

TRANSPORTATION DESIGN

P O R T F O L I O

2 0 1 8

SIDHARTH RATH

Sun Temple Konark

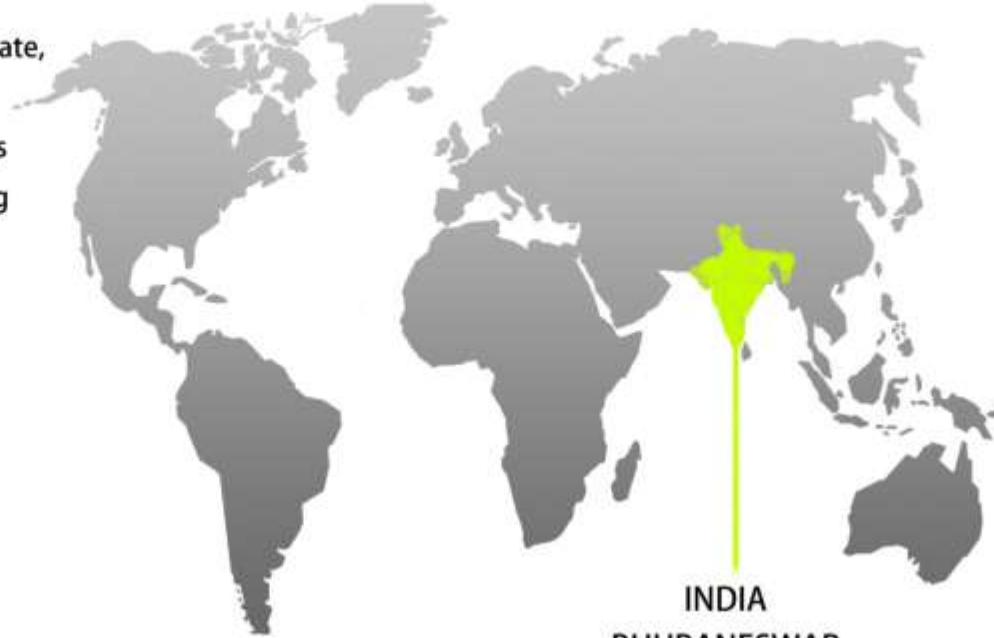


Creatively Intuitive...

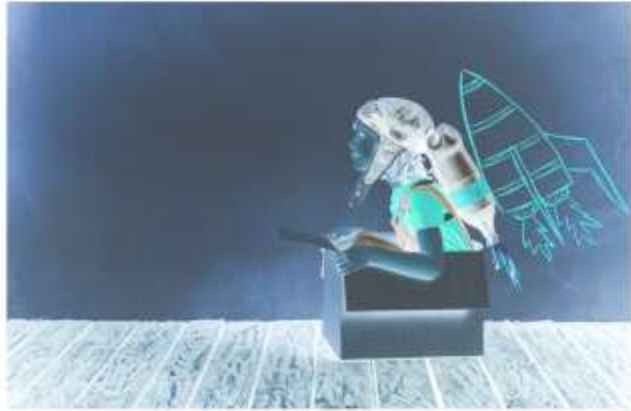
ABOUT ME

Compassionate,
Dynamic
Adventurous
Hardworking
Adaptive.

Hello, Namaste....



INDIA
BHUBANESWAR
(Currently in Pune, India)



DOB - 07/01/1988

The best way to predict the future is to create it...

EDUCATION

Present - DYPDC COLLEGE OF DESIGN PUNE
(1st Year : Masters in Automobile Design)

Undergraduate - B.Tech in Electronics
and Telecommunication Engg
(KIIT UNIVERSITY)

SKILLS

Free hand sketching
Marker rendering
Photoshop
3DS Max.
Alias



LANGUAGES

Oriya
Hindi
English

HOBBIES

Live to Travel.
Live to Eat.
Listening to Music
Sketching Aircrafts
Robotics.

SIDHARTH RATH

Automobile Designer
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CONTENTS



BMW 507 REVIVAL



KTM 2030



MINI PROJECTS



TOPGEAR (LIVE PROJECT)



MISCELLANEOUS

BMW 507 REVIVAL



BMW 507 DESIGN ICONS



BRIEF : Creating BMW Sports Coupe by taking design cues from 507.



RESEARCH

AGGRESSIVE



INSPIRATION

SLEEK



BEAUTIFUL



INITIAL RENDERS



THE DNA

Elvis
507



In the memory of Elvis Presley

LEGACY



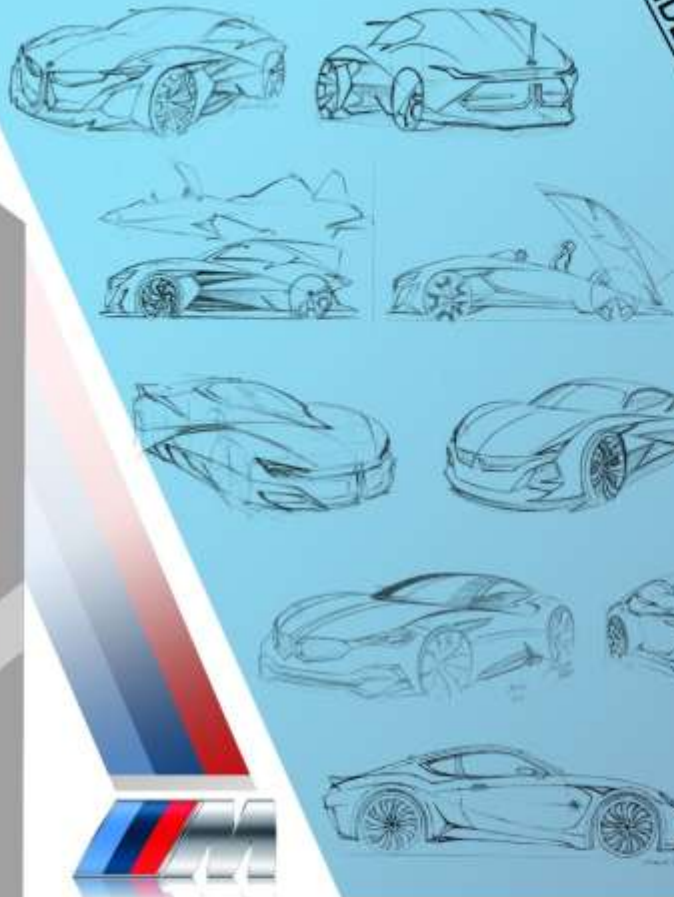
BMW Z8

BMW 507 HOMAGE.

A tribute to most Beautiful BMW ever built.

The BMW 507 is a roadster that was produced by BMW from 1956 to 1959. Since roadsters are expensive for the company to build, BMW made collaboration with Toyota for the BMW Z5. This Project draws inspiration and design cues from the classic 507 which shows a possibility of a new design language for future BMW cars. A sports coupe could be more practical for the user and profitable for company, this project is an attempt to revive this iconic car by taking the design cues of this car and developing a new design language.

RESEARCH



IDEATION SKETCHES



TIMELESS



AGGRESSIVE



SENSUAL



PERFORMANCE



ICONIC



ELEGANCE

MOOD BOARD

"BMW stated that making Roadsters are not profitable for company."

BMW makes collaboration with Toyota for development of next generation of BMW Z4 and Toyota Supra. Both of these cars will share the same platform.

This project draws inspiration from the classic 507 which shows possibility of next design lanuage for future BMW Cars.

Development of sports coupé to revive 507.



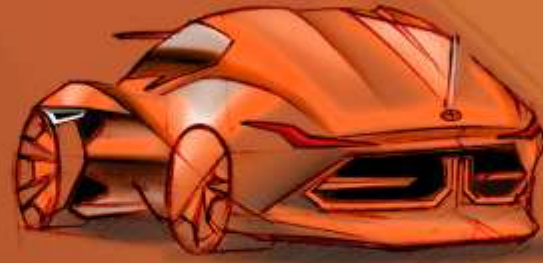
IDEATION SKETCHES



FINAL CONCEPT



IDEATION SKETCHES



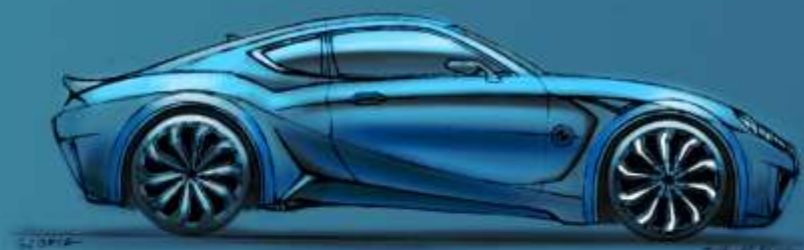
DIRECTION 2

Inspired by aircraft's canopy functioning.

