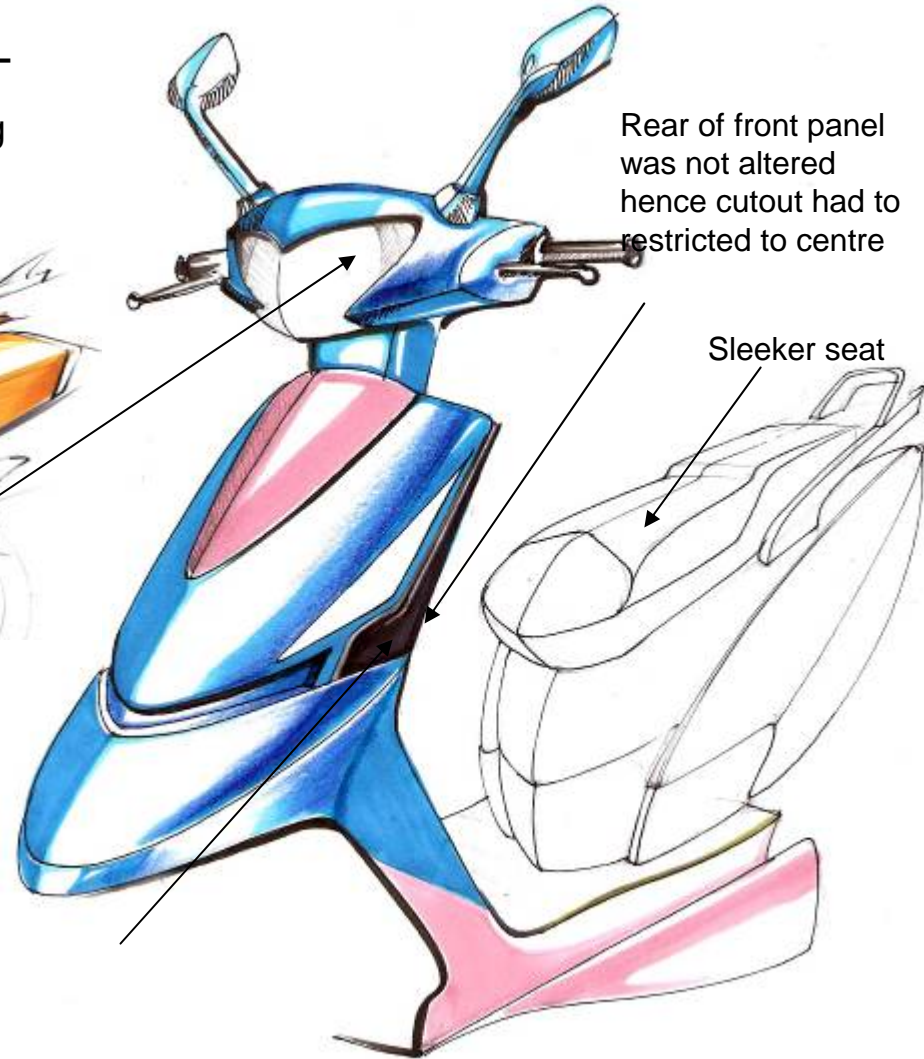
## CONCEPT REFINEMENT

Clay modelling and sketching



The feature lines on the face was made softer and proportionally the surface were given a slight curvature But this increased the visual mass of the form tremendously.

A scratch guard was incorporated on the side to visually reduce the width of front panel and the cutout was brought to the central portion.



