

Design of Bike for Youth >>

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India is one of the largest two wheeler markets in the world.

Overcrowded public transport, Traffic congestions, rising fuel prices.

Makes bikes popular mode of public transport

India's major share of population belongs to the age group 20 and 30.

This segment of buyers are the major potential buyers of the Bikes.

Have power to influence others towards a particular product.

Companies trying to impress youngsters by launching performance bikes.

Bikes moving up in the power band with improved styling features in accordance with international styling trends.



The design process involved

Understanding Indian youth
Their aspirations and lifestyles.

Analyze Indian bike segments.

Targeting one particular segment group.

Observe various Bike styling trends.

Come up with styling options which would attract my target user

Finally

Developing a bike concept which reflects today's Indian youth.



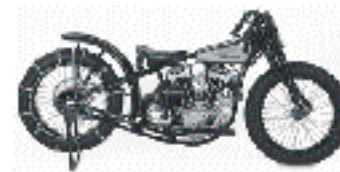
The greatest invention of a human being.



Wheels --->Bicycles



A bicycle was coupled with various engines.



Gasoline powered bike.

Posters explaining the development of Indian 2 wheeler industry.

1950 - Motorcycles debuted in this Year - "LAMBRETTA"
License Raj - during 1950's
 Then came "RAJDOOT" - Dharmendra as brand ambassador.

1972 - "BATAJ CHETAK" was launched -
 ↳ This vehicle was the representative of the INDIAN MIDDLE CLASS

1973 - YAMAHA Launched "RD-350"

1976 - Bajaj "SUPER" is launched

1980's - Indian government adopted "De-licensing policy"
 This allowed foreign players to enter Indian market through Joint Ventures.

This gave rise to major alliances like HeroHonda, KineticHonda, Tvs Suzuki

1984 - "LML + PIAGGIO" became the 2nd Largest manufacturer in India. It gave tough competition to "BATAJ"

1985-1999 - Shift in demand among people who preferred Scooters, mopeds to Bikes
 Their perception of Accident prone, non Utilitarian, heavier than a Scooter Began to Recede.

★ This changed the market dynamics and customer aspirations were recognized.

★ Launched "LML-VESPA"

★ BIKES Sales started Booming up...

BATAJ's Hamara Bajaj Campaign Created a Strong Brand equity for itself.

1998-2001 - This period from 1998-2001 is considered to be very significant in the history of 2 wheeler industry in INDIA.

1999 - Hero Honda Launched C82...
 This Bike revolutionized the 2 wheeler industry
 It had Superior Styling...
 Performance and Build Quality were top class.

★ It Created a class of its own
 This bike led to the launch of "Bajaj Pulsar"
 Soon there was a premium Bike Segment in INDIAN Bike market.

Bajaj "TV" Commercial
 ↳ Culture
 ↳ Nationality

This exercise helped me to study the history of 2-wheeler industry how it evolved what were the turning points which brought drastic market changes.

2001 - To compete with Hero Honda in the premium bike segment Bajaj launched "PULSAR"
It launched 2 variants 150cc/180cc

★ During this period we also saw end of 3 alliances
Kinetic ~~X~~ Honda, TVS ~~X~~ Suzuki, Yamaha ~~X~~ Escorts.

"HMSI" - Honda motorcycles and Scooter's India limited was set up...
Then came Revolution in 2 wheeler market with launch of Bikes like "Dio" & "ACTIVA"

YAMAHA, SUZUKI entered back in the market with entry level bikes

★ There was Strong Competition between Bajaj & Hero Honda
Both companies launched new products one after the other.

★ Premium Bike Segment was Booming up...
Demand for high Capacity powerful bikes started growing.

★ Hero Honda Launched 225cc Bike "KARIZMA"
To compete with "KARIZMA" BAJAJ Launched 200cc, 220cc variants of "PULSAR"

★ 2007 - TATA Planning to enter Performance Bike arena after making plans to buy MV AGUSTA a Italian Bike Design firm.

★ YAMAHA Launching Baby R1 → R15

★ M&M planning to enter 2 wheeler market.

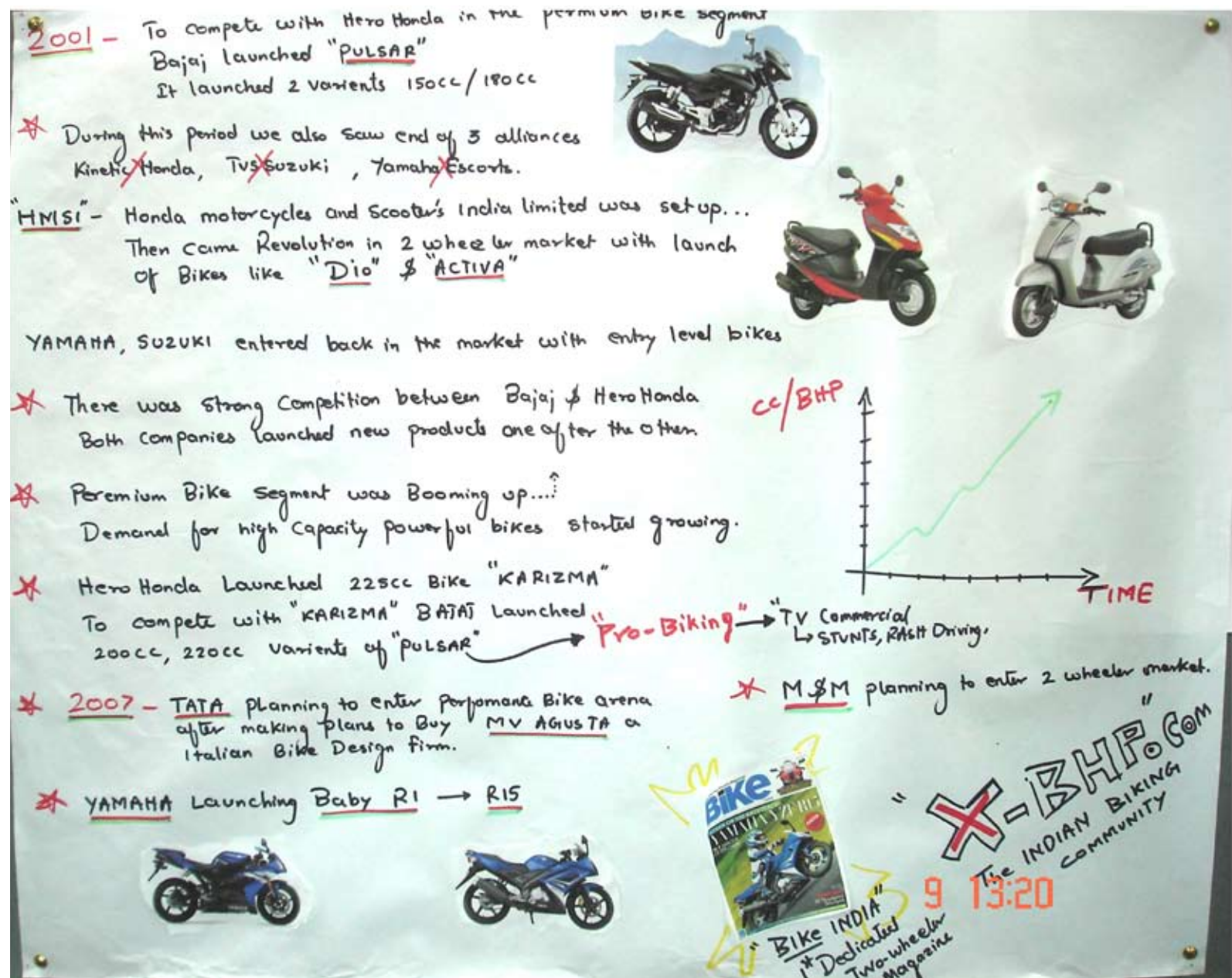
★ cc/BHP

★ Pro-Biking → TV Commercial
↳ STUNTS, RASH Driving.

★ X-BHP.COM
The INDIAN BIKING COMMUNITY

★ Bike INDIA
*Dedicated Two-wheeler Magazine

9 13:20





Royal Enfield
1955



Rajdoot
1950



BajaJ Chetak
1972



Lambretta
1950



Kinetic
1980



Major contender
Hero Honda
"CD Dawn", "Splendor"

In the current scenario Indian two wheeler market can be classified into three main segments.



Mopeds



Scooters/ Scooterettes/ Motorscooters



Motorcycles

In Indian 2-wheeler market motorcycles are divided into 3 major segments:



Economy

Hero Honda CD Dawn



Executive

Bajaj Discover



Premium

Hero Honda Hunk

These motorcycles are functional and durable.
They are just cheap and functional commuters than motorcycles with character.

These motorcycles were introduced to compete with scooter market with cheap pricing and good fuel economy.

Extensive use of graphics to improve aesthetics is found pronounced in this segment.

They cheapest in the motorcycle segment and carry only essential elements.



Hero Honda CD Dawn

Up to 100cc
High mileage/low power
90kmpl / 7bhp

Considering an executive at their professional places and personal life.
The motorcycle is designed to carry sober, understated still smart attitude.



Bajaj XCD 125 sprint

These motorcycles offer a balanced combination of good aesthetics, performance, fuel economy and durability. And hence they appeal the most to Indian consumer.

100-125cc
Decent mileage / power
70kmpl / 10bhp

Closest brothers of motorcycles in global market in terms of Styling and performance.

These are motorcycles with lot of attitude and statement of their own. They are highly detailed and expensive performers.

Performance and styling are the most important factors in design of these vehicles.

Power speed and attitude of these motorcycles make them most popular in young generation and biking enthusiasts as both carry same attitude in their life.



Yamaha FZ 16

Priced comparatively higher these motorcycles make a loud statement with varied proportions of different elements.

150-250cc
High power/low mileage
18bhp / 30kmpl



Premium segment



Executive segment



Economy segment



Premium segment sales shooting up.

Profitable segment.

Economy booming.

Rise in salary bracket

Increased spending power

Demand for better styled & customized products.

Most of the buyers of this segment belong to the age group of 20-30



With market study and user interaction it was clear that most of the youth preferred premium segment bikes .



Apart from performance and speed, these bikes had a **character** in them and **owning them was like making a statement.**

A bike **expresses its owner's lifestyle and personality.**

Buyers always **look for attractive styling, more power and better performance** than the existing motorcycles.

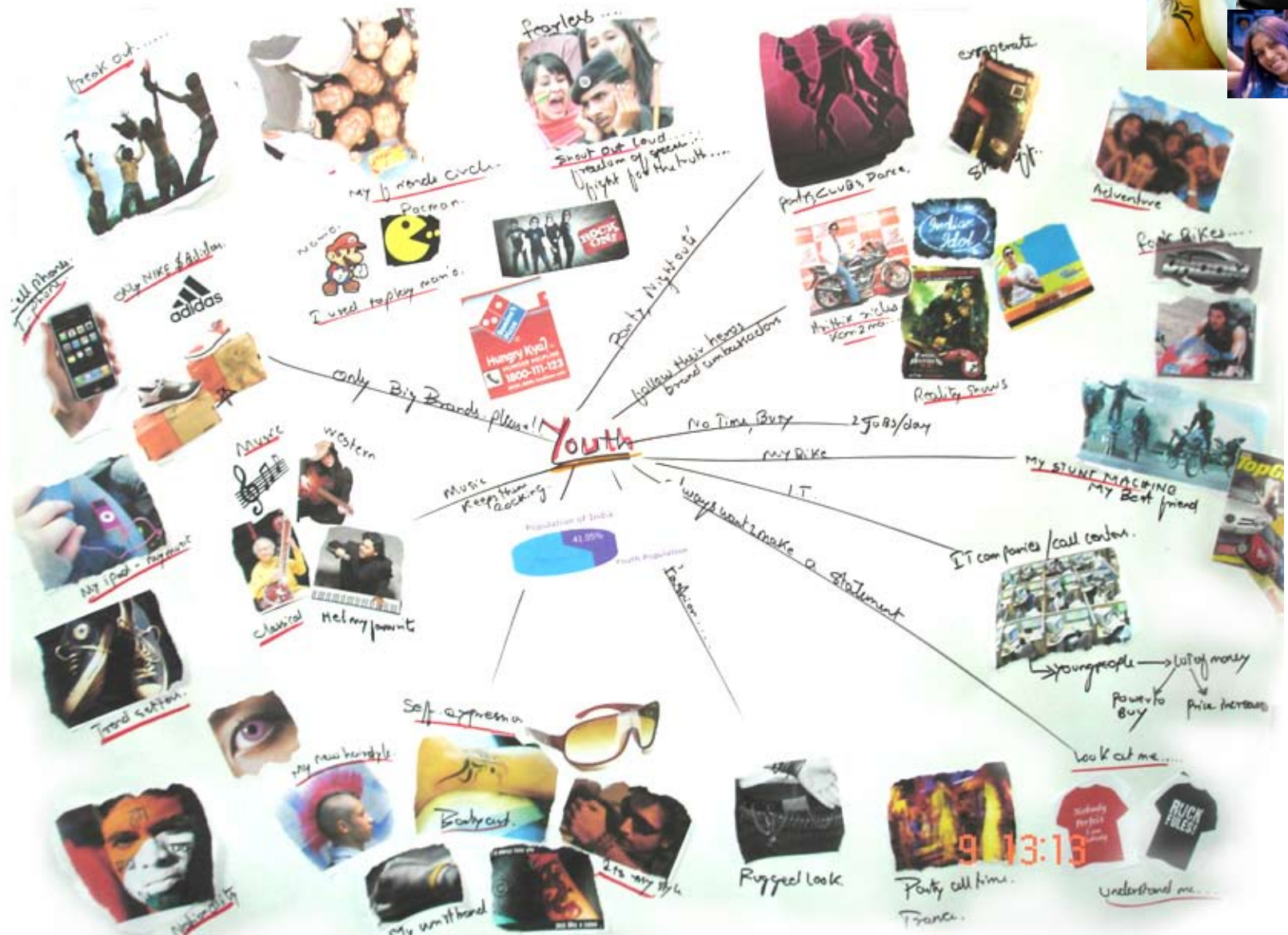
crossover vehicle designs are emerging to meet the requirements of the future.