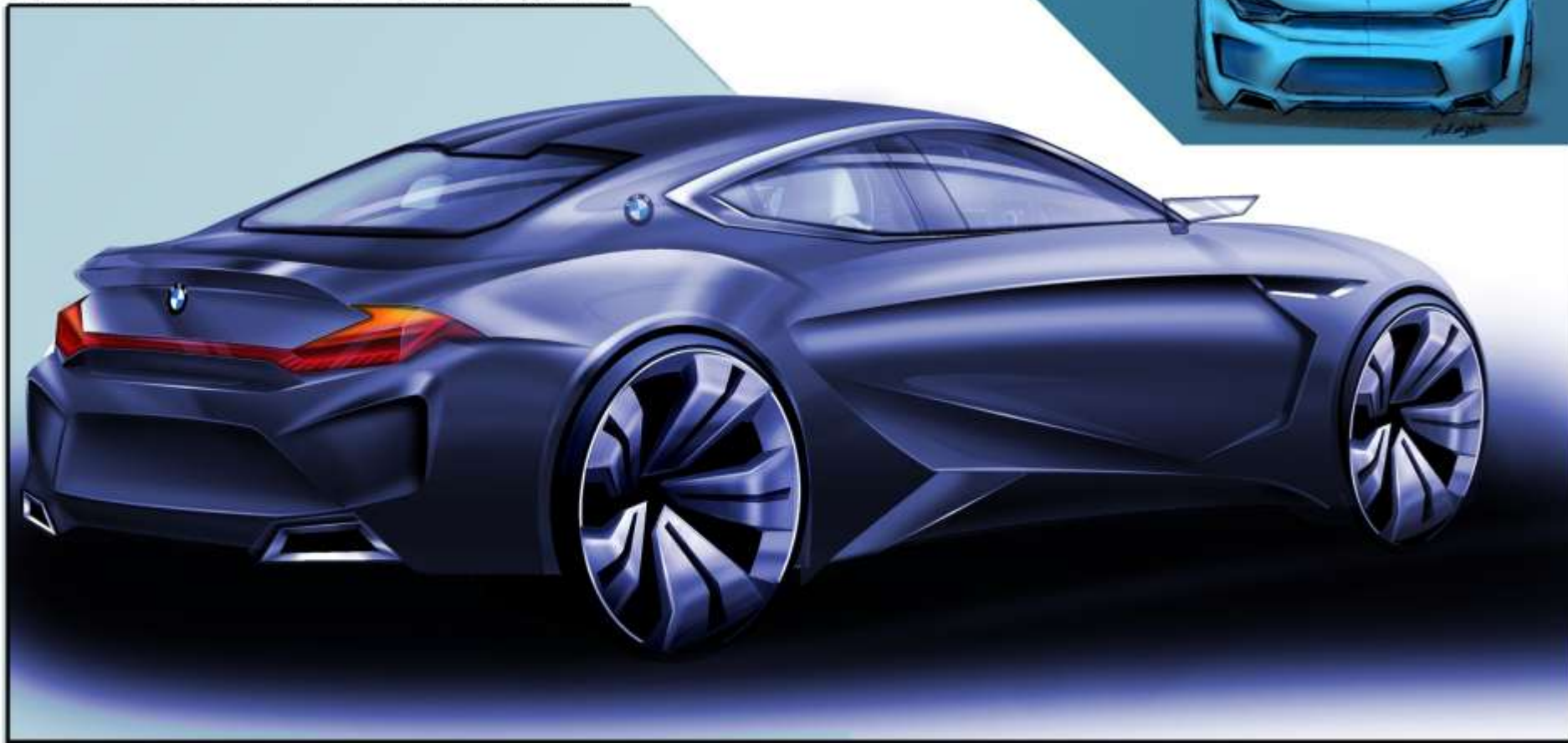
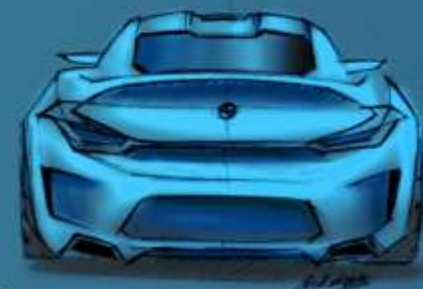


1/15/15

IDEATION SKETCHES



FINAL CONCEPT DEVELOPMENT



FINAL CONCEPT



Sheer
Driving Pleasure

BMW GLORIA



INTELLIGENT E-AWD ALL WHEEL DRIVE

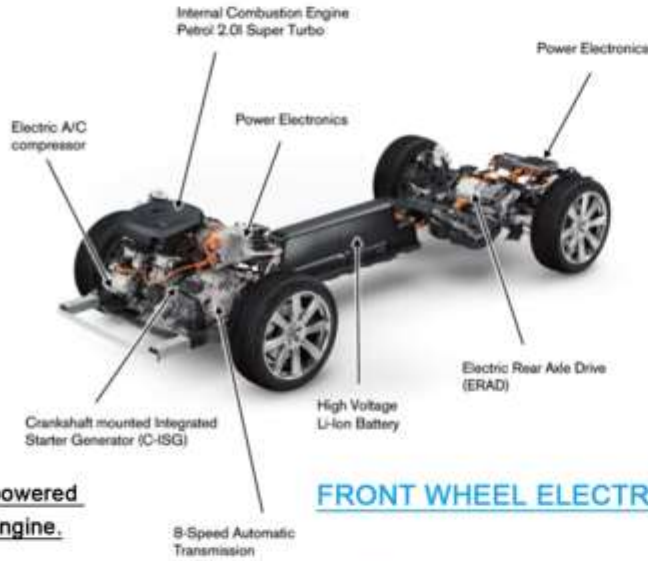


DYNAMIC STABILITY



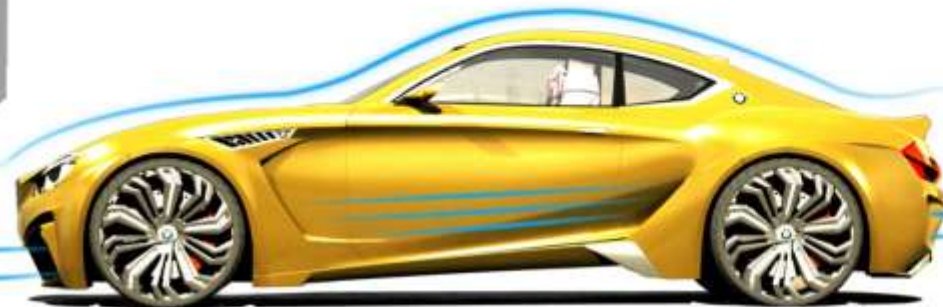
Li-ion Battery

HYBRID POWERTRAIN

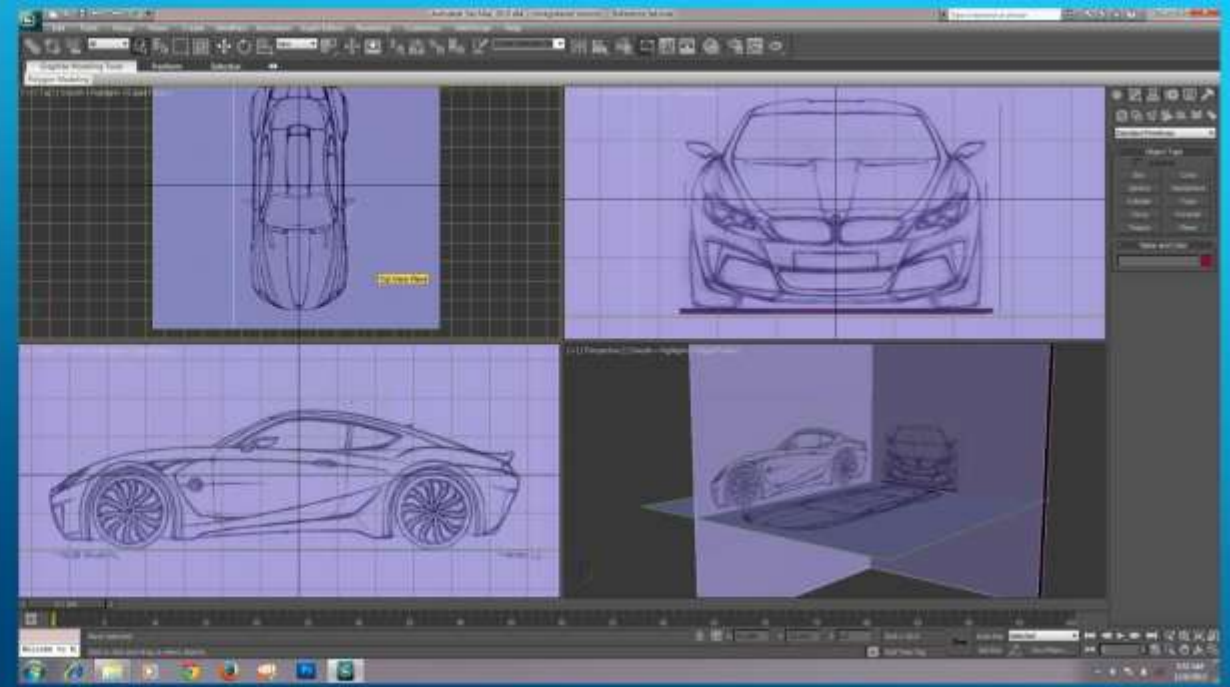


Rear wheel powered by gaslone Engine.

FRONT WHEEL ELECTRIC DRIVE



EFFICIENT AERODYNAMICS

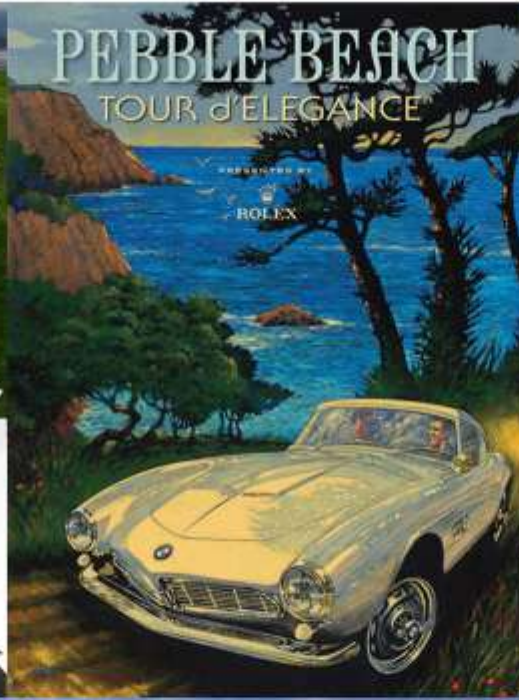


DEVELOPED USING 3DS MAX AND V-RAY

3D MODEL VIEWS



ELVIS PRESLEY'S RESTORED 507



PEBBLE BEACH AUTO SHOW



INTERIOR



READY TO » RACE



KTM AG is an Austrian motorcycle and sports car manufacturer owned by KTM Industries AG and Indian manufacturer Bajaj Auto.

It was formed in 1992 but traces its foundation to as early as 1934. KTM's roots are offroad-focused, lending it a more rough-and-ready personality that's capable of tackling nasty offroad bits. KTM is known for its off-road motorcycles (Enduro, Motocross and Supermoto). Since the late 1990s, it has expanded into street motorcycle production and developing sports cars. In 2015, KTM sold almost as many street as off-road bikes. Since 2012, KTM has been the largest motorcycle manufacturer in Europe for four consecutive years. Globally, the company is among the leading off-road motorcycle manufacturers.



DESIGN BRIEF

Two Wheeler For KTM
In The Year 2030.