Rear of front panel was not altered hence cutout had to be restricted to centre

Sleeker seat



## 8.5

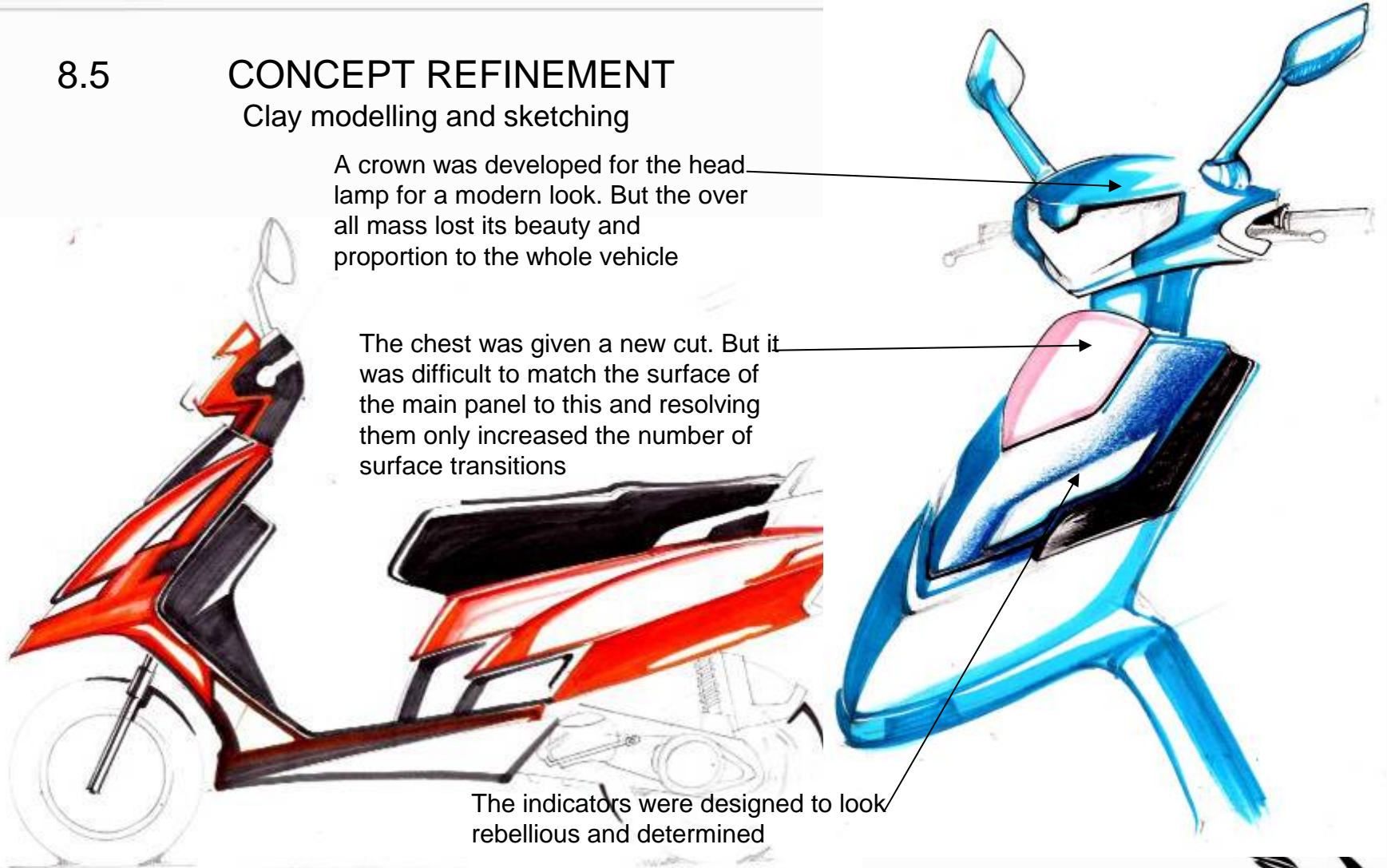
## CONCEPT REFINEMENT

## Clay modelling and sketching

A crown was developed for the head lamp for a modern look. But the overall mass lost its beauty and proportion to the whole vehicle

The chest was given a new cut. But it was difficult to match the surface of the main panel to this and resolving them only increased the number of surface transitions