To design a bike for youth by extracting Styling elements and features from International bikes and using them to create a crossover design, to cater to the user who always dreams to have a foreign bike.



**“Through shapes create feeling of exclusivity
Through styling create a differentiating factor”**

A small research to understand youth and their lifestyle. This involved observing various kinds of people in this age group and making a mind map.



My target user age group is **18-30 consisting of male riders.**

In this age group he enjoys all his **freedom and has self decision power.**

The user group may involve students and young executives. Student though do not have buying capacity studies show that they **influence buying decisions** and so can Be considered as potential users.

Inferences:

Experimental nature

Normal is boring

Zest for speed

Proud to be unique

Tend to be guiltless consumers



Want to Stay ahead of everybody

Awareness of latest styling trends

Products they use reflect their identity

Like Customized Belongings

Love western lifestyle still cherish Indian culture

The styling trend being followed in the premium segment is moving towards naked bike designs. This **can be inferred from the recent launches of bikes like Pulsar 220, Yamaha Fz16.**

Naked bikes :

Naked bike refers to a class of road motorcycles without fairings. Motorcycle stripped down to its fundamental body parts.



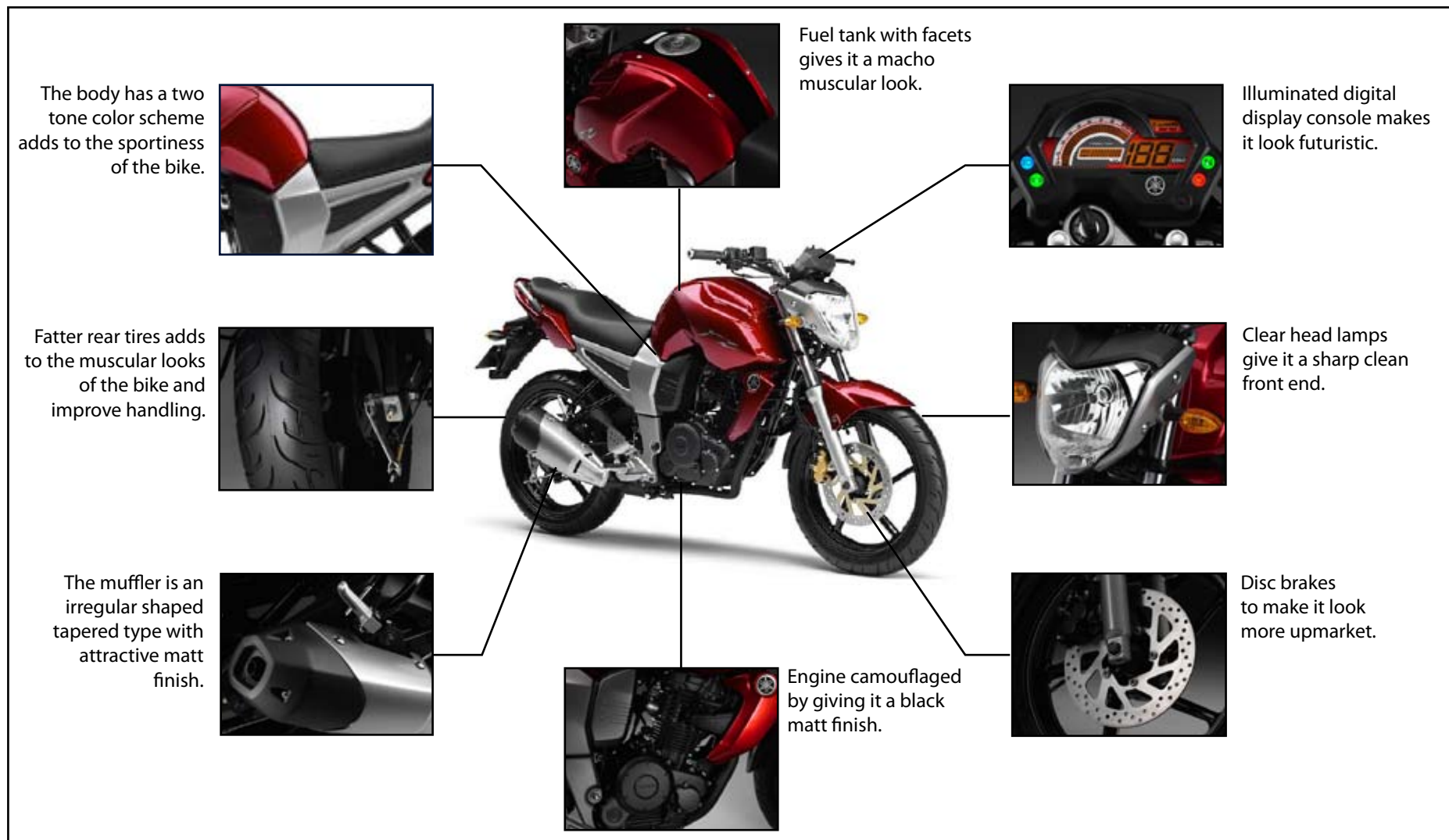
These bikes are loved for their **tough, bare-bones styling** and the **subsequent attitude they seem to exude.**

The structural members like the **chassis, engine are exposed to give it a very macho muscular look.**

Examples of naked design



Yamaha Fz16 was chosen as it was based on naked styling.
various features were studied so that a base is formed for the concept development.

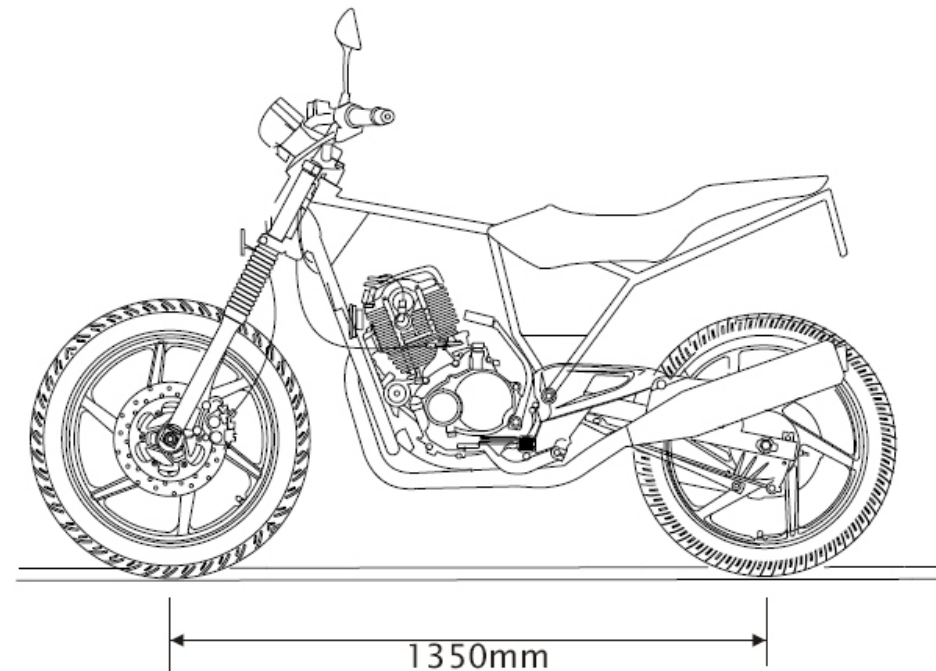


There is a need for an **engine with better performance**.
A **250cc power plant** with output of about 18bhp would be sufficient.

To avoid technical complexities dimensions of existing Indian motorcycle were referred for design.

Technical Specifications :

Engine	: 250cc single cylinder four stroke air cooled
Power	: 16-18 bhp.
Gearbox	: 5 speed manual
Suspensions	:
Front	- Telescopic fork
Rear	- Monoshock with swing arm
Wheelbase	: 1350 mm
Tire size	:
(Front/rear)	- 100/80-17 / 140/60-R17



Approaching the design process from two sides. Leading to two concepts.

1st approach was to make a **compact bike (single seater) based on naked styling.**

2nd approach was to generate a **concept based on metaphor based styling.**

Then a concept would be chosen based upon requirements and feedback from users.

Then the final process would be to detail out.