LIGHT

ZHOR



COMPETITIVE



Flamingo Inspired



AGILE

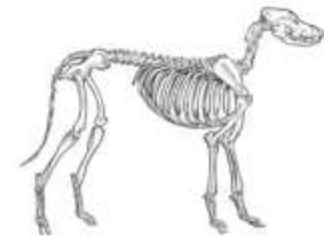
ADVENTURE



AGGRESSIVE



FLEXIBLE



DESIGN LANGUAGE STUDY

Dog's Rib Bones inspired - Naked Bikes



ADVANCED
ENERGITIC



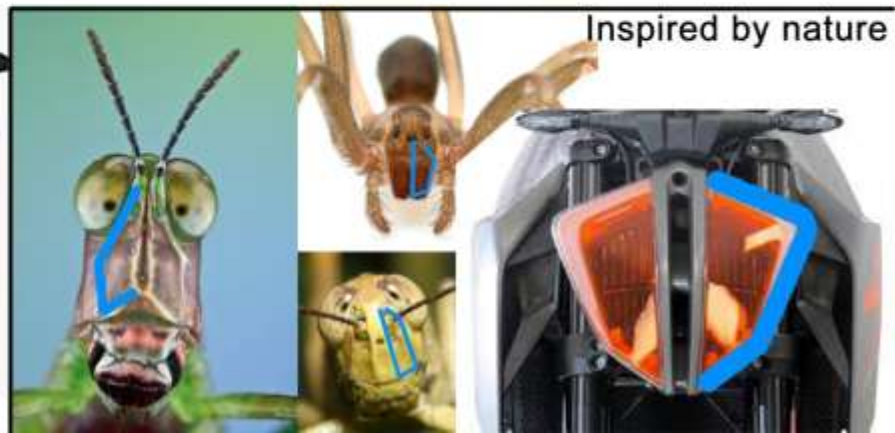
FREEDOM



PRECISE



MOOD BOARD



Inspired by nature



**Name : Anstesia Black
Yamaha Motoroid X2**

She is an investment banker working in JP Morgan she is drives a Toyota i-pace. She is not really facinated about Artificial Intelligence Driving. She likes to go ride bikes on weekends. She likes complex designs like complicated watches.

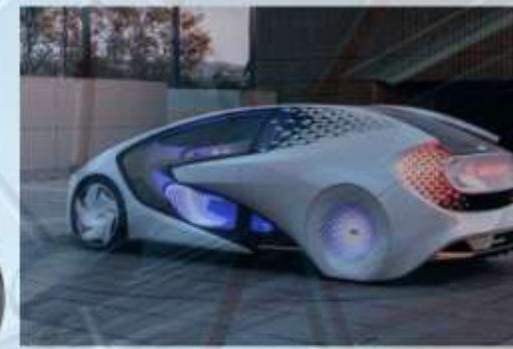


USER RESEARCH

Pro : Self Balancing Technology
Uses Clean Electrical Energy
Stable Ride
Good Ergonomics and good seat design with lumbar support which acts as safety support while cornering
Futuristic design and aerodynamics

Cons : Lacks Thrill on cornering as it relies too much on Artificial Intelligence.
No driver input needed.
Battery balancing system is impractical while cornering.
No offroad capabilities

-- "Anstesia Black"



USER RESEARCH



**Name : Anita Stacy
Occupation : Fashion Designer
Bike : BMW Motorrad R 10 T pure.**

Pros :
Retro Classic Look,
AI aided self Balancing,
AI assist while cornering
No helmet , Glasses mounted display.
Pressure Suit mounted
intelligent feel Navigation system.
Hand gesture reader .
Active aerodynamics.
Dynamic Tyre threads.

Cons :
No off road capabilities.
Aerodynamically not that efficient.
Higher Centre of Gravity, less stability while cornering.
Not a very comfortable seating Posture.
No Helmet protection.

Car : BMW i9
She likes self driving car and she would love to have an off roader Adventure Sports Bike.



Failure of Infrastructure in Urban Areas

By 2030 ,

- India will become largest economy ,
- Rise in per Capita ownership will lead and India will lead to higher Vehicle Ownership.
- India will have the largest population in the world (1.5 Billion people)
- THIS WILL LEAD TO CHAOS

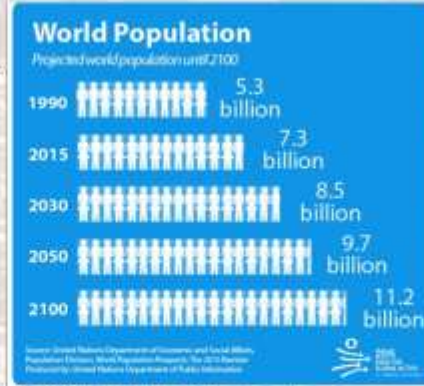
Failure of Public Transportation system.

Massive Traffic Jams during.

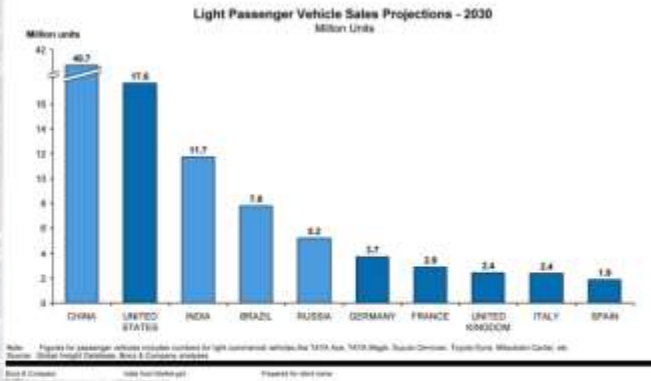
Flyovers won't help and can't build more flyovers due to limited resources.

Scarcity of Natural Resources like Water etc.

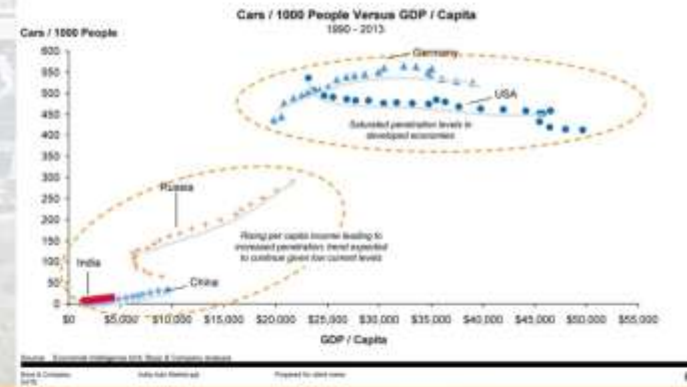
Every thing comes to a standstill.



By 2030, India will be among the GLOBAL BIG 3



This rise in per capita GDP will lead to higher vehicle ownership



India will be stretched to the limit by overpopulation in 2030

As a result of that,

- Middle class people settle in lesser crowded hill stations, deserts and other hilly areas.
- People settle in Himalayas and all the hilly areas. People run away from City Chaos.
- Rich people go to other sparsely populated places like Siberia, Tibet etc.
- Extremely rich people go to settle in Mars and Moon colonies.

RESEARCH

CHOICE OF BIKE : ADVENTURE SPORTS



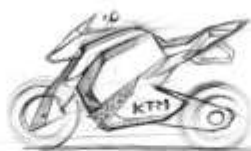
SCENARIOS



IDEATION SKETCHES



SCRAMBLER



DIRECTION 1

ADVENTURE SPORTS

The Most Victorious Motorcycle Brand In Dakar History

17 DAKARS UNDEFEATED



ADVENTURE SPORTS



Sidharth
Rath

DIRECTION 1

Type of bike that will be preferred : Supersports / Roadster.



- Hyper-Performance : Build for speed.
- Sacrifice comfort for performance
- Mostly 1000cc Bikes with much higher power
- Stiff Suspension set up.
- Lower Center of Gravity
- Low Ground Clearance
- Rider leans more towards front for stability and aerodynamics
- More Stable: One can hit the corners with gusto.

Tron's legacy will come true

SCENARIO 2



Future City - Fast Driving Roads



Complex Flyovers

A GLIMPSE OF FUTURE ROADS



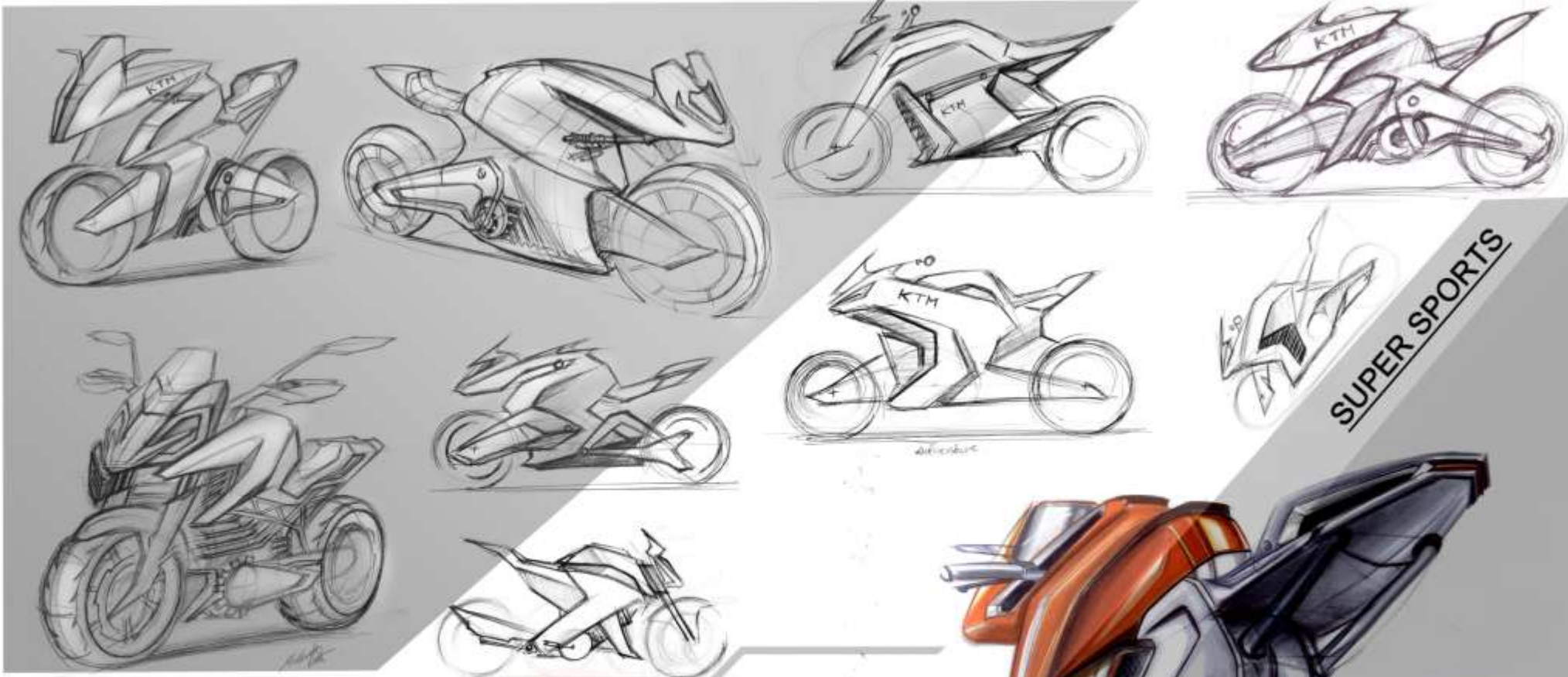
- Fast Driving Lanes
- Wi-Fi enabled Roads To Assist Driver in high speed drive.