The indicators were designed to look rebellious and determined



## 8.5

## CONCEPT REFINEMENT

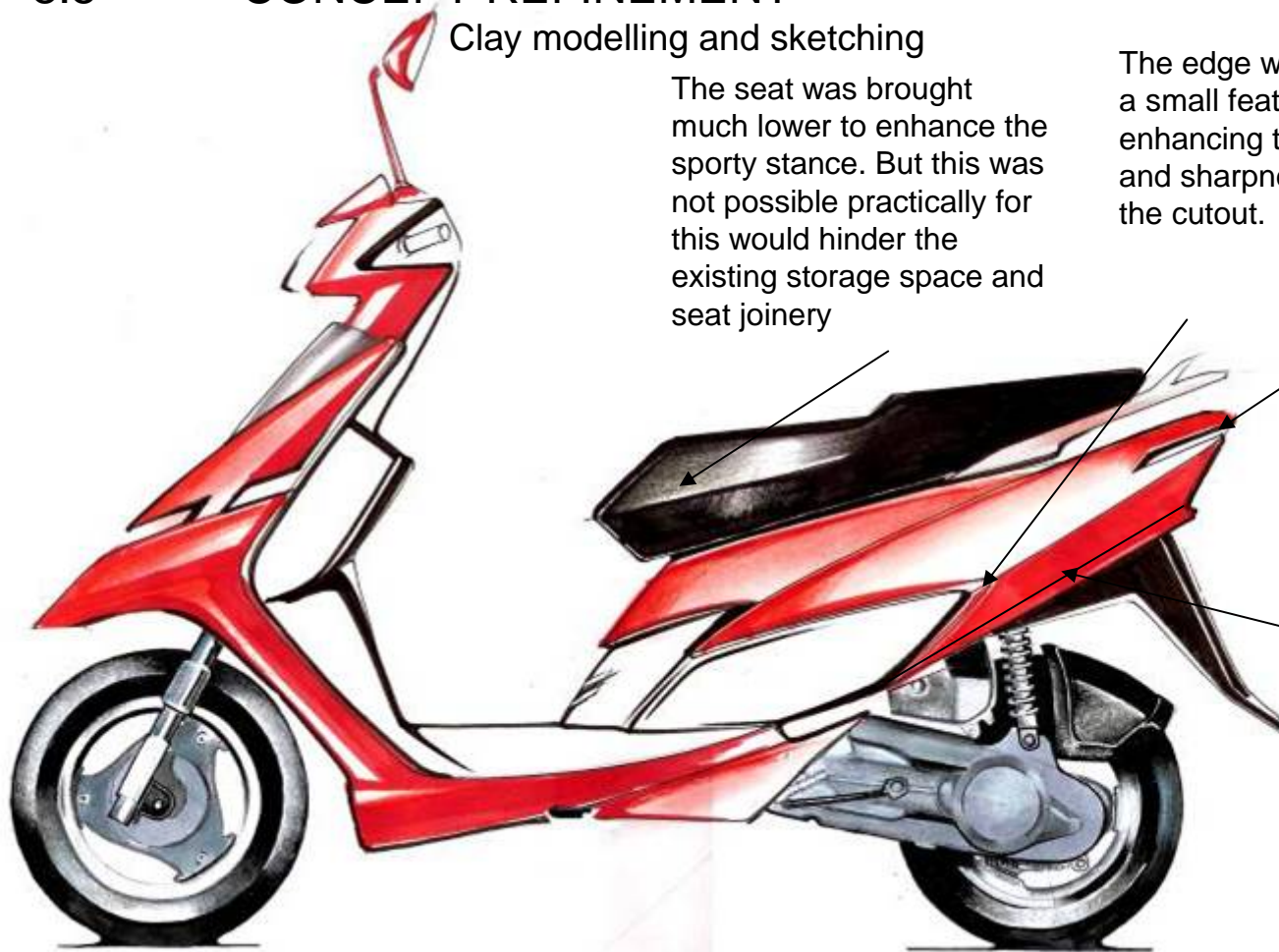
## Clay modelling and sketching

The seat was brought much lower to enhance the sporty stance. But this was not possible practically for this would hinder the existing storage space and seat joinery

The edge was given a small feature for enhancing the edge and sharpness of the cutout.