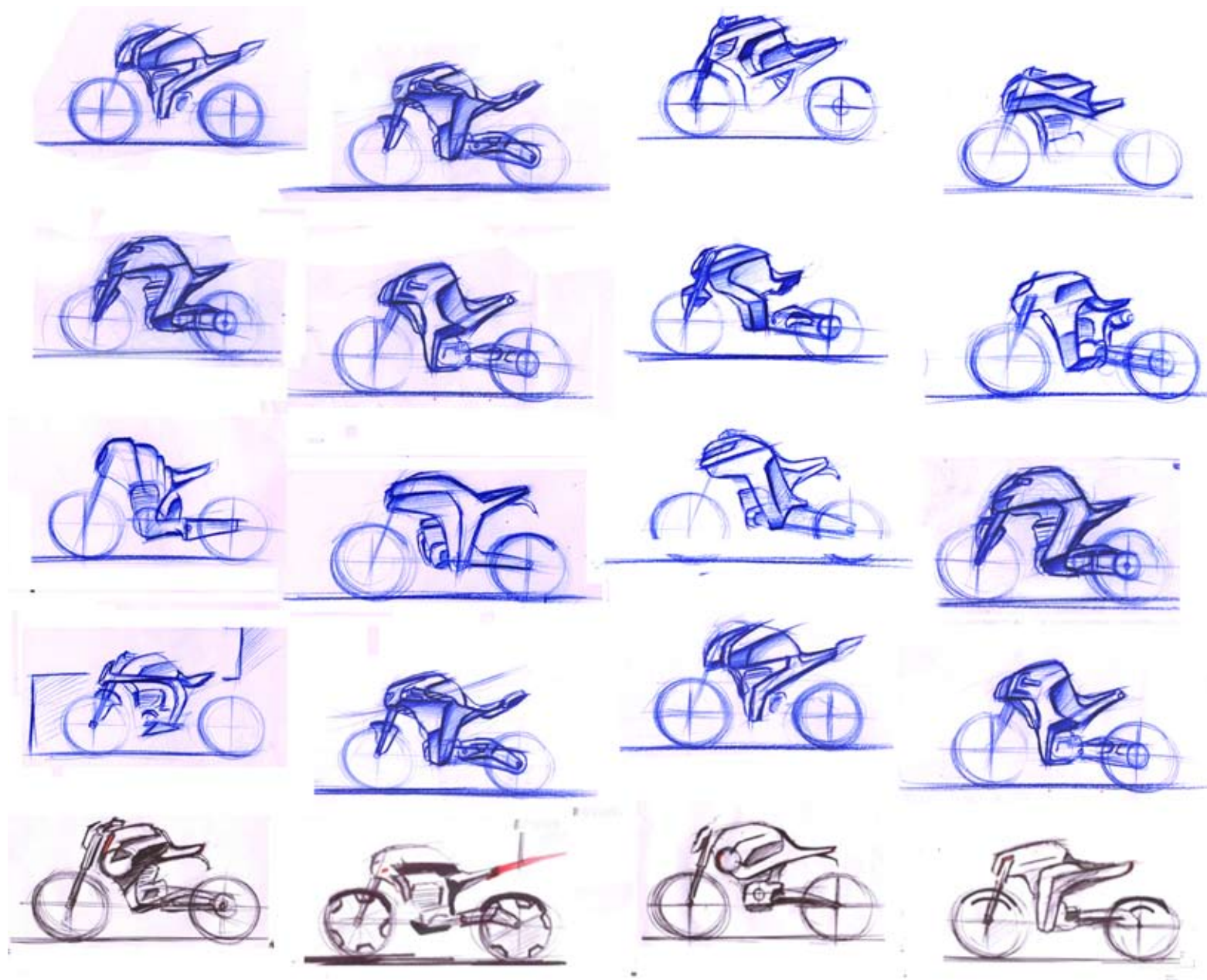


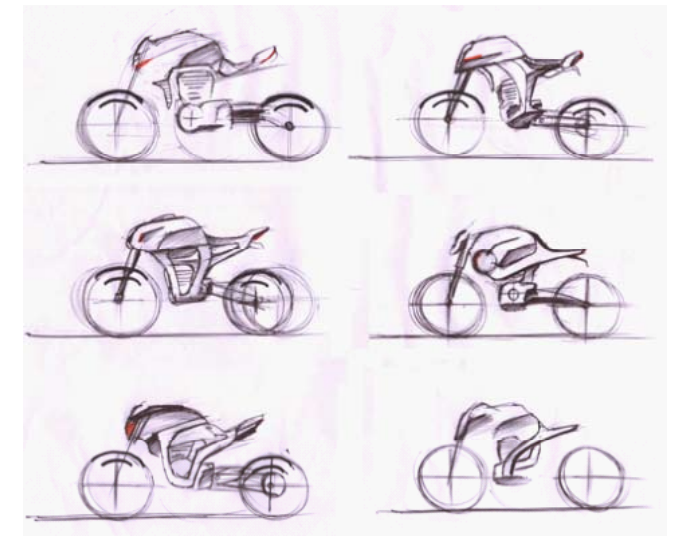
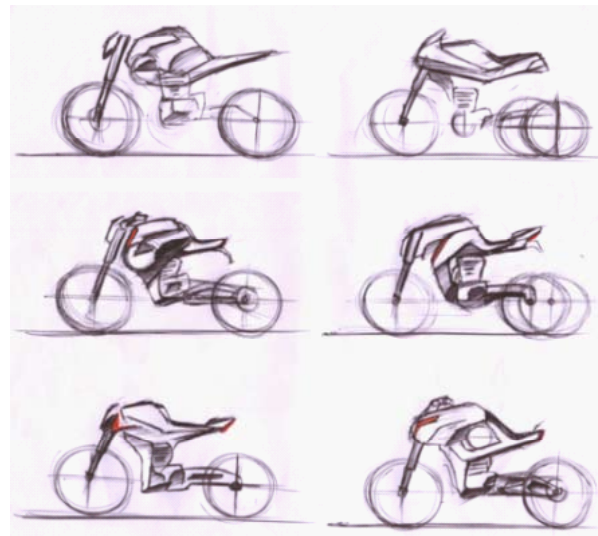
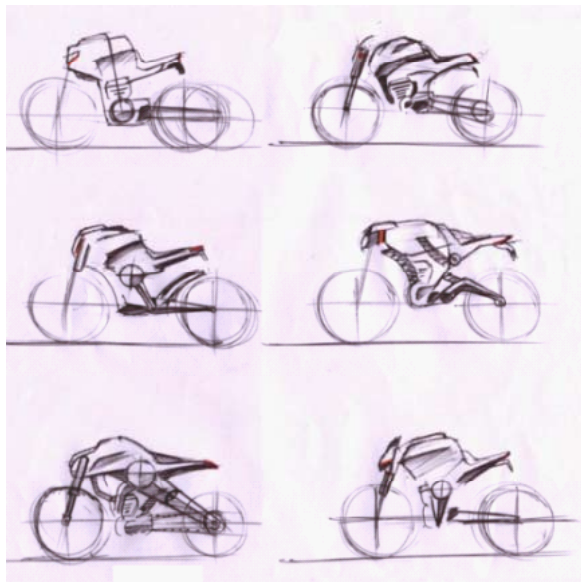
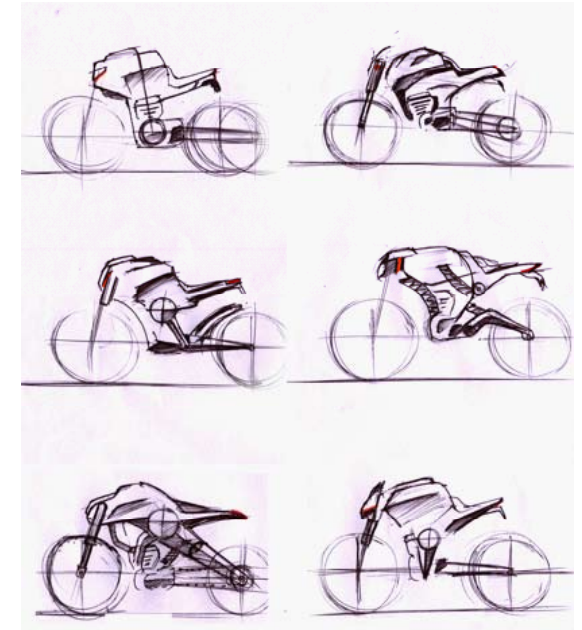
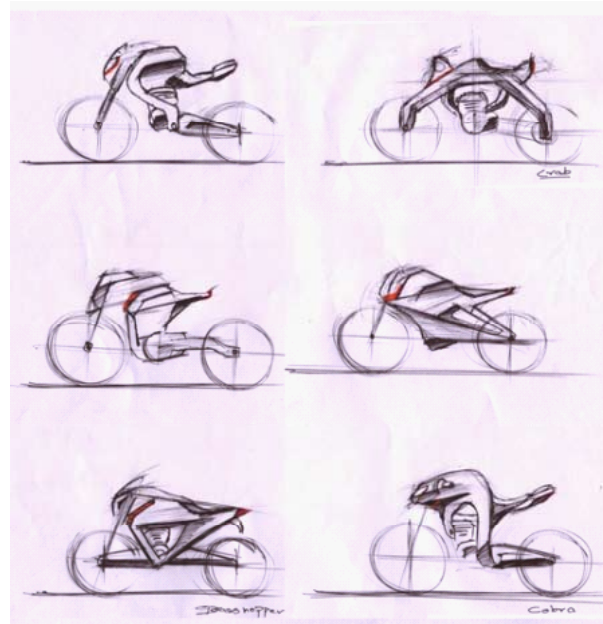
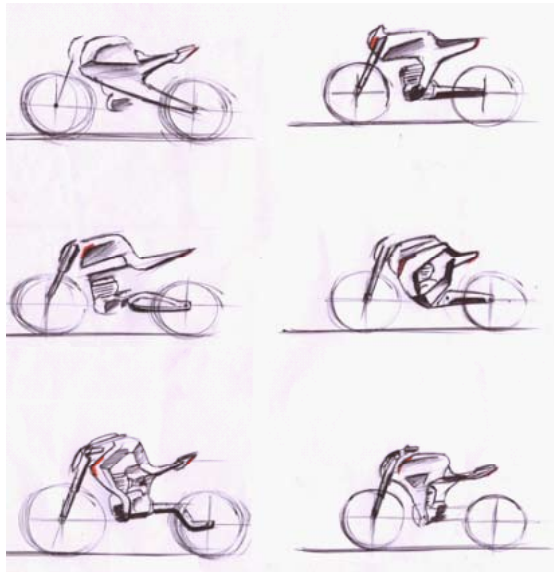
Exploring naked Styling - **Take it on a higher level** to achieve a single seater compact bike.

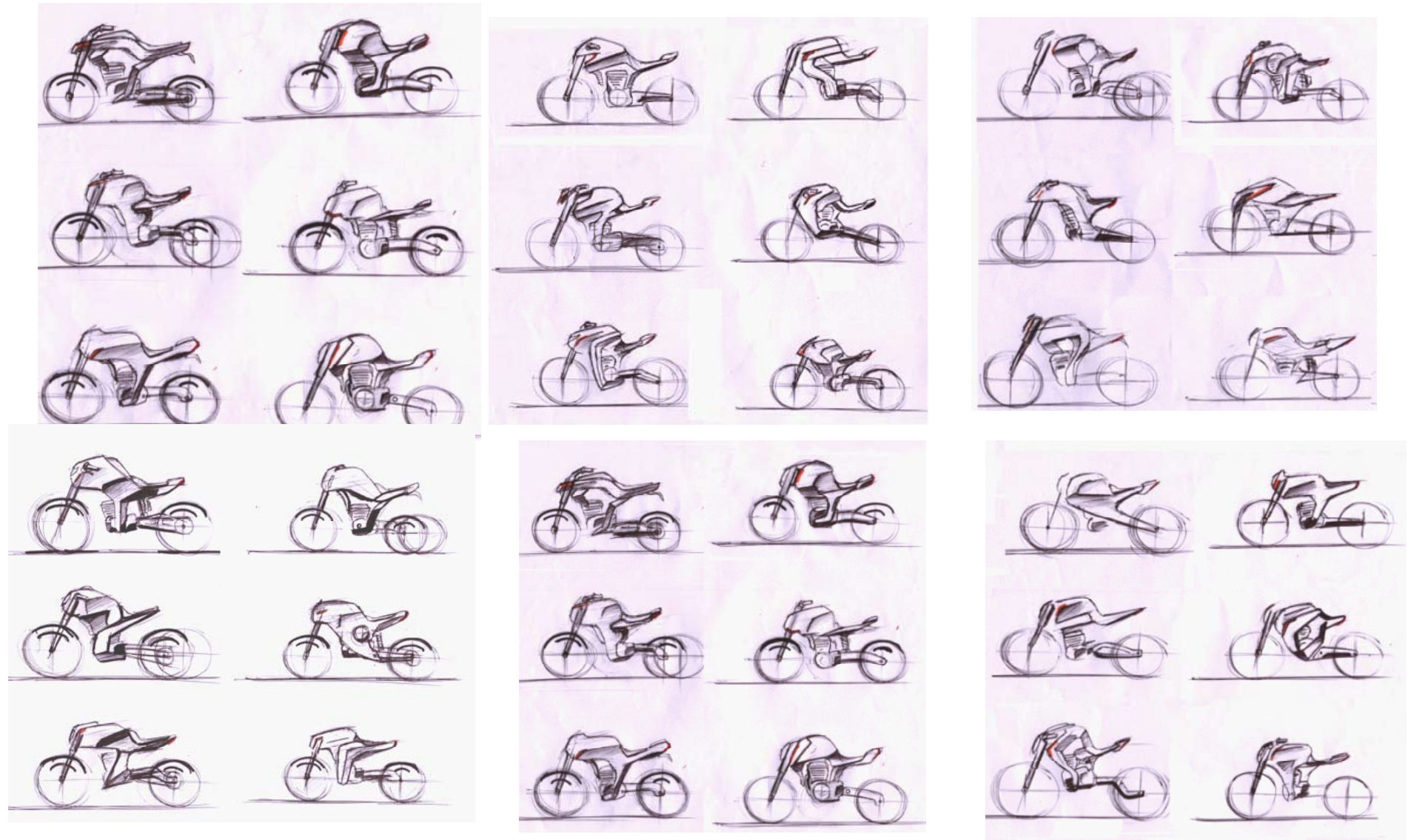
Keywords:

Compact,
Radical,
Integrated.

Integrate body elements with structure to form a **compact single unit form**.







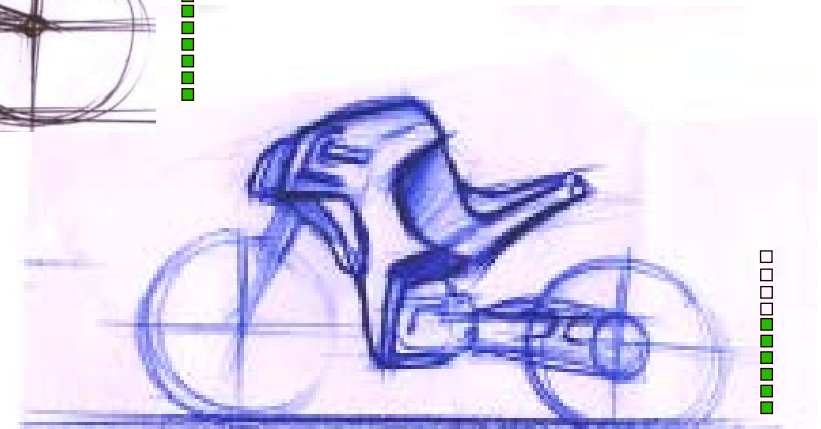
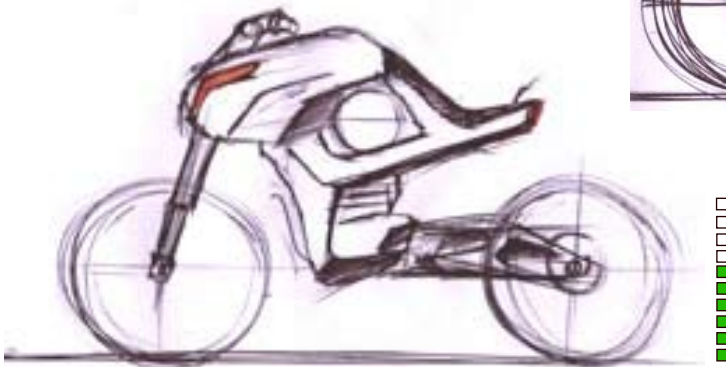
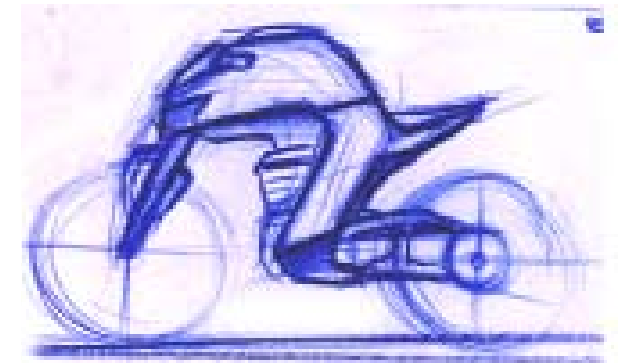
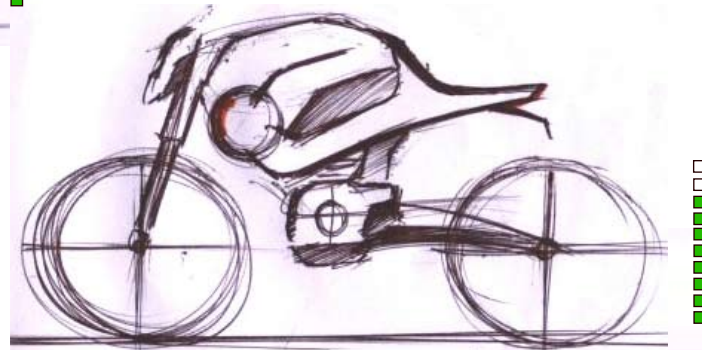
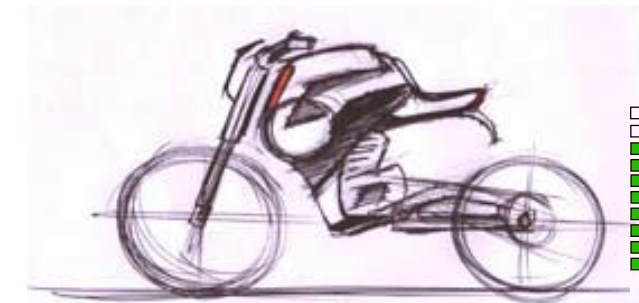
Concept 1 :

Out of the ideation concepts some of them were chosen which went along the required keywords.