Collision avoidance system

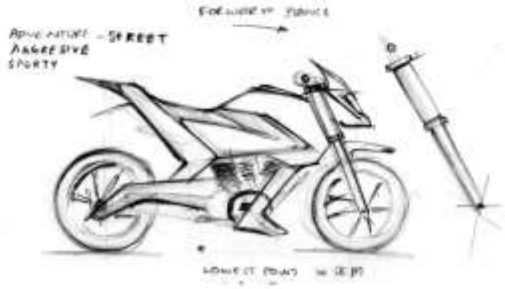


Hyperloop

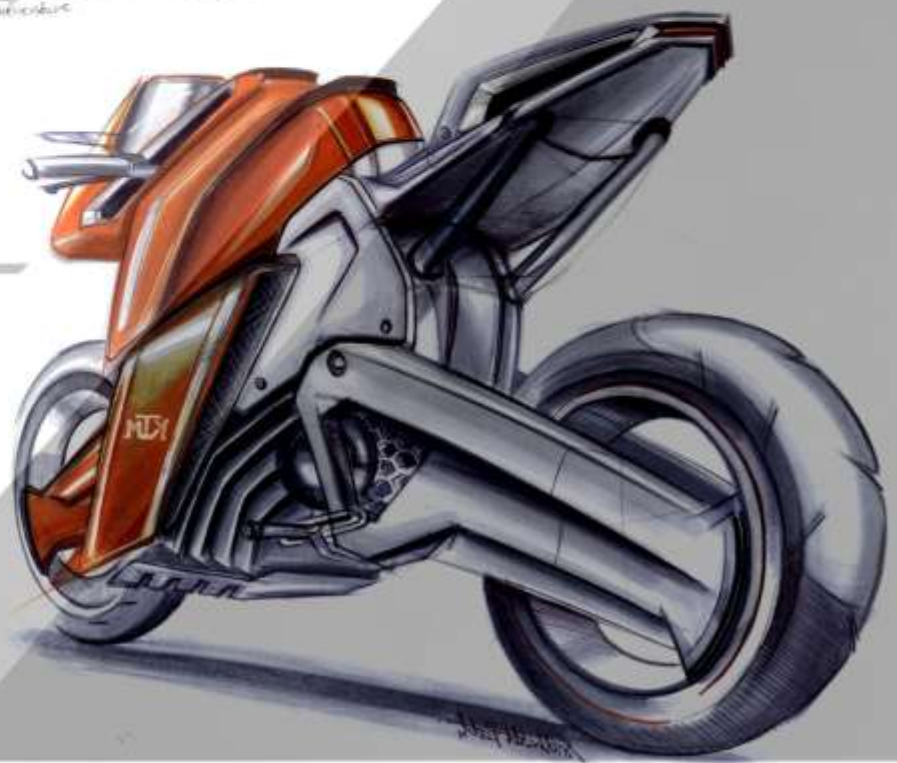
IDEATION SKETCHES



SUPER SPORTS



KTM



DIRECTION 2

Why Electric ? India to sell only Electric Vehicles by 2030

India to sell only electric vehicles by 2030 : Piyush Goyal, Minister of State for Power/Renewable Energy
 India will stick to plan of having 100% electric mobility by 2030: Nitin Gadkari Minister of Road Transport
 The govt wants only electric vehicles to ply on India's roads by 2030 as part of its climate change commitment and to reduce spending on oil imports



Scope for Autonomous Bikes?

Motorists could spend extra hour commuting to work by 2030

THE NUMBERS

1
By 2030 people could be spending an extra hour per day extra commuting to work.

35
Data from the Bureau of Infrastructure, Transport and Regional Economics shows the average commute time in Melbourne in 2011 was just over 35 minutes.



63
By 2030, projections by PwC reveals that average commute times could increase to 63 minutes under a worst-case scenario – or an extra 56 minutes per day.

7.5
Current time spent commuting is 7.5 working weeks per year, by 2030 this will be 13.5 weeks.

☛ The numbers spell trouble for Melbourne commuters.

- Biker's Woos in 2030**
- Extreme Scroaching Heat**
- Rise in Temperature by 2 Degrees Centigrade.
 - Unpredictable Weather**
- Natural disasters and variable rainfall patterns
 - Air Pollution**
- Climate Change to Cause 60K Air Pollution Deaths Yearly by 2030
 - Traffic Jams**
- Rise in sea levels will decrease land mass and overpopulation will aggravate the problem.



Unclean air: Study finds pollution at dangerous level in HCMC's new urban areas

We have 70% market share says Sohinder Gill, CEO, Hero Electric




 RANGE
46 km/charge


 SPEED
25 km/hr


 MOTOR POWER
200 W


 BATTERY RANGE
40V / 20AH


 BATTERY TYPE
Lithium-Ion


 CHARGING TIME
4 hours

optima 02
HIGH RANGE

Hero Electric : Ahead in Race

Cleaner Air
Go Green

SAY HELLO!



Optima and Photon now available with lithium-ion batteries

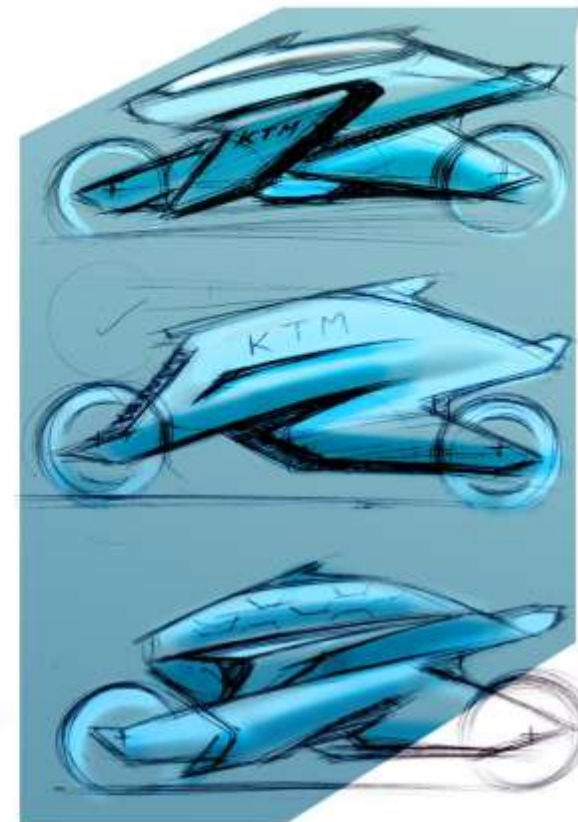
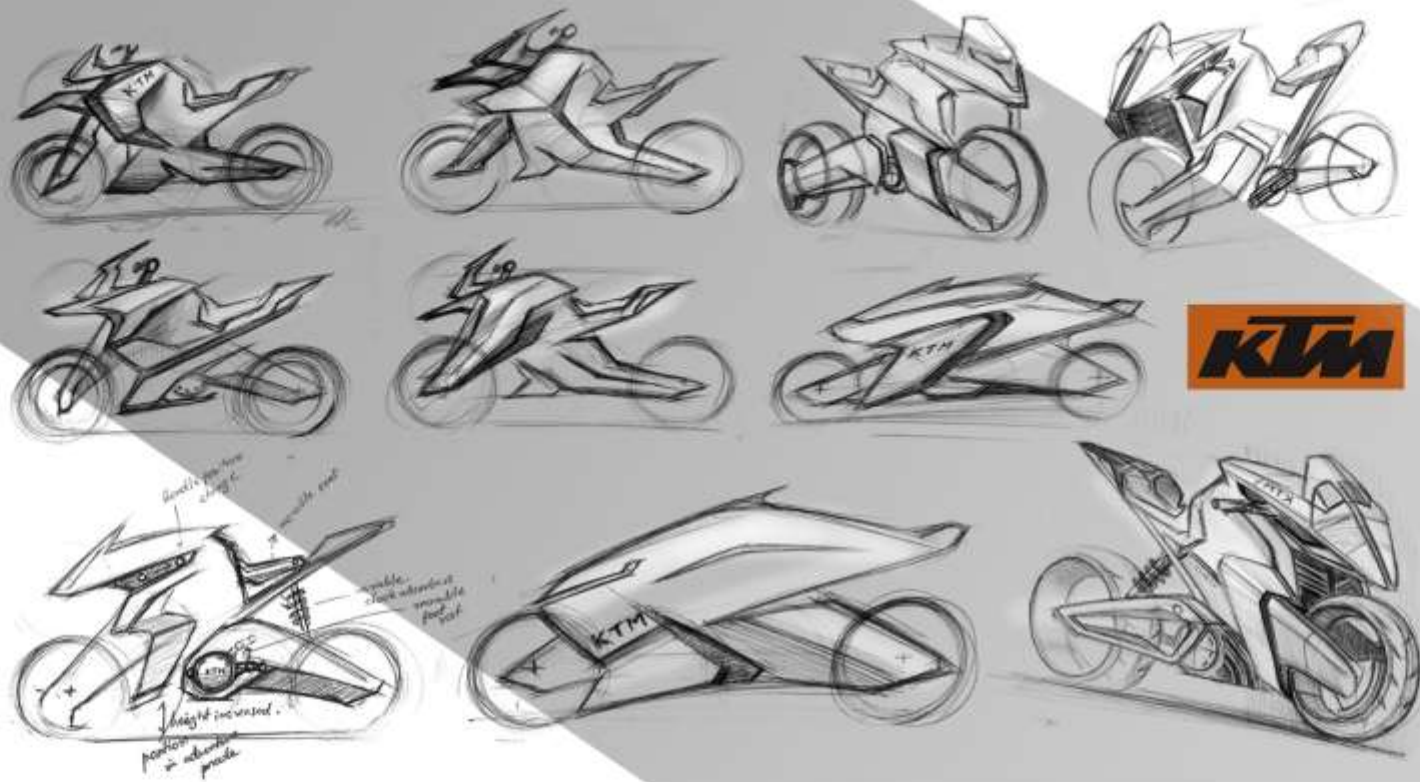
KTM, Being a leader in quarter segment in India, will invest in this lucrative segment of Electric Bikes which holds key to success in future.