A cut out was given in the rear to complement the cutout in the front. But this looked very ornamental

The rear half was made to look further sleek by drawing the panel in by means of a sharp depression along the lower edge.



## 8.5 CONCEPT REFINEMENT

Clay modelling and sketching

The characteristic neck curvature of Scooty gives the Scooty a 'ready to head ahead' attitude.

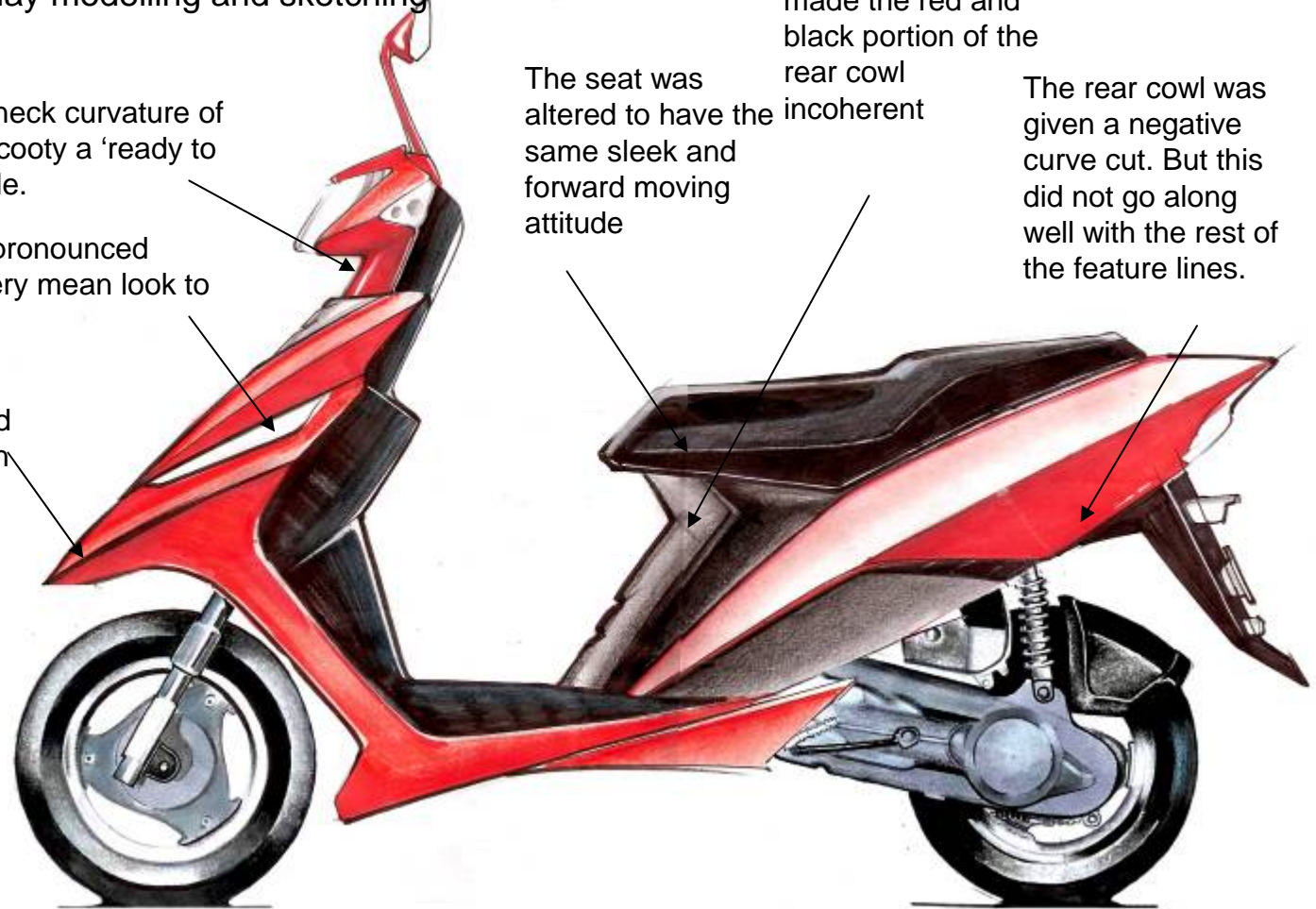
The long and well pronounced indicator gives a very mean look to the front panel