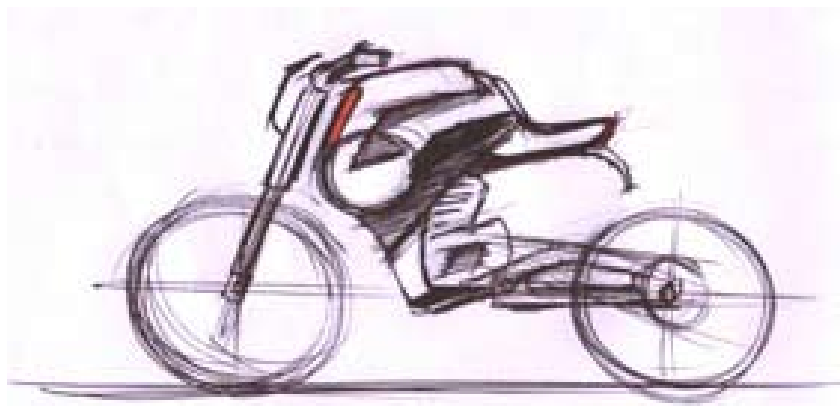
Decisions were based on visual appearance.

These concepts were then **self rated on a 10 point scale**.

Grading : 10 point scale



Out of the chosen concepts one was finally selected by grading.



The chosen concept had a **compact form**, the tank and the lower body panels merged to form a single unit. It went well with the keywords **compact , radicle single seater**. Also a single seat was provided which added to the compact looks. This concept was meant for **pure biking enthusiasts**.

A rough rendering was quickly made in Alias Sketch book.



Metaphor based styling :

It is a creative way of coming up with design concepts.

Taking Analogies from a certain metaphor. **Analogies can be based upon form, function or logic.**

Design brief >> Image board >> Inspiring images >> Studying Images >> extracting the emotions, lines and surfaces >> concepts



Lamborgini Reventon
Inspired from Tiger shark



This is a large cargo plane designed by Airbus its named the "Airbus Beluga". Beluga is a huge whale having a hump on its head. The hump on the head was projected upon the aircraft to get a large storage compartment.



Beluga Airbus
Inspired from Beluga whale



Concept 2 :

Studying behaviors and lifestyle of my target user certain inferences were made and these were then analyzed to get a theme for the bike styling process.

Unit of power and strength



Want to stay ahead of everybody

Awareness of latest styling trends

Products they use reflect their identity

Like Customized Belongings

Love western lifestyle still cherish Indian culture

Experimental nature

Normal is boring

Zest for speed

Proud to be unique

Aggressive ambitious and bold

Tend to be guiltless consumers

Speed...Sleek....aerodynamic



Strength+Power+Integration



<<..Aggression..>>



Stay ahead of everybody...>>

Out of the inferences made from target user research four were selected as themes to be worked upon for concept development.

Stay ahead of everybody...>>

was chosen as the final theme to be worked upon for the concept development.

Today's youth is that they always **want to be ahead, aim high, tackle competitors, they are sporty and are ready to accept challenges which come up in their life easily.**

The final chosen theme also had the essence of other themes like strength, speed, Power and aggression within it.

Speed...Sleek....aerodynamic



Image of speed
Sleek
Charging ahead

Strength+Power+Integration



<<..Aggression..>>

Sharp edges
Fear elements-(teeth)
Focused



Stay ahead of everybody...>>

Moving forward with "Thrust"
Dynamic stance
Aggression
Muscle movement while running
About to jump
Directional
Focus

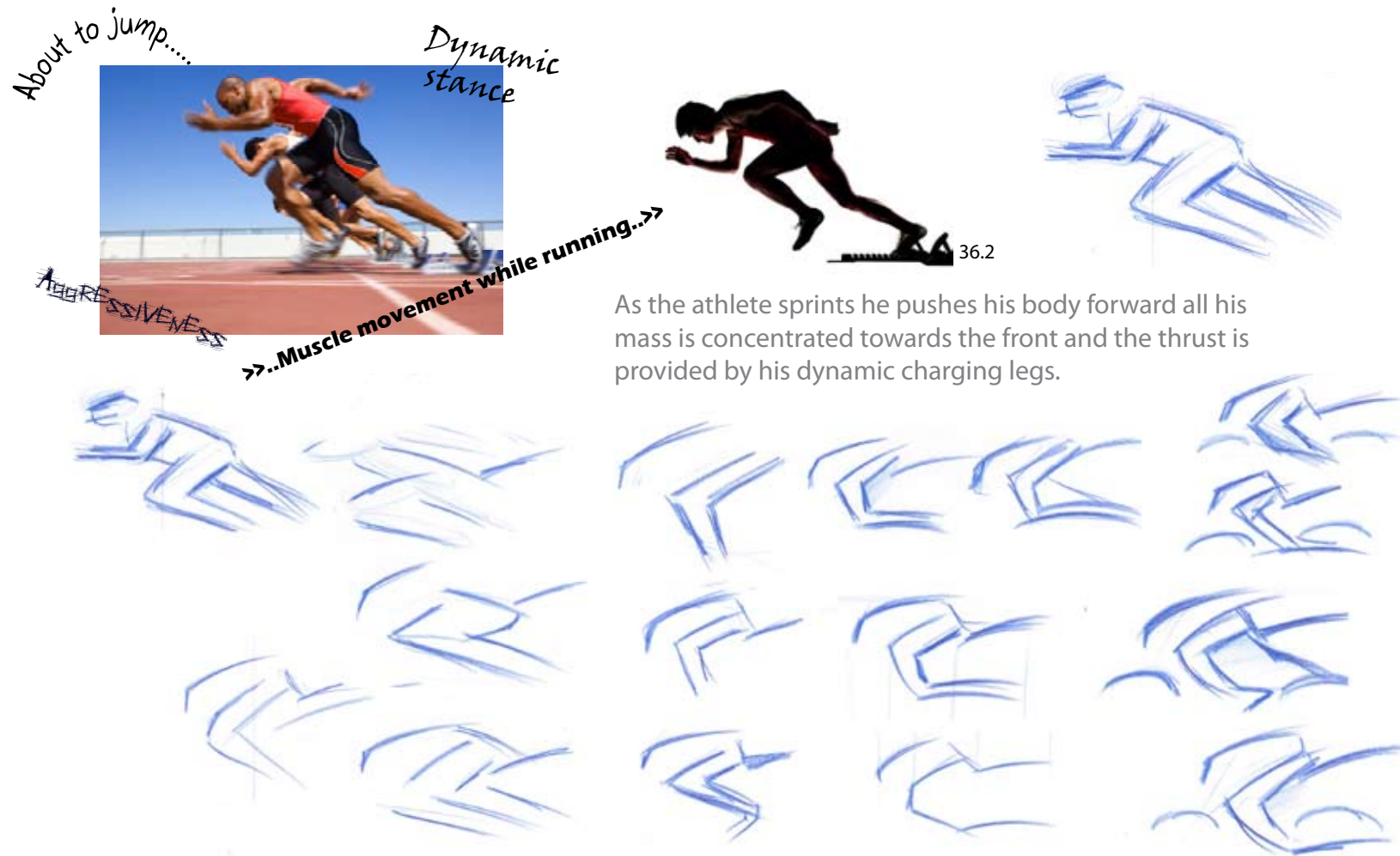
A form having elements depicting muscles.



A closed wrist formed by integration of 5 elements. depicts strength, unity, about to punch.

Concept 2 :

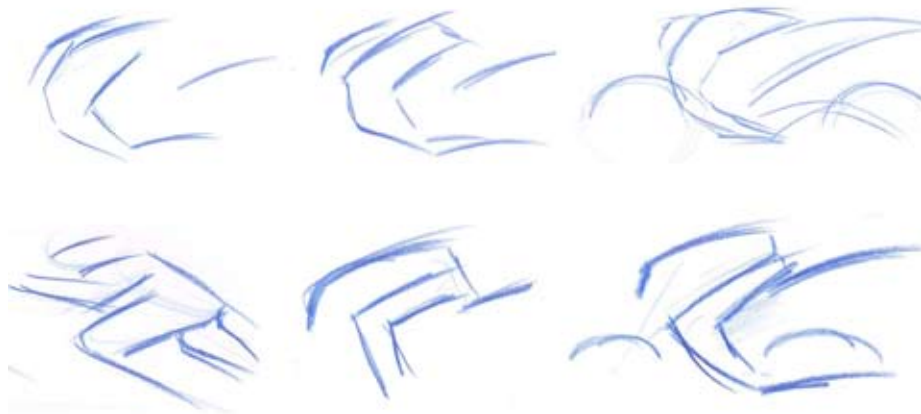
Ideation to capture the stance of a runner into the bike. 2d side view sketches.
Dynamic form, forward stance, muscular elements, were the keywords.



Concept 2 :

Ideation to capture the lines of a running athlete into the bike.
These concepts were then rated and one concept was chosen and developed further.

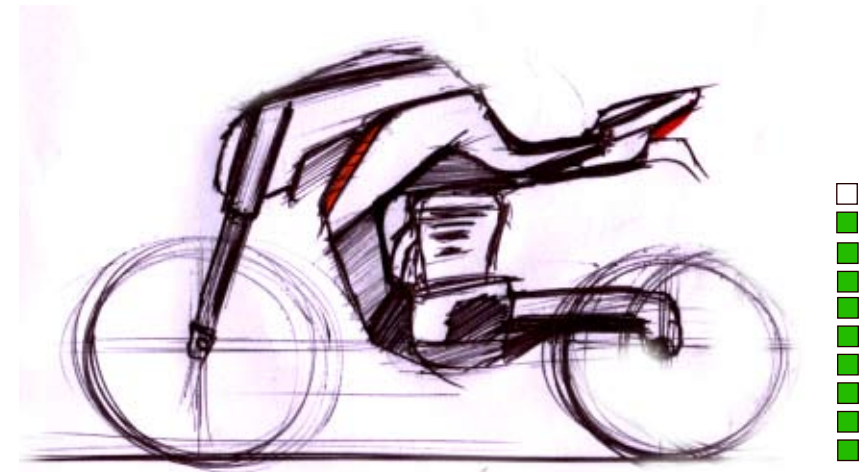
Grading :
10 point scale



Concept 2 :

The concept with the highest points was chosen. The grading was done on visual appeal of the bike form and how well it represented the theme.

The concept sketch was quickly rendered in Alias sketch book.



Concept development : Selecting one of the two concepts.

Concept 1

Large tank shaped in a way as to form the main integral part of bike.



It has a short tail end enhancing the compactness.

Compact classic single seater

Large curved surfaces give it a classic retro look.

Concept 2

Sharp edges, forward stance, lowered front.



Dynamic sporty two seater

Raised thin rear end gives it a very sporty look.

Decision :

25 users were asked to vote for one out of the 2 concepts and user feedback was taken for making the final decision.

Concept 1 was not accepted by the users because my user group always wanted to hang around with their friends and as the bike was a single seater it would not attract them.

According to them it looked underpowered and it did not have the looks of the racing bikes they always dream of. Such single seater bikes have a lot of demand in the international market but in India they have not yet become popular.

Concept 2 got most of the votes it was liked by all the users they said it looked a lot aggressive and It had a strong character in it as compared to concept 1.

Out of the two bikes concept 2 was chosen as the final concept to be worked upon.