KTM CHALLENGES HERO ELECTRIC IN INDIA

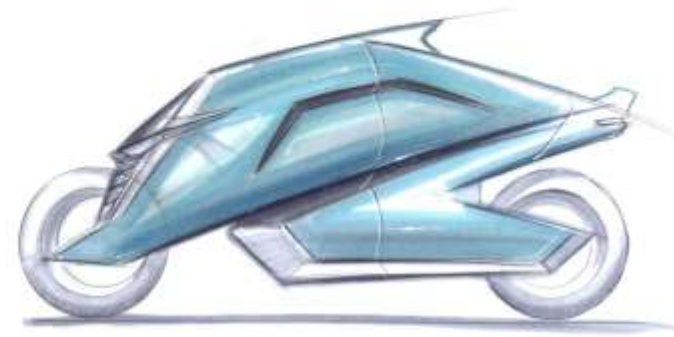
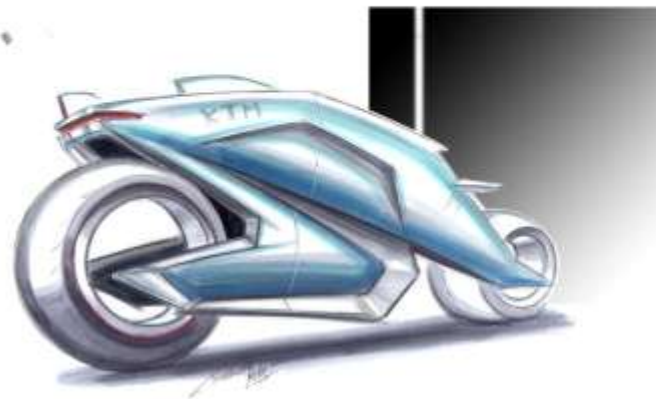
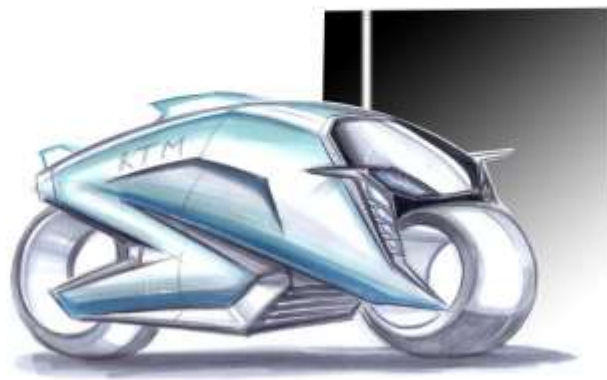


IDEATION SKETCHES

Selected Concepts



DIRECTION 3



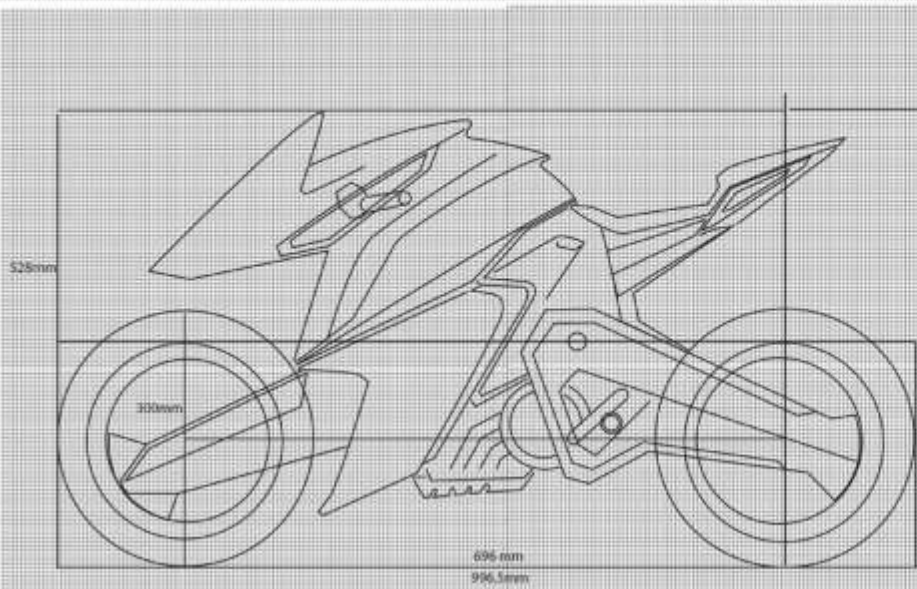
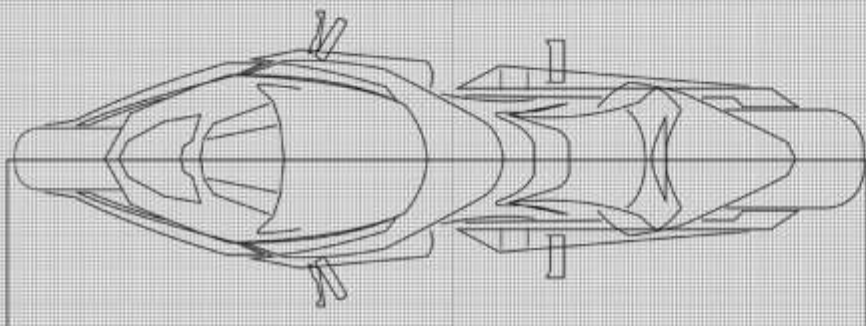
Athlete in Motion



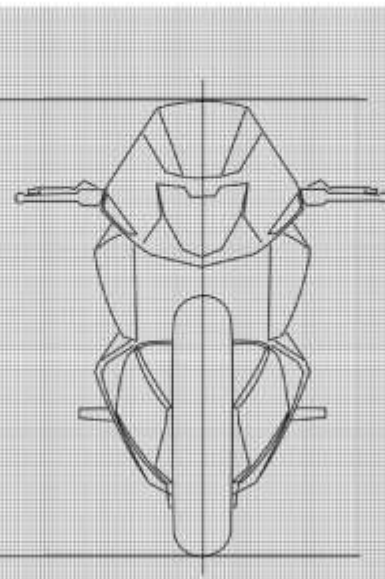
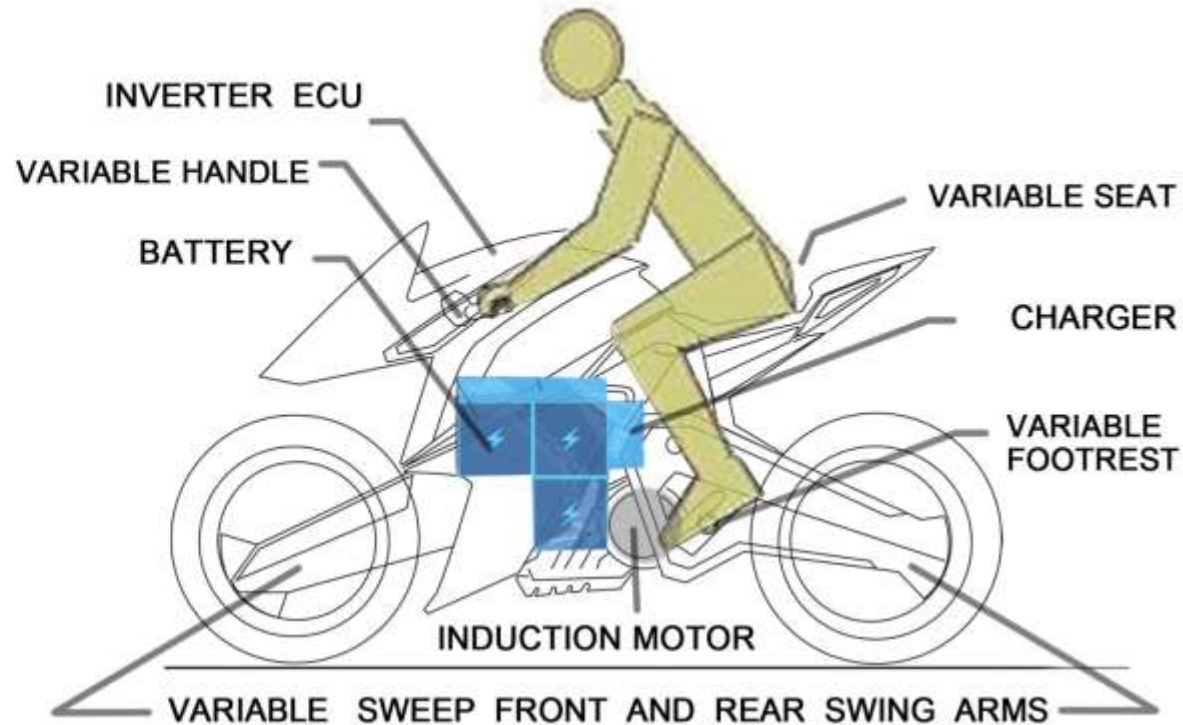
KTM

FINAL CONCEPT

PACKAGING



AUTOMATICALLY ADJUSTABLE GROUND CLEARANCE



- Two Point Contact of Swing Arm to Rim for Sturdiness
- Adjustable Seat, Handle and Footrest.
- Electric High Torque Motor.
- Compact Graphene Batteries



KTM FREERIDE E-XC

BIKE SPOILER (aerodynamics)



Rear Camera
Integrated Winglets

Internal Winglets



AIR BRAKING

Fighter Jet Inspired
Canard like Spoiler Deployed



WHEEL TURNING MECHANISM

FRONT SWING ARM

VARIABLE GROUND

CLEARANCE



ALL WHEEL DRIVE



BIMOTA FRONT SWING ARM

TECHNOLOGY

DUAL MODE FUNCTIONING



MODE : SUPERSPORTS

Ride Height / Ground Clearance decreased.