The nose is pointed but the extension in Scooty has been done away with

The seat was altered to have the same sleek and forward moving attitude

The absence of a second cut in front made the red and black portion of the rear cowl incoherent

The rear cowl was given a negative curve cut. But this did not go along well with the rest of the feature lines.



## 8.5 CONCEPT REFINEMENT

Clay modelling and sketching



Different options for indicators were tried for the front panel. And the second option was taken ahead since this gave an unhindered highlight

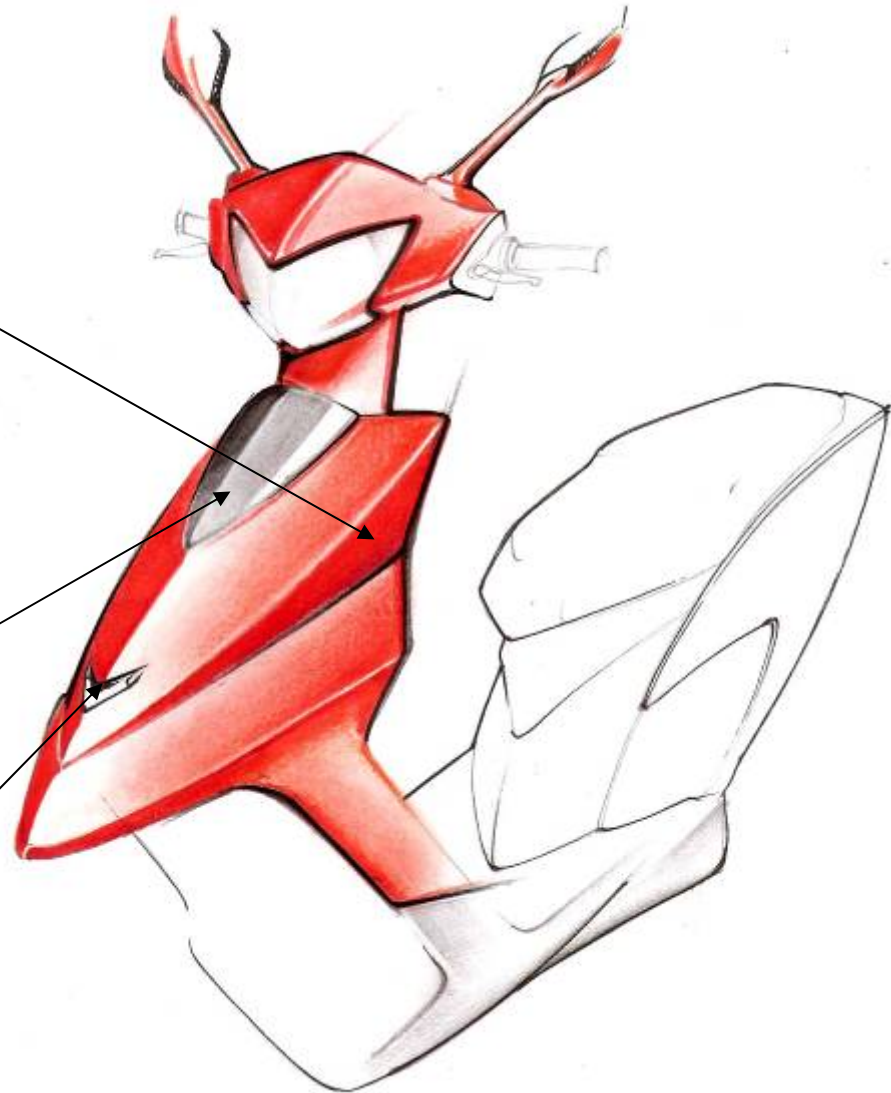


## 8.6 FINAL MODEL

The scratch guard was removed and the area was drawn in, in the form of a sharp surface whose highlight also held true to the original highlight of Scooty

The first chest design was selected and brought back to design as it complemented well with all the other surfaces.