Concept 1



Concept 2



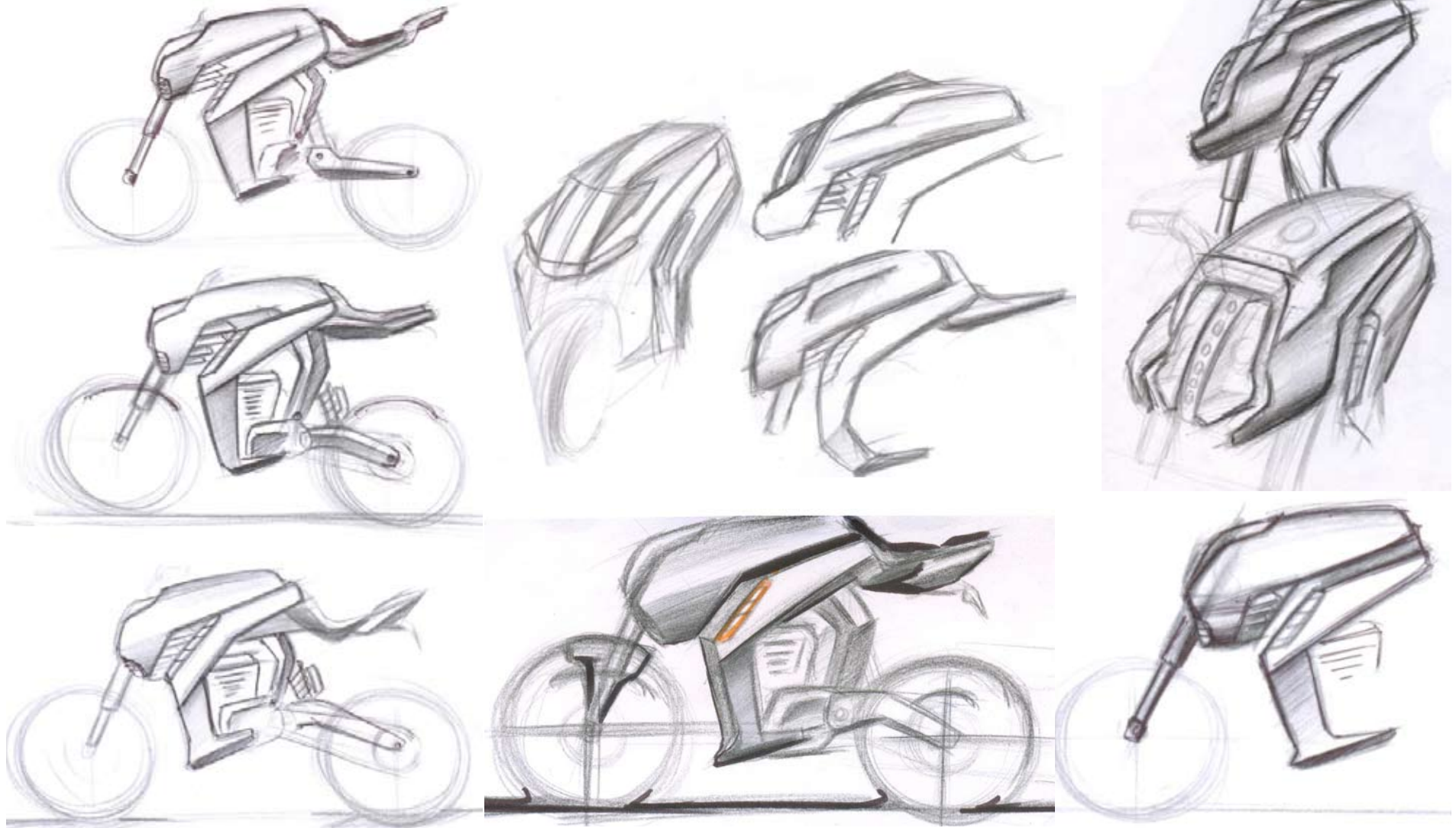
9 votes



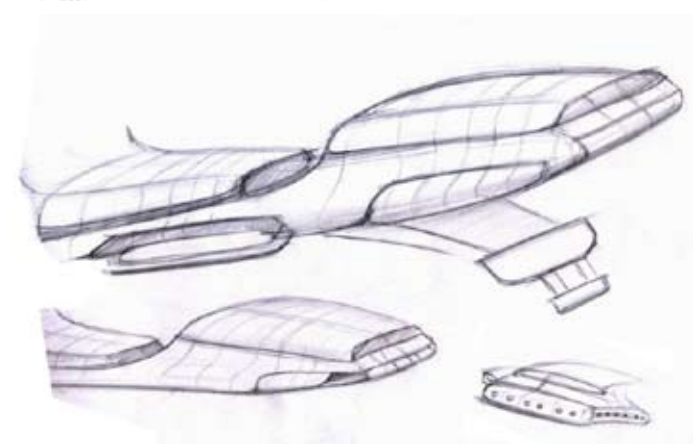
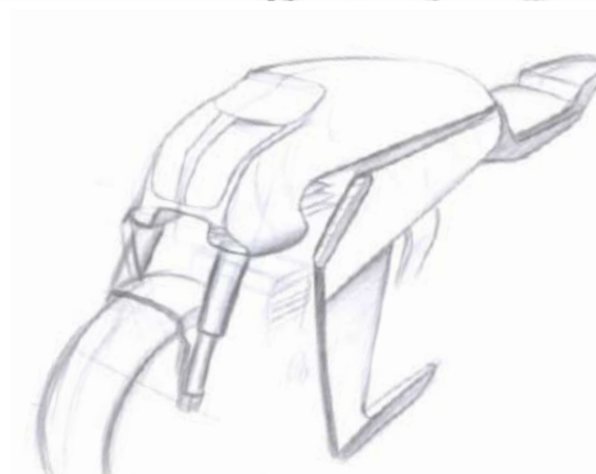
16 votes

Concept 2 Refinements

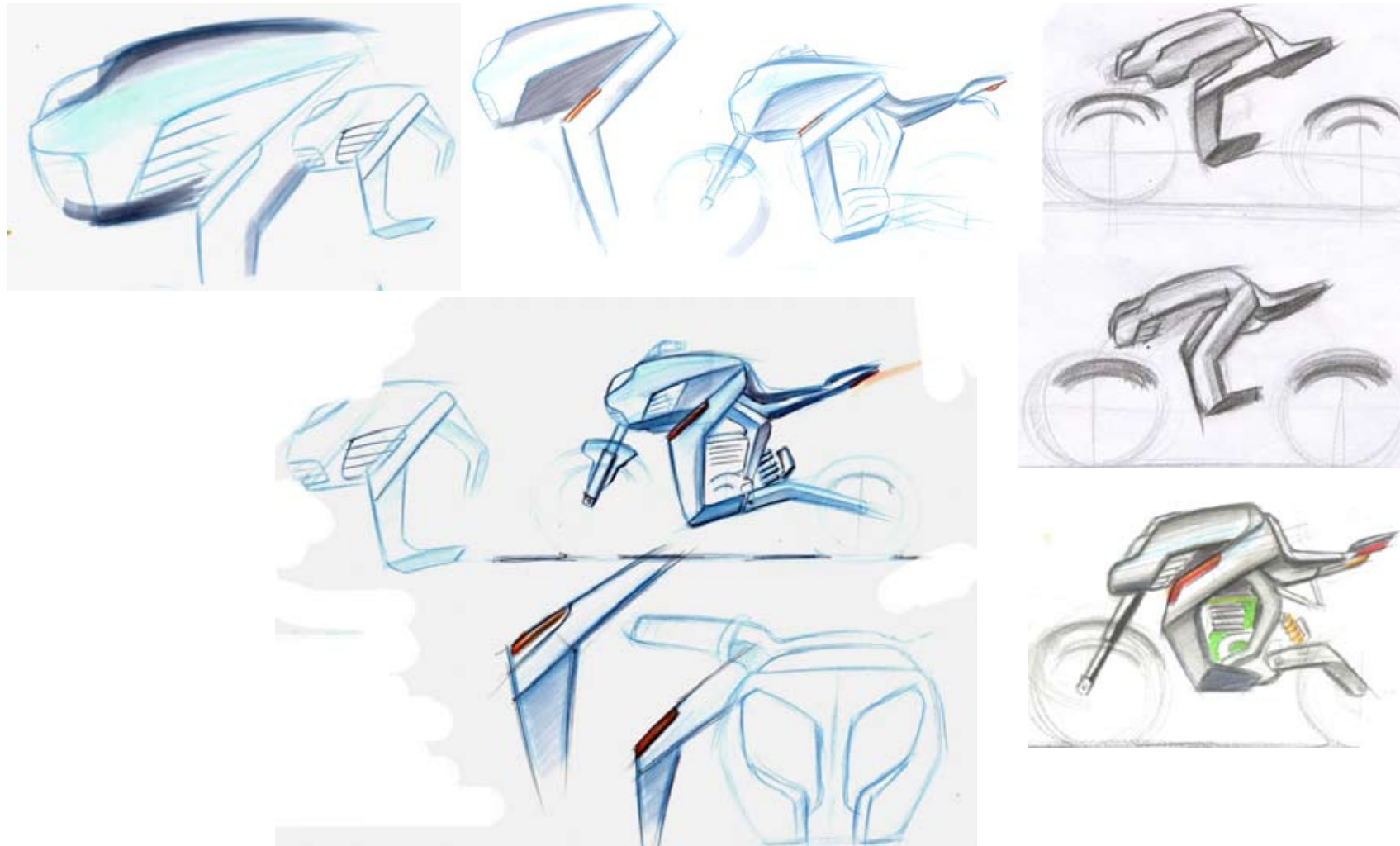
Further ideation sketches of various views to visualize the form in 3d.



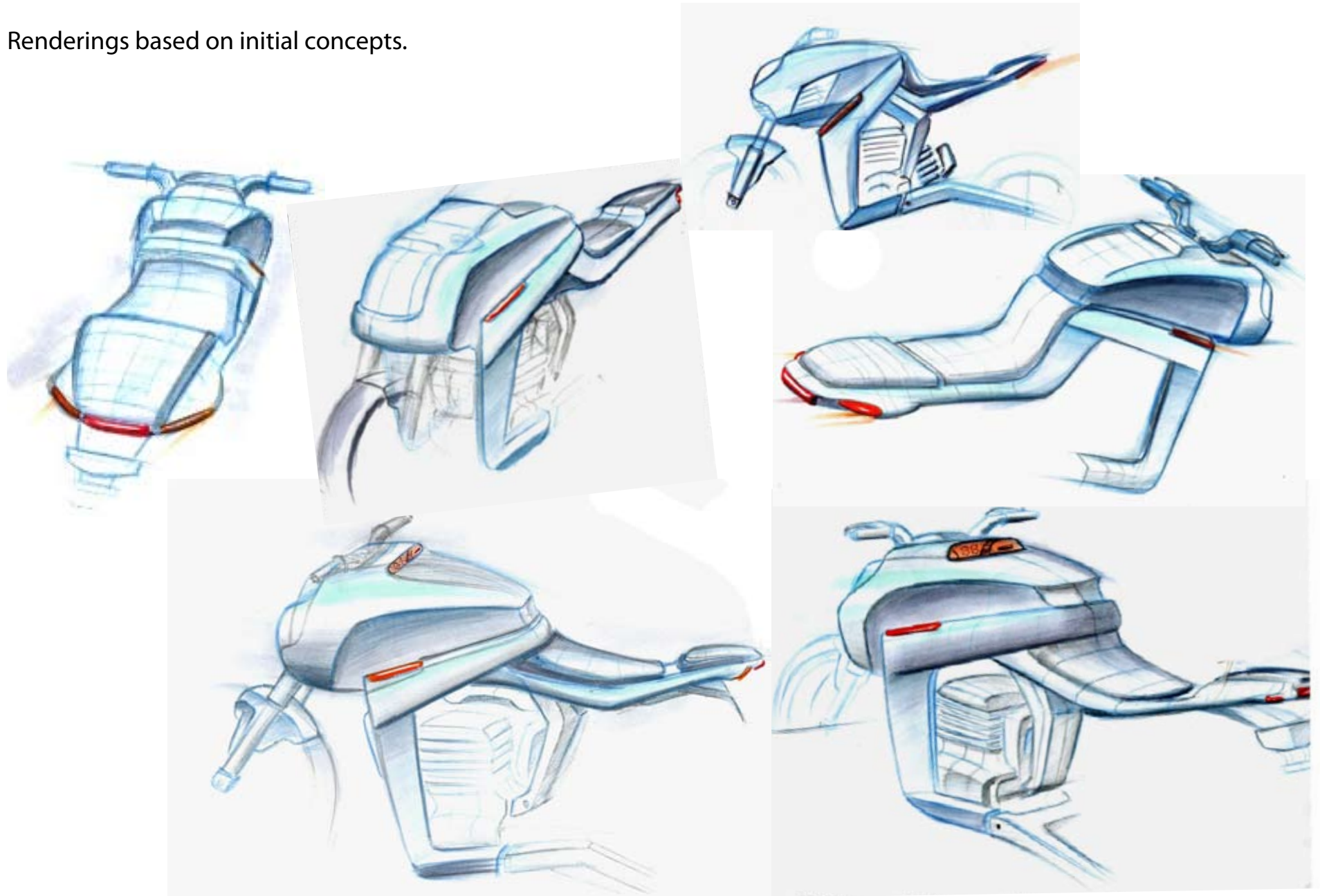
Front and rear end ideation sketches.



Ideation sketches trying out new stance options.

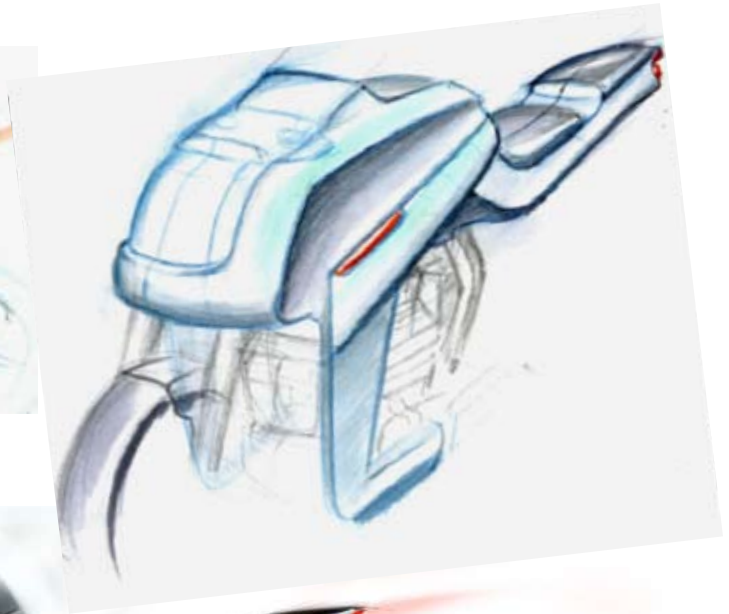


Renderings based on initial concepts.



Digital rendering on Alias sketch book showing the side view.