Handle position Lowered, shortened..

Seat is more inclined

Suspension set up is stiffer..

Foot rest is made higher, compared to ground height.

Handle bar length is decreased automatically.



Handle position lowered



Supersports mode

MODE : ADVENTURE SPORTS

Ride Height Increased / G.C increased.

Suspension set up is more comfortable.

Foot Rest lowered

Handle position is higher, length increased.

Good seating position / seat is in a flat position

Dynamic tyre threads adjustment.



Adventure mode.

Handle rotates opposite handle bar rotation



HANDLE BAR

- Handle position raised like Cruiser.
- Increase in length
- Rotate upwards 90 degrees in adventure mode..





Animal Ribs Inspired Fins for Cooling.

READY TO» RACE

LEAN ANGLE SENSOR

A.I ASSIST

Self Balancing will kick in in case the rider loses control.

Gyroscopic Stability

ISLE OF MAN TT Racing



Battery cooling

- ALL WHEEL DRIVE
- STABILITY CONTROL
- TRACTION CONTROL

Self Balancing technology will be only for safety as KTM Riders will not appreciate it in the world of self driving vehicles as these lack the thrill of riding.

SCENARIO



INSTRUMENT CONSOLE



Dial Inspired by Mountains
Head Up Display HUD

Spike/Fins present on Fuel Tank retracts upon contact For safety during Braking.



Spikes are present to mimic a horse in the side profile..

KTM

SCENARIO



ALL WEATHER AIR CONDITIONED SUIT

SCENARIO



HMD

Helmet Mounted Display
Thermal Night Vision



Pores In Fabric
Tubes carry cold air
Circulates evenly
Hot air collected back

Heat Exchanging Tubes

These Tubes connect to Bike's Inbuilt A/C Unit

- BIKE HAS BUILT IN AIR CONDITIONER
- A/C LOCATED NEAR FUEL TANK
- THE SUIT'S HEAT EXCHANGING TUBES

CAN BE CONNECTED TO THE A/C UNIT

DAKAR RALLY



LIGHT WEIGHT
HIGH PERFORMANCE
ELECTRIC



ELECTRA

FERON COOLED

FROM DIRT TO RACE TRACK



cost an eye-watering \$13,000 in 1986 dollars. That's more than twice what an equivalent sport bike cost at the time.



The ultra Rare
Lamborghini DESIGN 90

It used a 1000cc inline-4 Kawasaki mill that produced around 130 horsepower in a package that weighed around 400 pounds soaking wet. It had a hand-made alloy frame and fuel tank, lightweight wheels, and was fitted with top-shelf brake, suspension, exhaust, and electrical components. The whole thing was wrapped in fiberglass bodywork that covered everything and mated to the fairing and belly pan.

Lamborghini

Super Sport Motorcycle

BRIEF

Supersport Motorcycle for Lamborghini in the year 2025

Salient Features

- Hybrid powertrain
- To be Limited Edition
- To be priced under 50 lakhs INR
- Ultra High Performance