The cut out was made smaller and followed the overall language of the front panel



## 8.6 FINAL MODEL

The long and well pronounced indicator gives a very mean look to the front panel

Unobstructed high light

The nose is pointed but the extension in Scooty has been done away with

Surface transition is smooth and there are no features

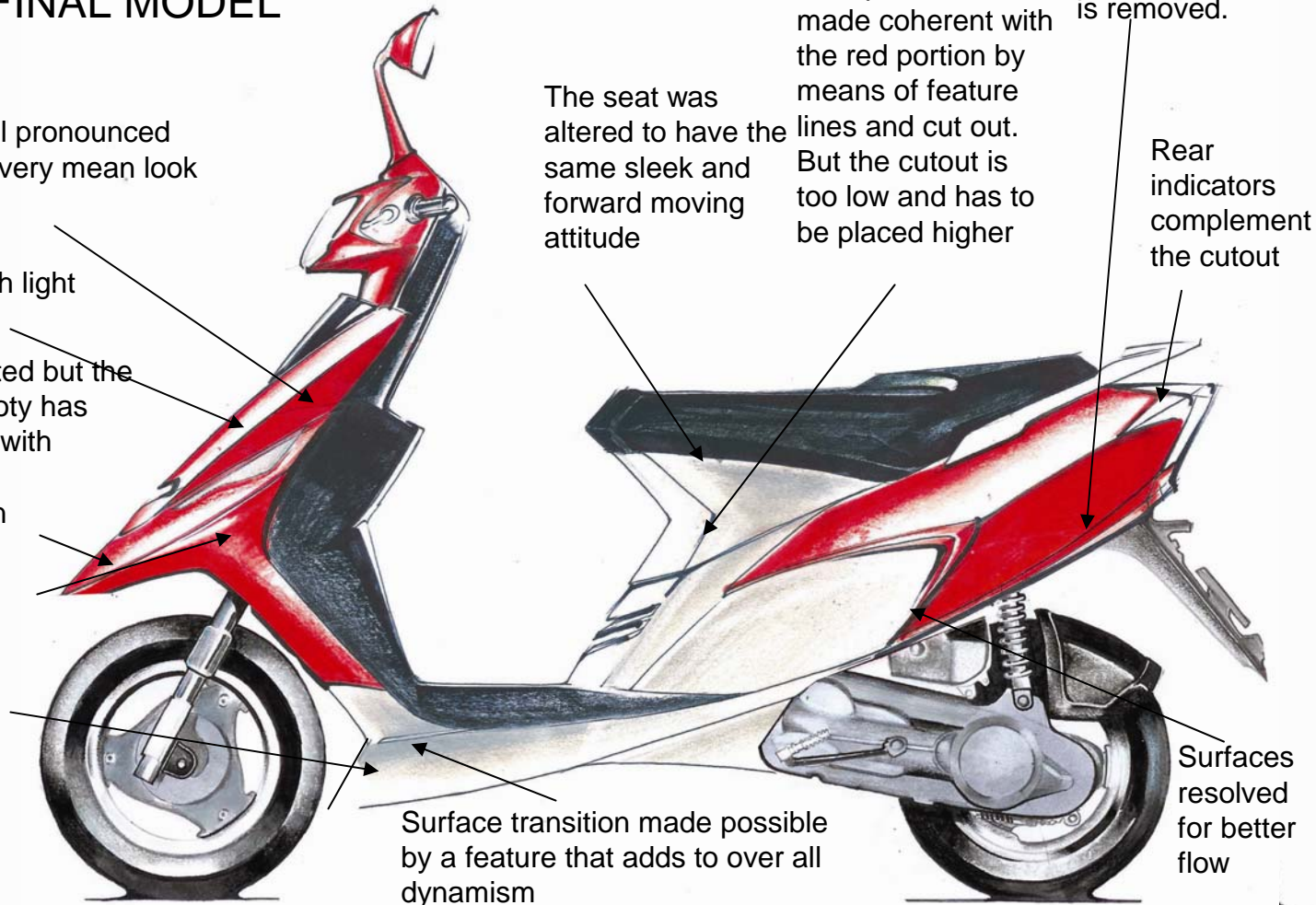
The wheel well is designed for a dynamic attitude which adds to the rest of the body language