1st concept

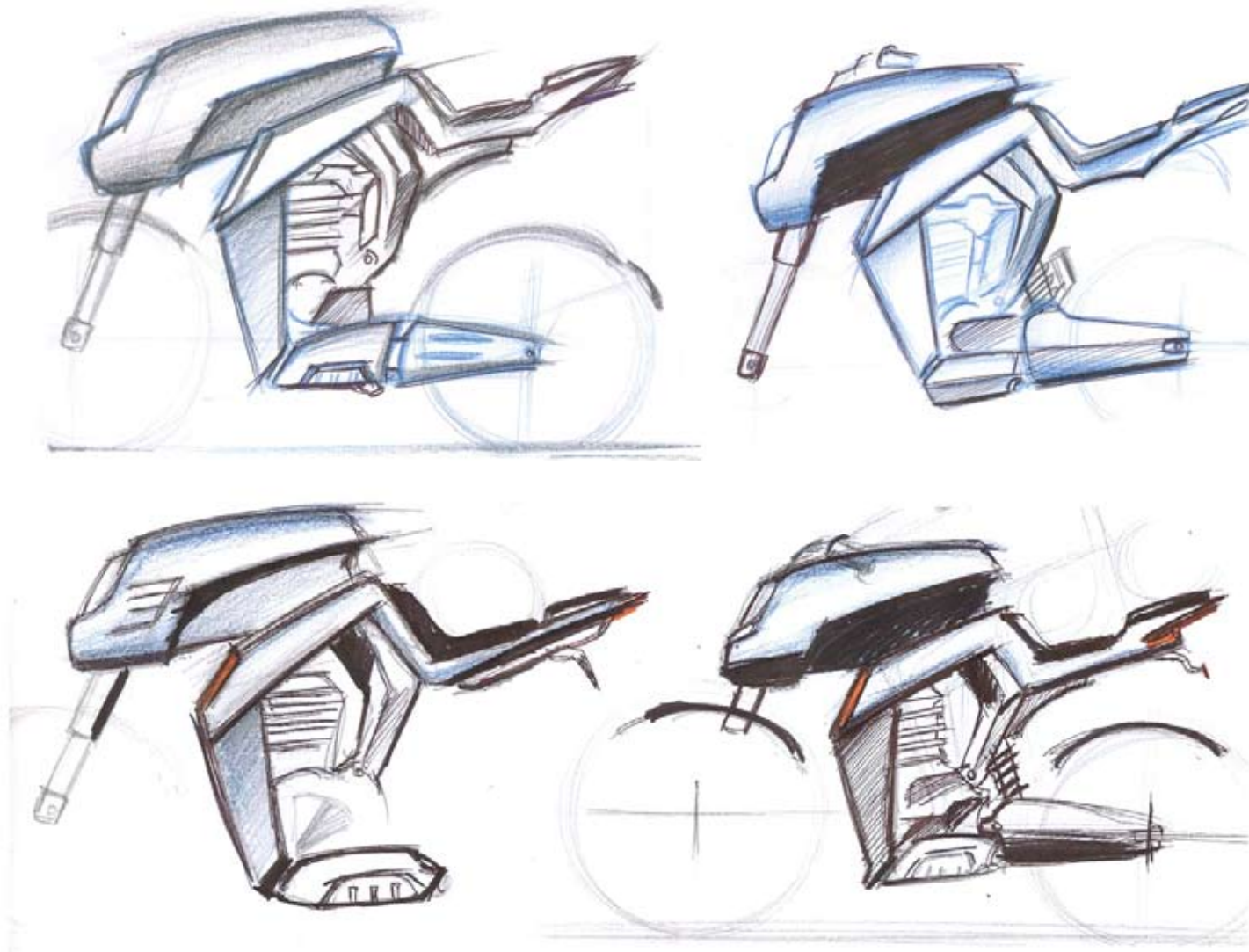


The rendered concept had lost the aggressive character which was present in the 1st concept the presence of rounded tank, reduced side panel facets made bike to loose its aggressive character.

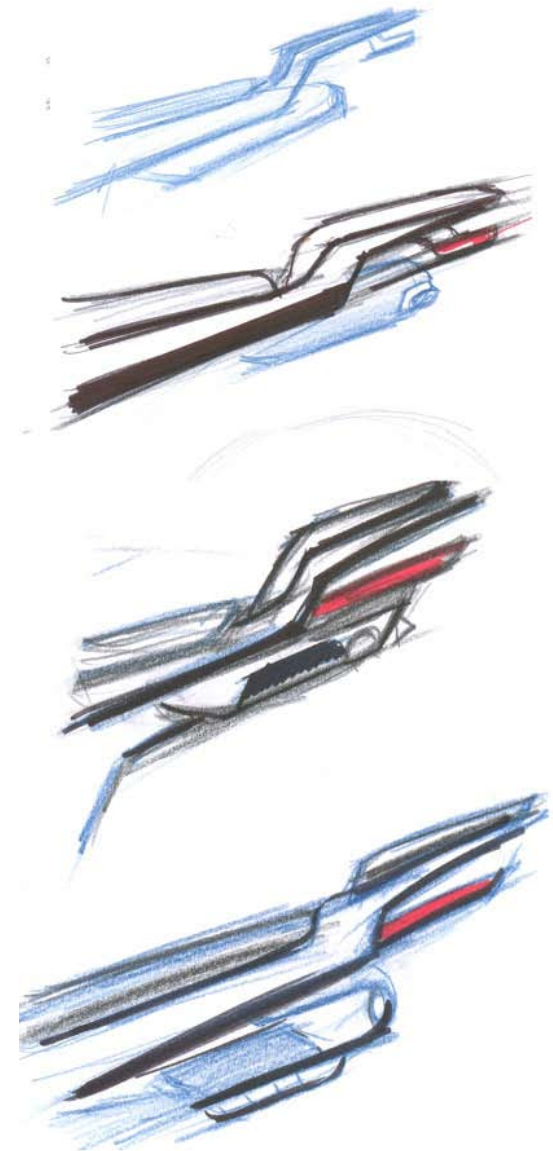


Initial concept rendering

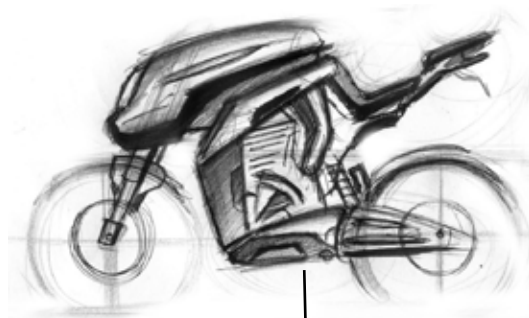
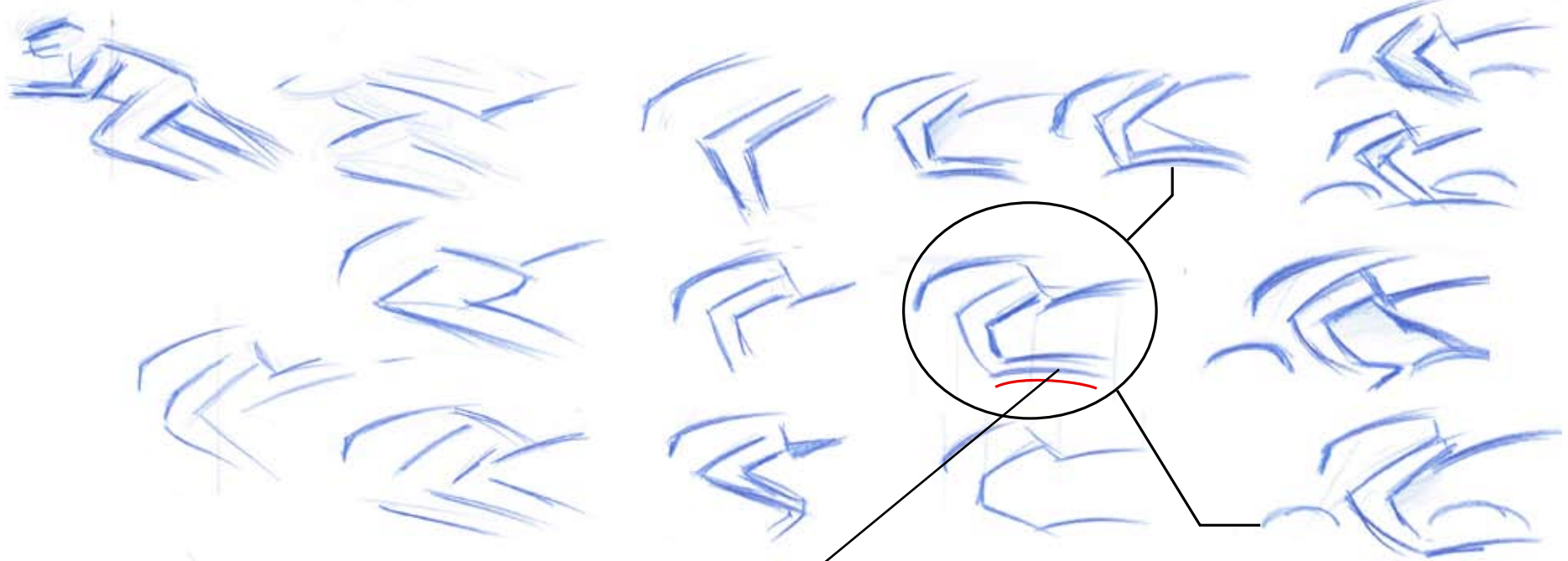
Side view sketches to improve stance and make the bike look more dynamic and aggressive.



Ideation for front mudguard and the rear tail end.

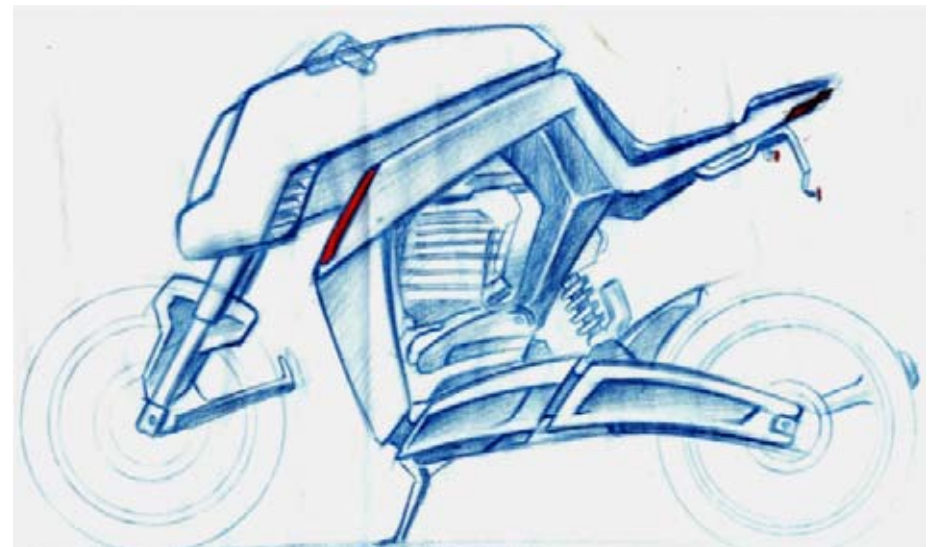
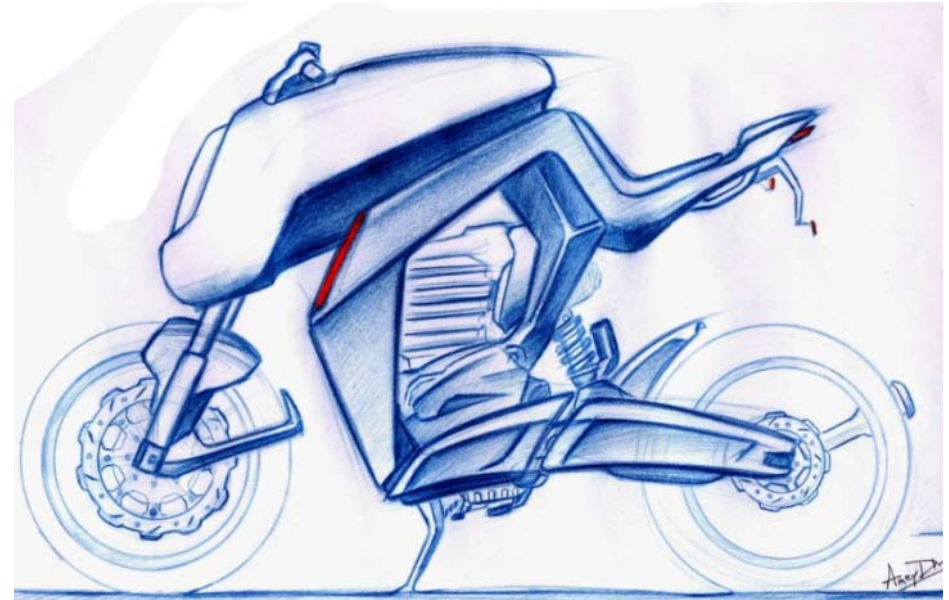


Further sketches to eliminate static look from design.