DESIGN LANGUAGE RESEARCH



#SINCE WE MADE IT POSSIBLE



SILHOUETTE HISTORY



Handlebars
Height and angle
can be adjusted



Higher Seat & Pegs

- Good for quick handling
- Can affect acceleration and braking

Lower Seat & Pegs

- Good for acceleration and braking
- Limits lean angle

Lower
More weight on the front

- Reduce wheelie under acceleration
- Can negatively affect braking

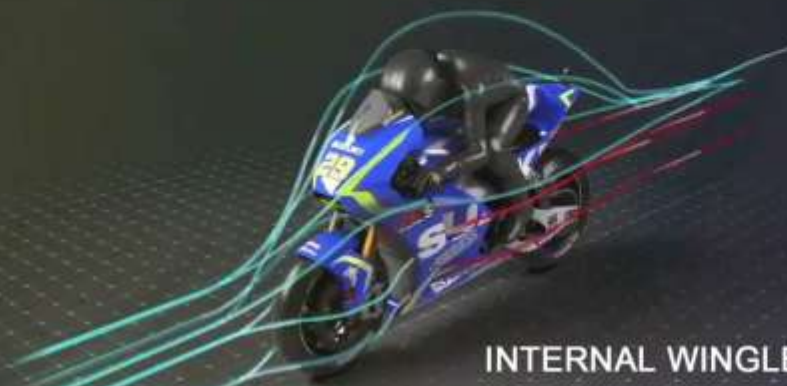


Seat height
Adjustable

Foot-pegs
Adjustable

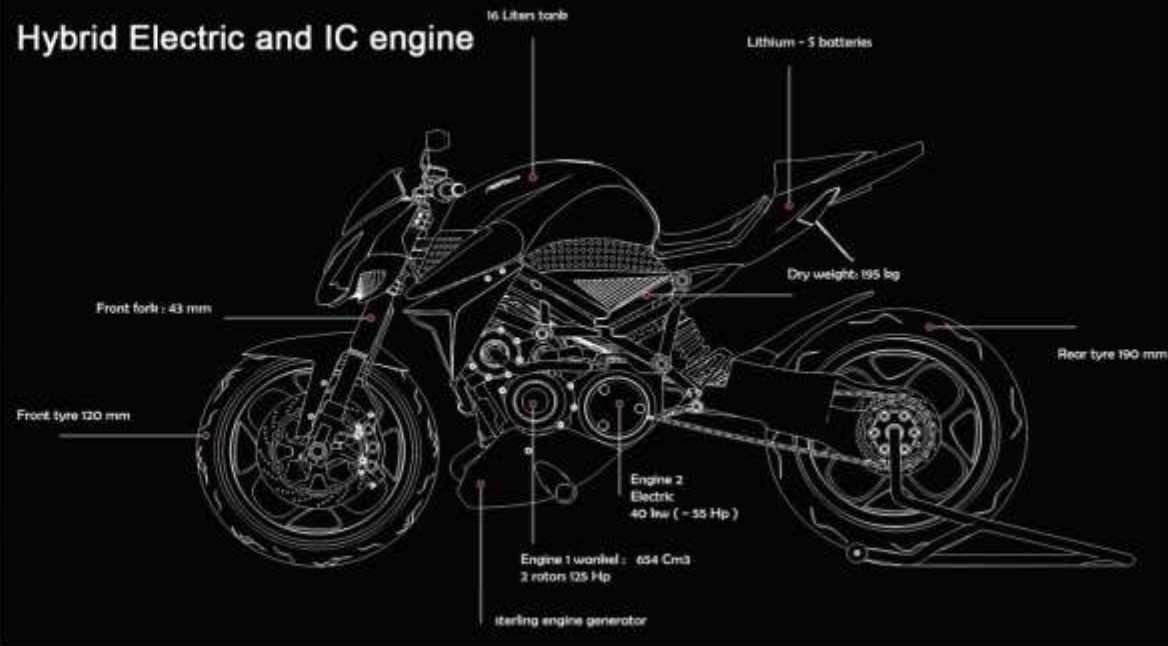
Aerodynamics in MotoGP

motogp.com



INTERNAL WINGLETS

Hybrid Electric and IC engine



hybrid

PERFORMANCE



MOOD BOARD



POWER



SLEEK



MINIMALISTIC



DYNAMIC



SENSUAL

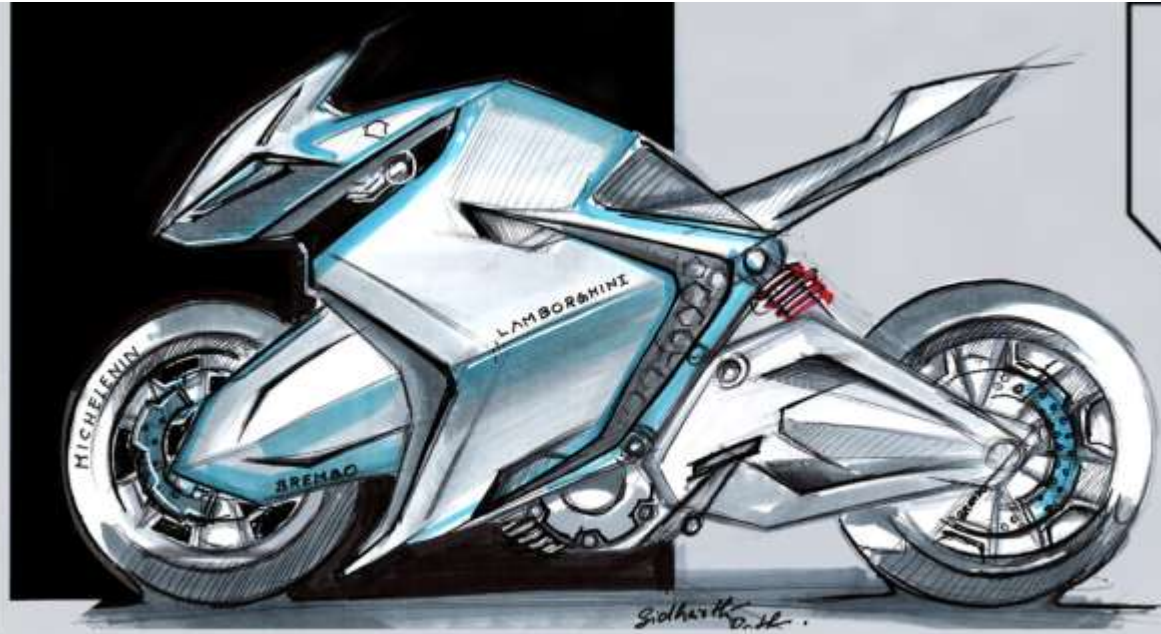


IDEATION SKETCHES



L A M B O R G H I N I



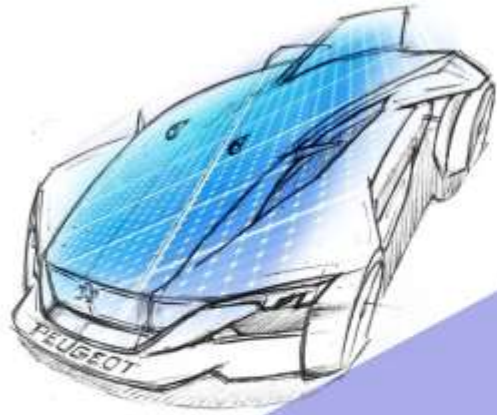


SELECTED DIRECTIONS

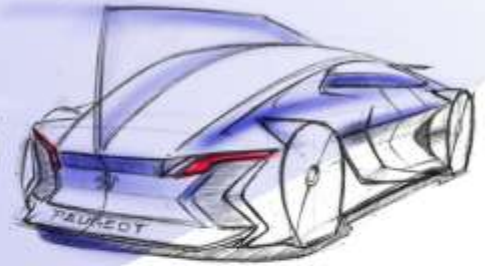
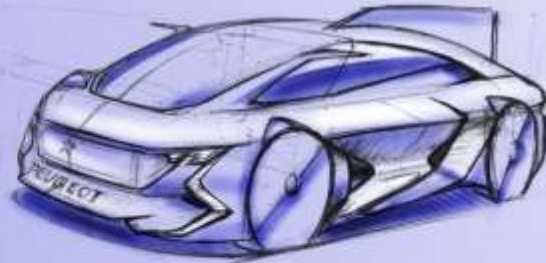


FINAL CONCEPT

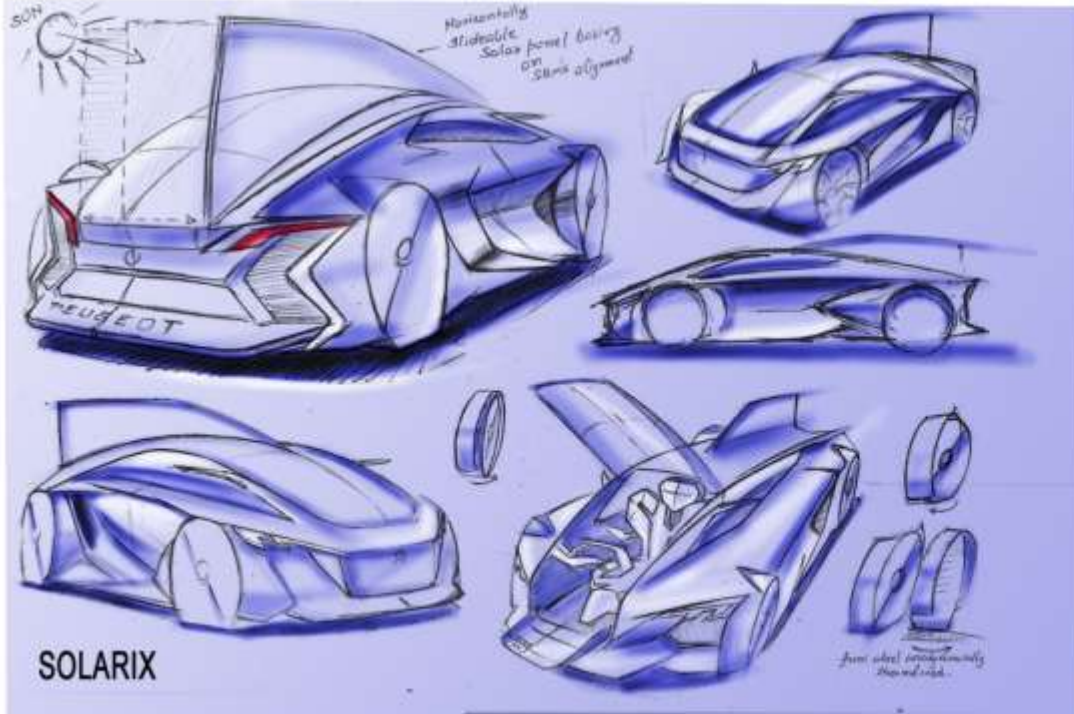
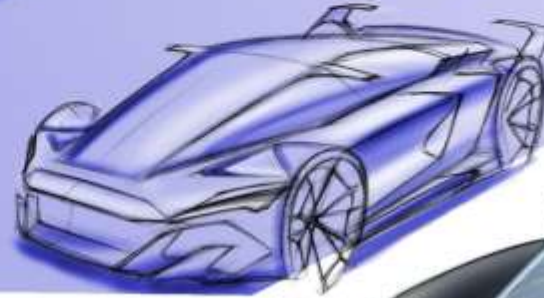
PEUGEOT SOLARIX



SOLAR POWERED SPORTS CAR



SOLAR POWERED HYPER CAR



SOLARIX

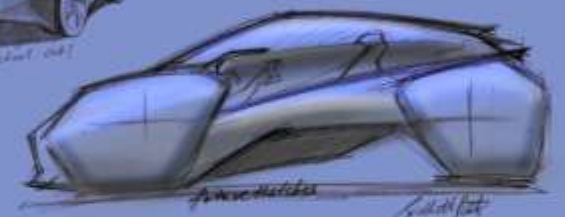


PEUGEOT

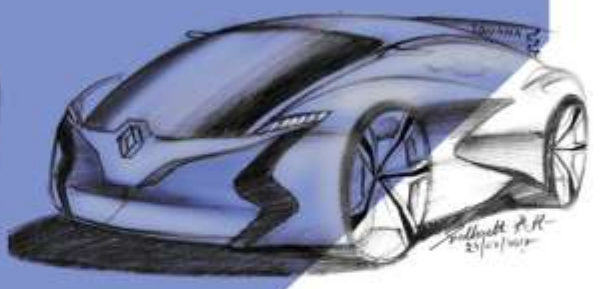


RENAULT FUTURE CARS

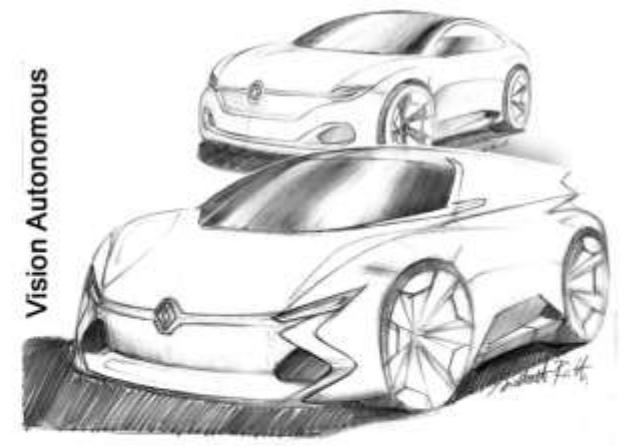
RENAULT FUTURE DESIGN LANGUAGE RESEARCH



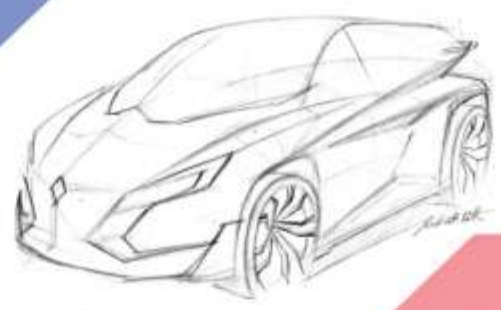
FUTURE HATCHES



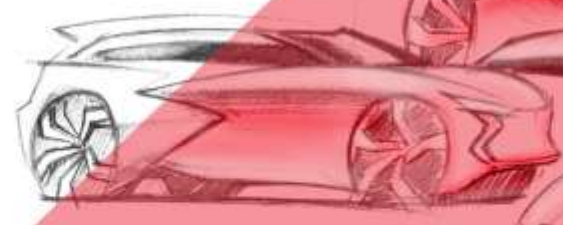
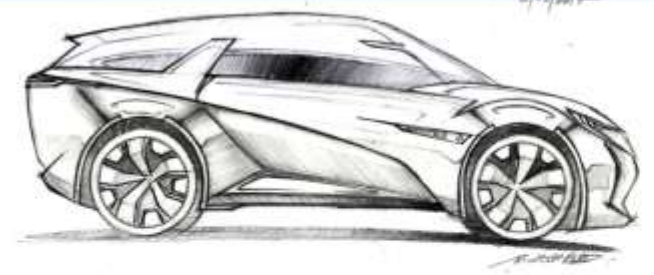
Vision Autonomous



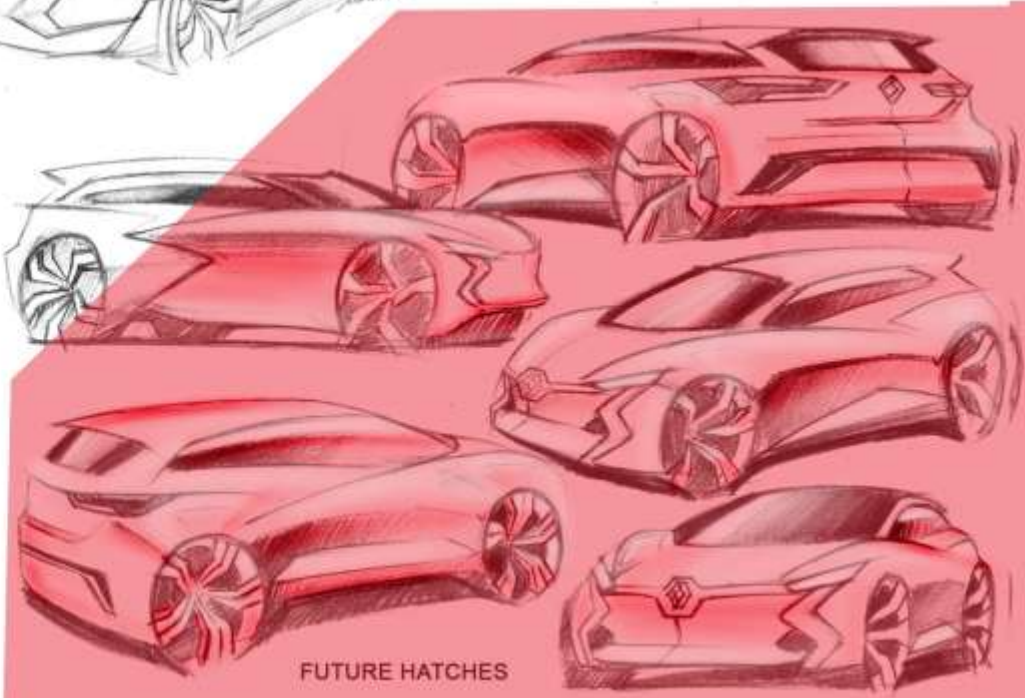
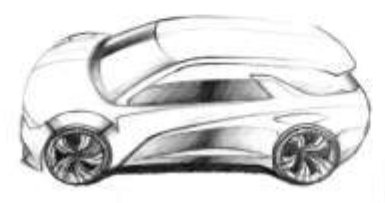
CLIO