The seat was altered to have the same sleek and forward moving attitude

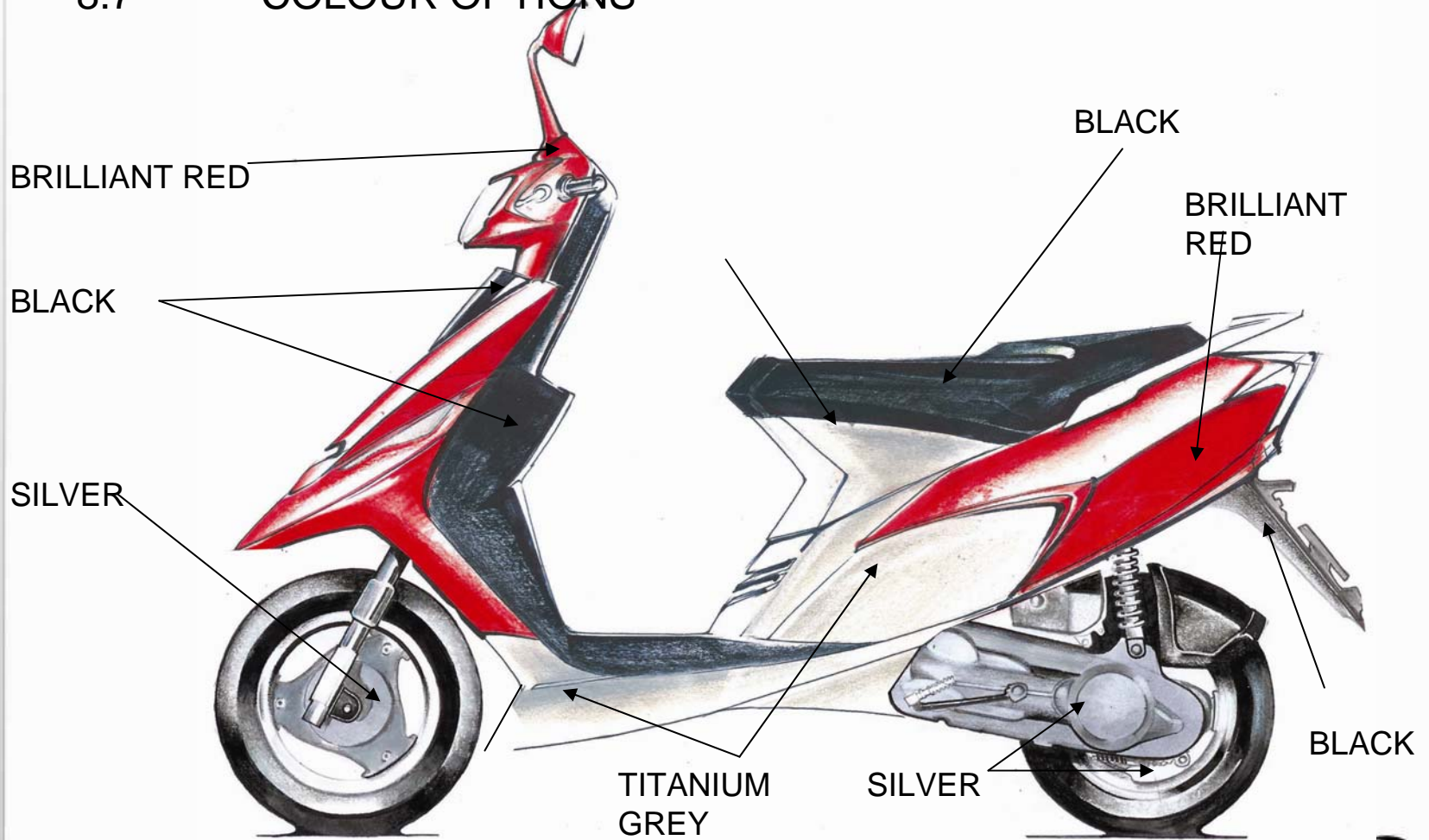
The front blackportion is made coherent with the red portion by means of feature lines and cut out. But the cutout is too low and has to be placed higher