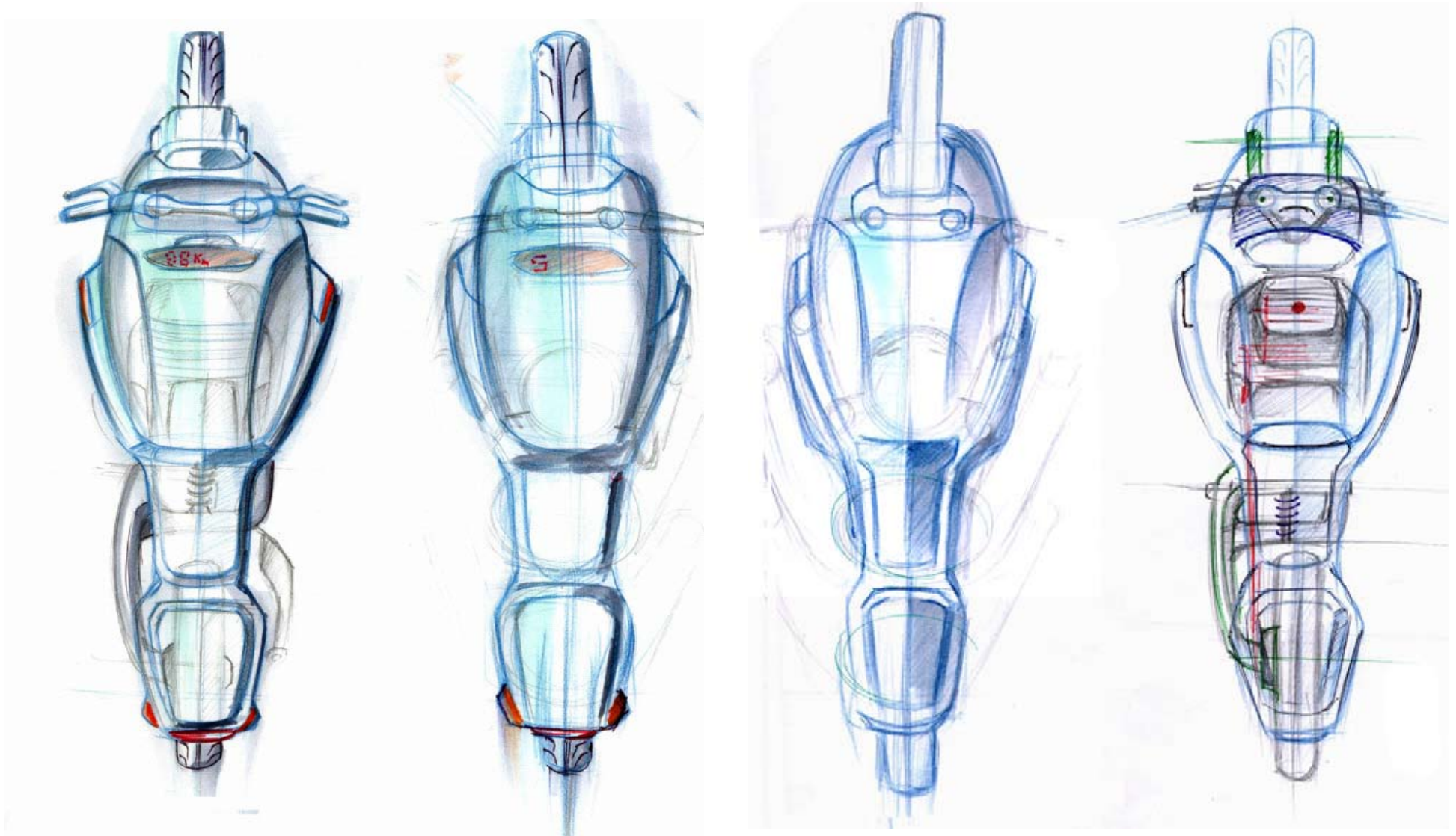


The rear swing arm was looking very static. Metaphorically it represents the thrusting legs of the athlete so to bring in some kind of dynamism and to create a feeling of "About To Jump" the rear swing arm was made to follow a soft curved profile.

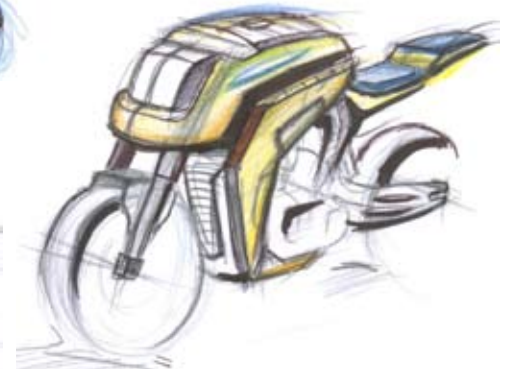
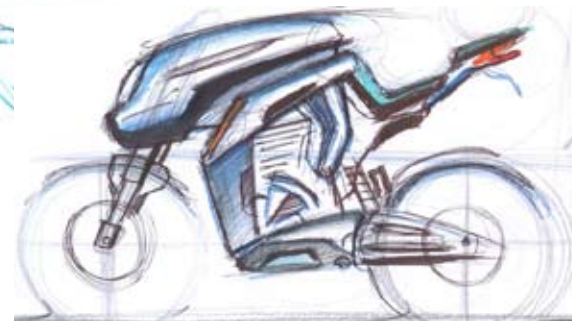
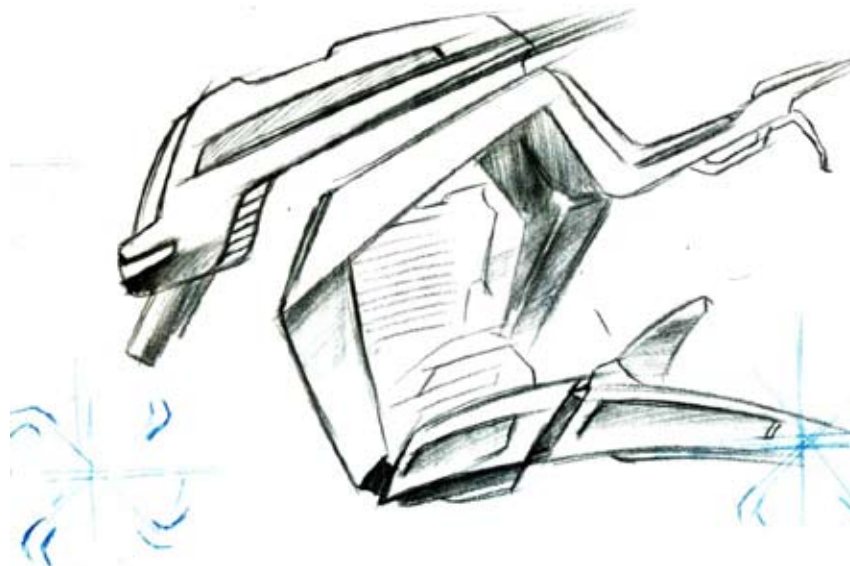
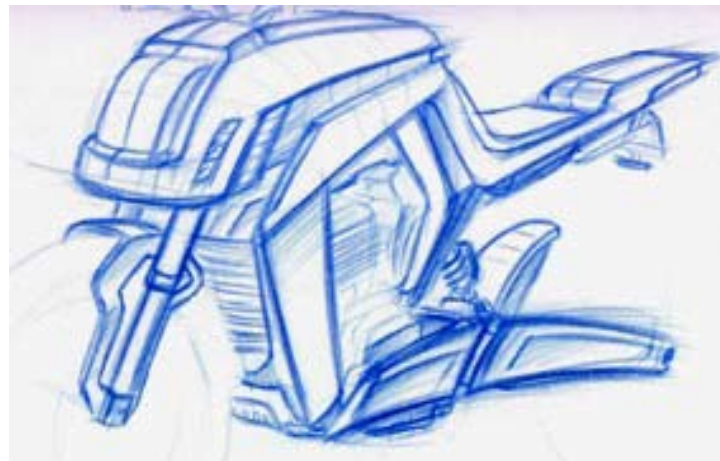




Top view

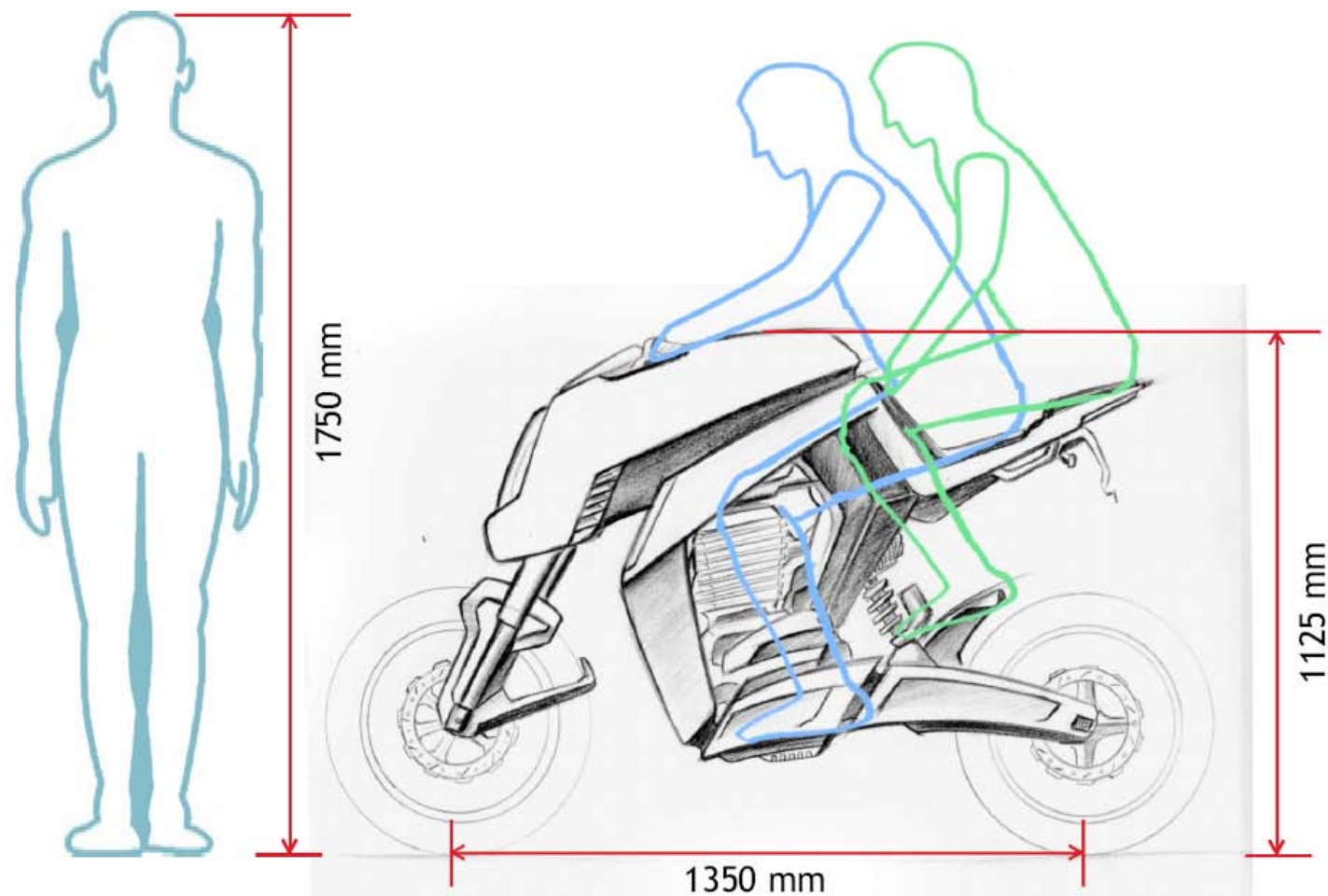


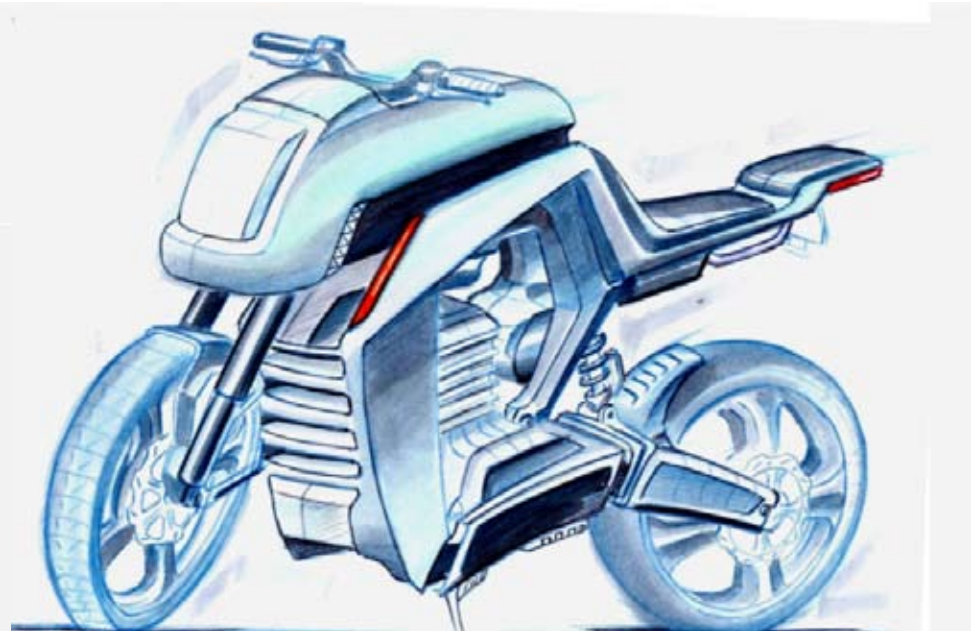
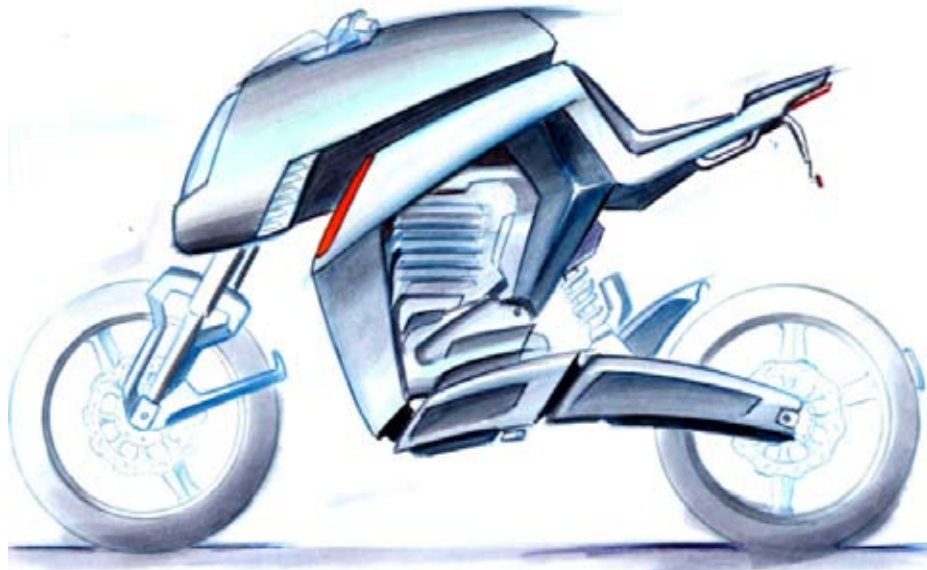
Final concept sketches.

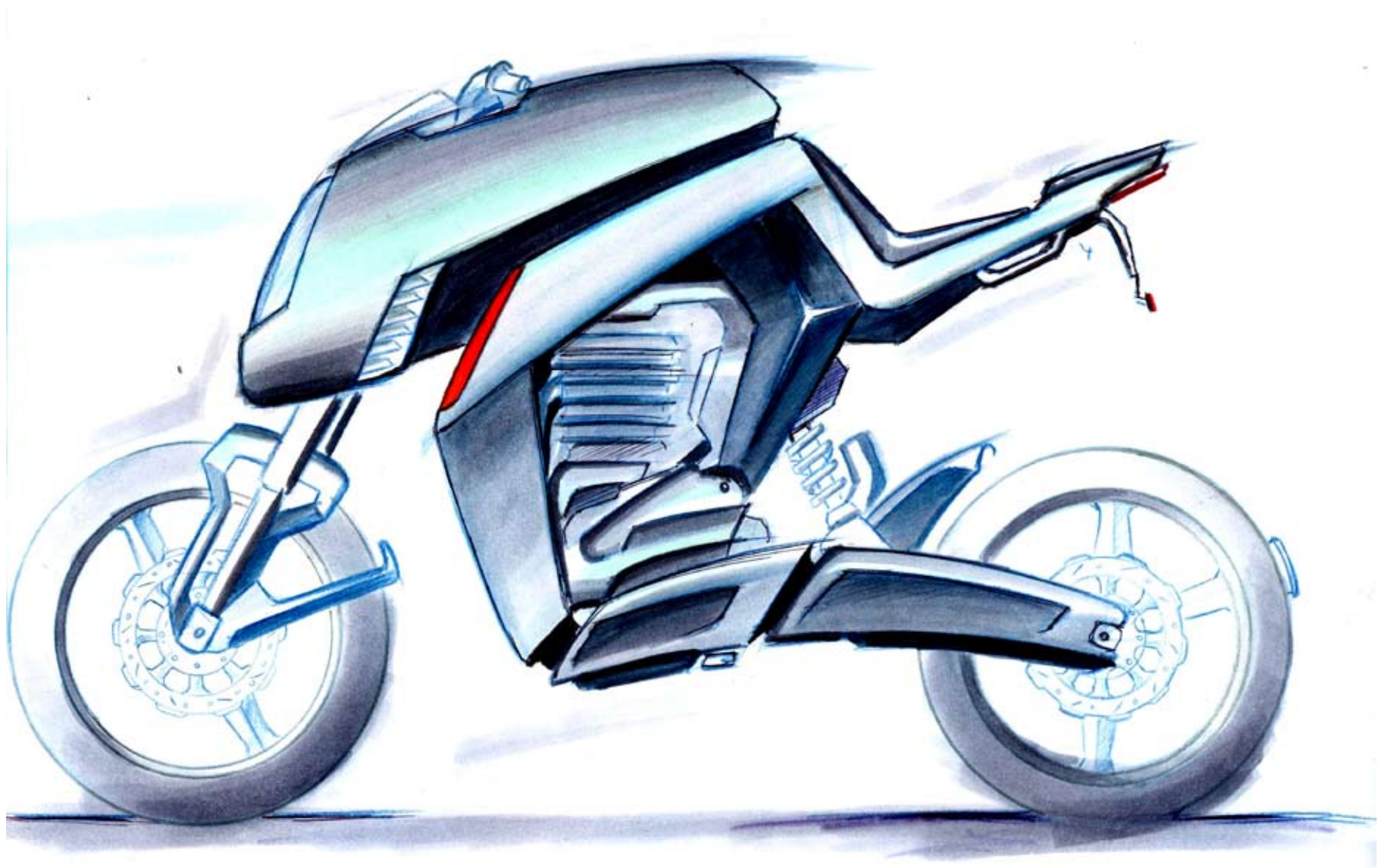


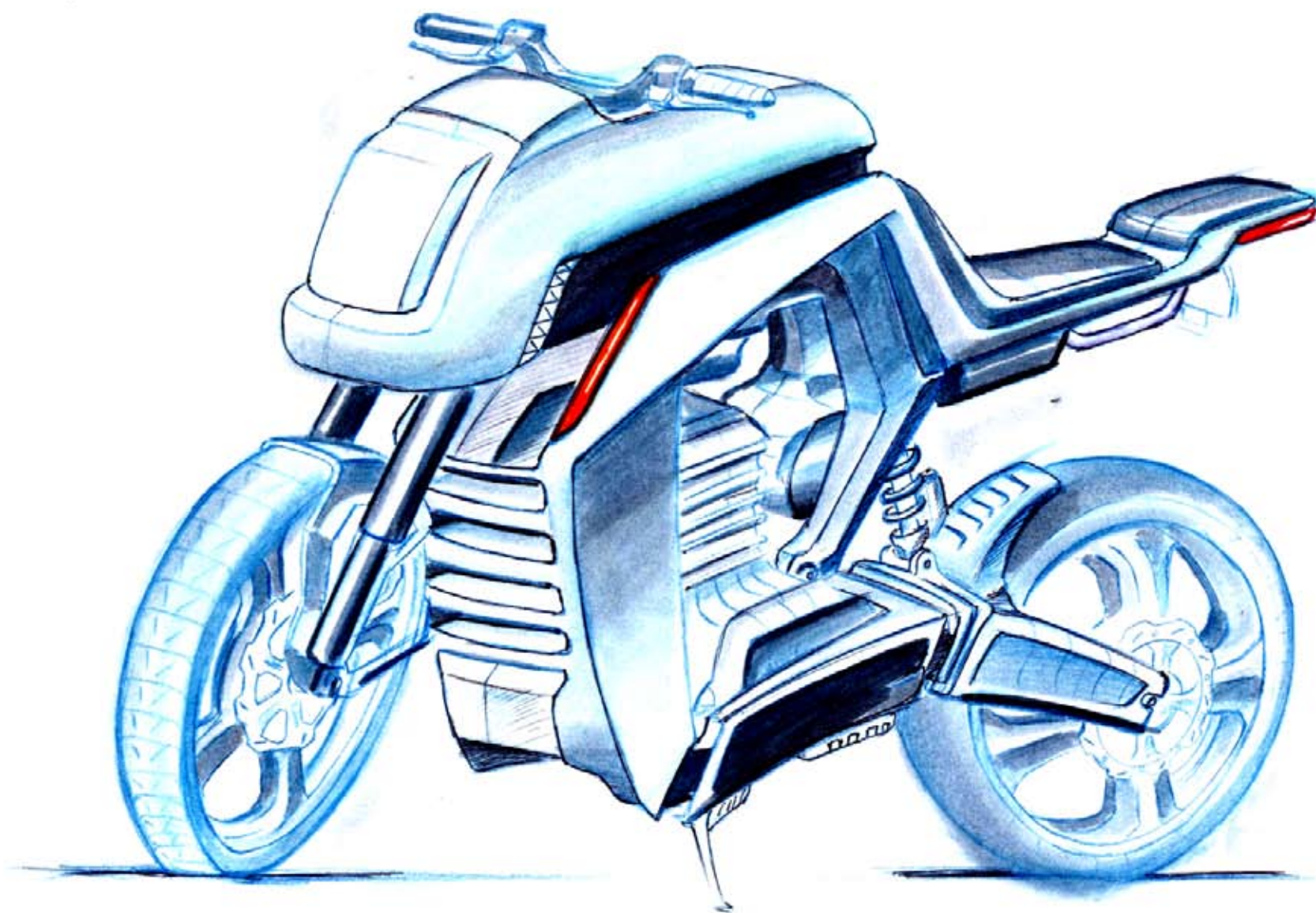
Wheel base and overall bike height.

Manikin used is a 95th percentile Indian male in normal standing position (height 1750mm).

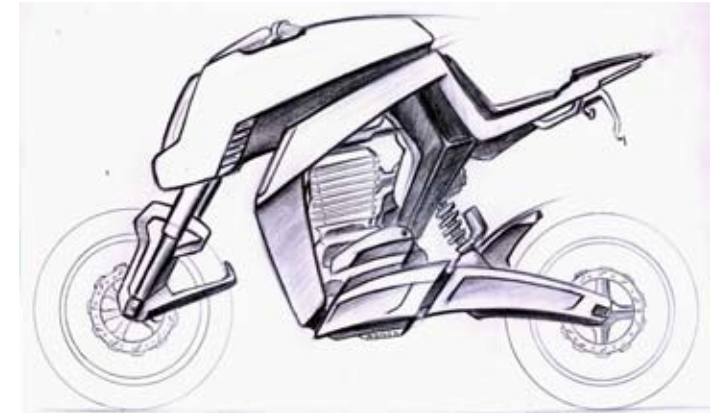








Sprint
Sprint
Sprint
Sprint *sprint*
Sprint *sprint*
Sprint *sprint*
Sprint



SPRINT



Stay ahead...>>

Dynamic stance

Aggression

**Moving forward
with "Thrust"**

**Muscle movement
while running**

About to jump

Focus

Magazines referred:

Autocar India
Topgear- issues
(jan, feb, march, sept, oct)-2008
Bike India-issues (aug, sept, oct)-2008
Auto India-issues (jan-sept)-2008

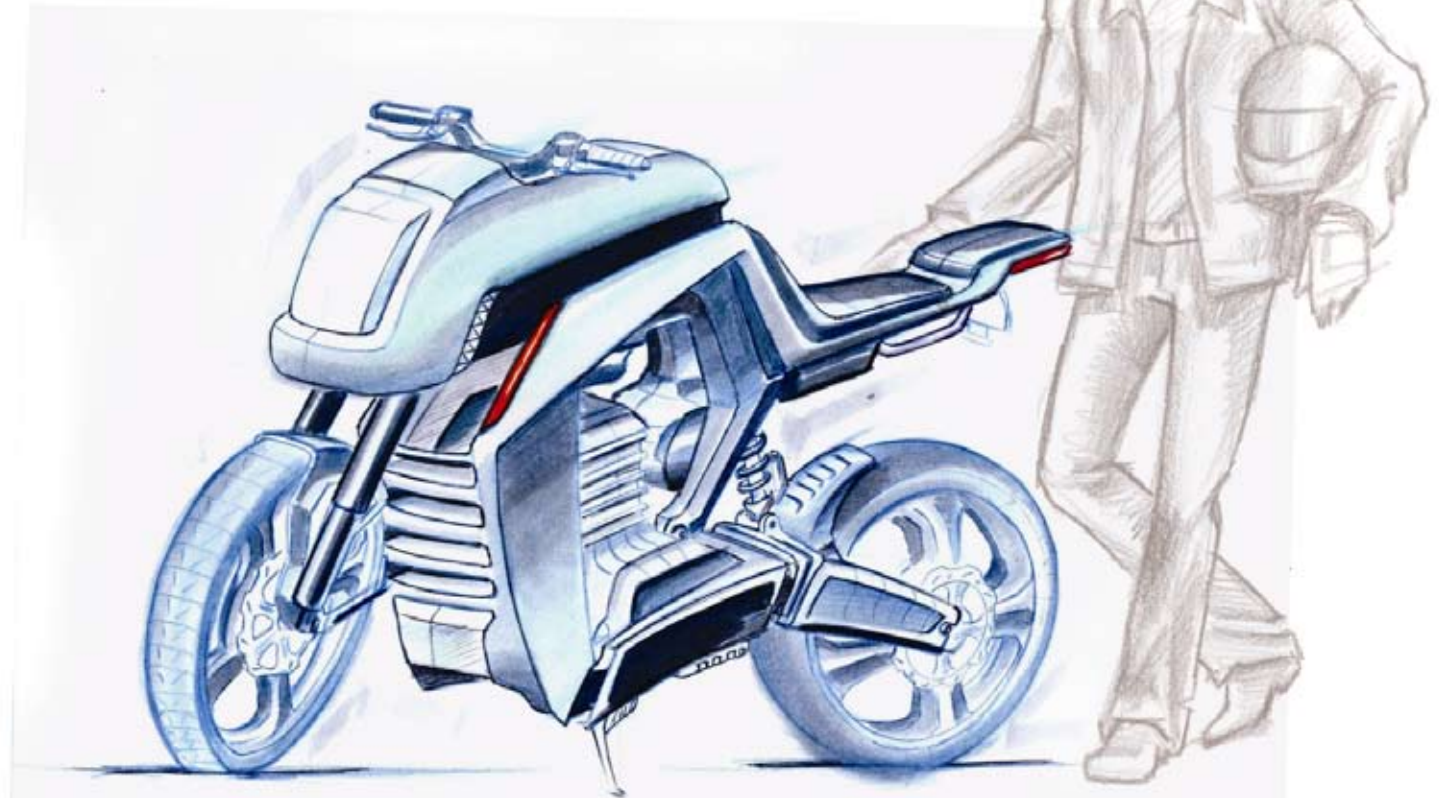
Other websites for general refrence:

www.bikesindia.in
www.indianmotorcycle.com
www.motorcycledesign.com

Books referred:

"THE MAN MADE OBJECT"

By Gyorgy kepes
Article- **"Youths and motorcycles"**,
Henry S. Stone, jr
Pg. no. - 172 to185
Published by
Studio Vista, London-1996





Thanks to

Prof. R. Sandesh
Prof. Chakraborty
Prof. Ramachandran

IDC Workshop staff

Bhuwaneshwar Agarwala

Ujjwal, Milind, Juny, Karthik, Soumya, Divya, Taruja and Palash





Thank you