The negative curve is removed.

Rear indicators complement the cutout



# 8.7 COLOUR OPTIONS



Refresh Design of Scooty Pep Plus



### 8.7 COLOUR OPTIONS



Refresh Design of Scooty Pep Plus

## Annexure

Owing to project scope, design issues regarding user amenities and other functional aspects have not been addressed. But an understanding of what could be done and how the project could be further developed has been undertaken. They can be listed as follows

### Storage space

**Ample storage space** beneath seat. (don't keep both books and helmet inside)

- Few users are more comfortable carrying their books here, they lock their helmet to the grab handle
- Many are accustomed to carrying their bag packs while riding. These users have permanently placed their helmet, umbrella and raincoat here

**Laptop carriage:** Though the young professionals below 25 aren't carrying laptops on their Scooty it is highly likely to see the trend in the very near future so storage can be planned for this.

**Collapsible front storage:** The front storage is convenient and useful. But it is left open and can only be used for temporary storage.

**Cosmetic storage:** Users have the habit of grooming themselves every time they alight the vehicle. Mirrors that can be adjusted to selected positions and a easy to reach storage for their everyday cosmetics



# Annexure

## Central stand

In most vehicles it is quite cumbersome to put the central stand. But TVS has a patented central stand which has reduced the trouble very efficient

Many users use the seat to do this. But this is not a healthy habit and the grab handle can be designed to have better semantics.

## Floor board

To touch their feet on the ground during traffic halt is re assuring and supportive

ladies have the habit of placing their legs very close to the seat which is not a recommended driving posture.

The floor board is curved which is not suitable and the sides have a very slight curve.

## Customisation

Should be given an option to customize the vehicles to suit their personality.

Seat upholstery, Graphics



## Annexure

### Smart vehicle

Traffic becomes very mundane and the users have the habit of talking of their vehicle on their daily chores and mentally use the time to organize the day.

This habit can be nurtured to develop an efficient organizing system which the vehicle can save using a voice recorder to retrieve when required for future reference .

There smart i-pod which can play tune from their favorite music list and the head phone (single ear) can be of blue tooth technology. Even switch to the radio station of your choice, the timings for which could be pre recorded so that you don't miss your daily news or any other favourite show.

### GPS Navigator

Incase lost for direction they end up having to ask fellow riders on road or auto rickshaw drivers for direction. Many a times on lonely roads if fellow riders get a hint that the user is not sure of her path they tend to follow them.

This can be avoided if the Scooty has to it attached a GPS navigator which ca guide you easily through unfamiliar roads



# Annexure

## Pillion Rider

The Users do not usually have very small kids for co-riders. Their pillion riders are usually their young sisters or cousins who are old enough to perch on to them and sit behind them.

They don't have a suitable leg rest.

Even the leg rest of the adult pillion riders has not been designed for comfort.

## Accessory- Frame

Most users tend to get a tubular frame around the Scooty to prevent the vehicle from getting damaged on road. This looks very bad and the vehicle loses its visual quality on road. But this can be avoided using efficient scratch pads.



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