LA MANS



RENAULT RISE



FUTURE HATCHES

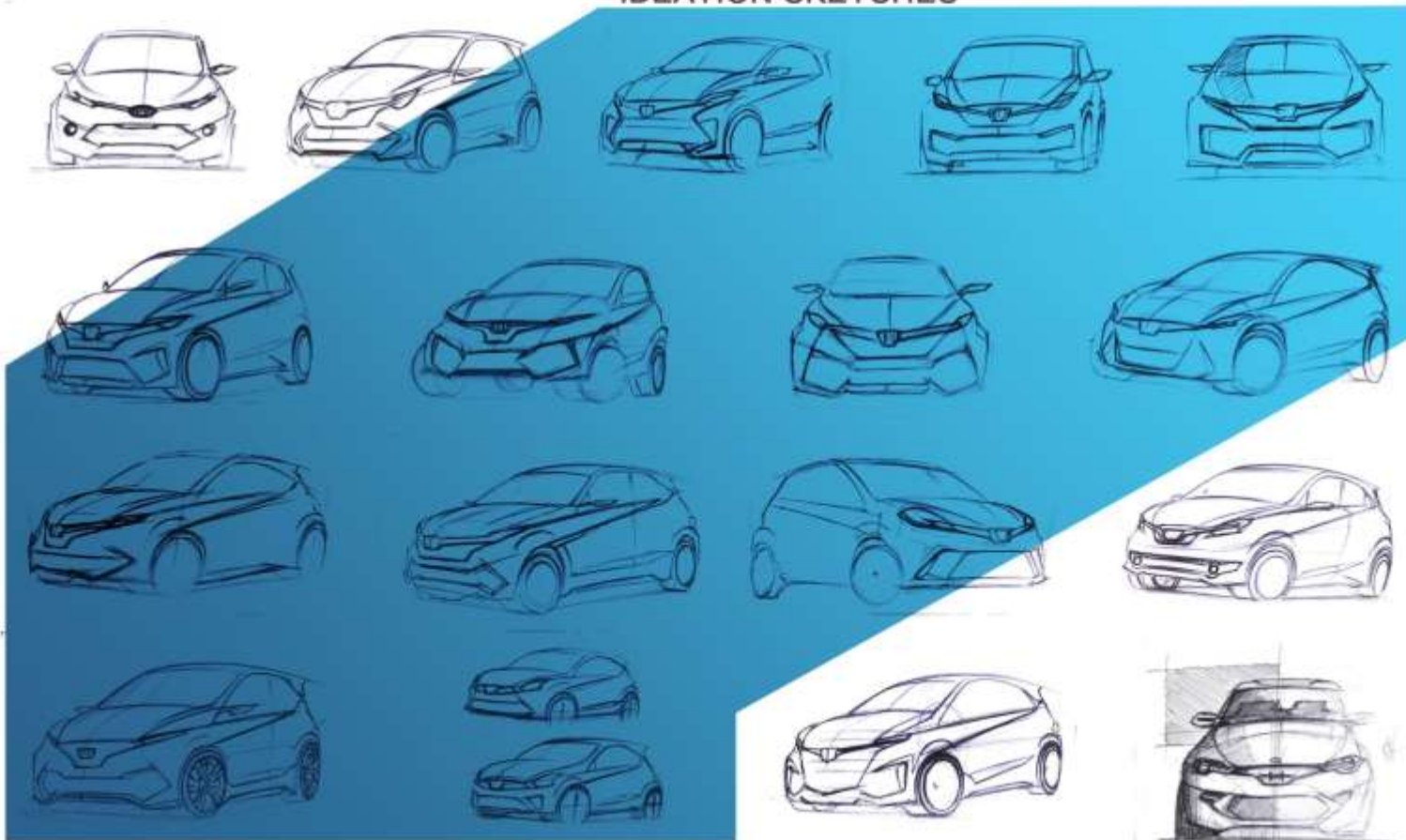
HONDA BRIO FACELIFT



HONDA



IDEATION SKETCHES



VIGOUR



CUTE



AGGRESSIVE



IDEATION SKETCHES

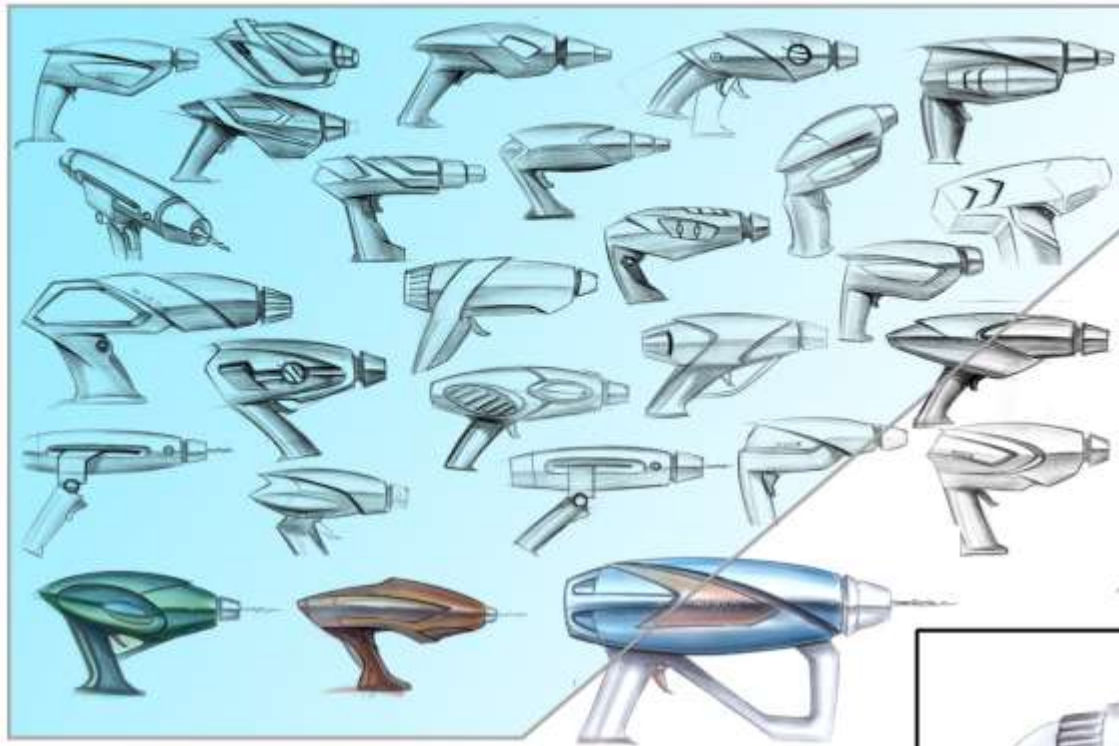


FINAL CONCEPT

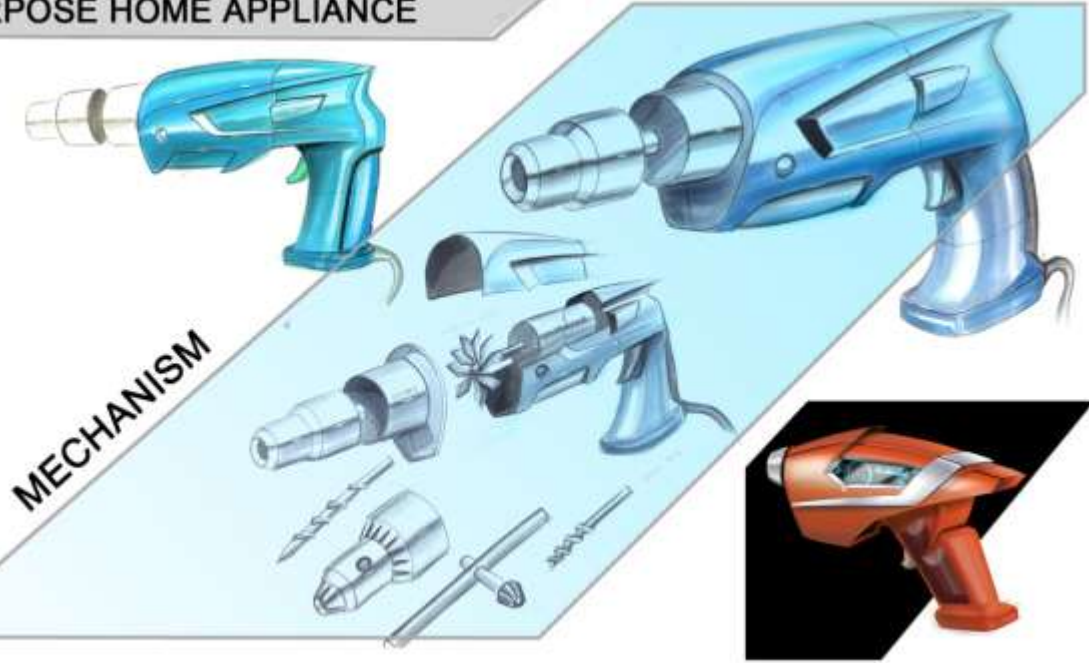


BRIEF : DRILL MACHINE AS A MULTI PURPOSE HOME APPLIANCE

MULTI PURPOSE DRILL MACHINE



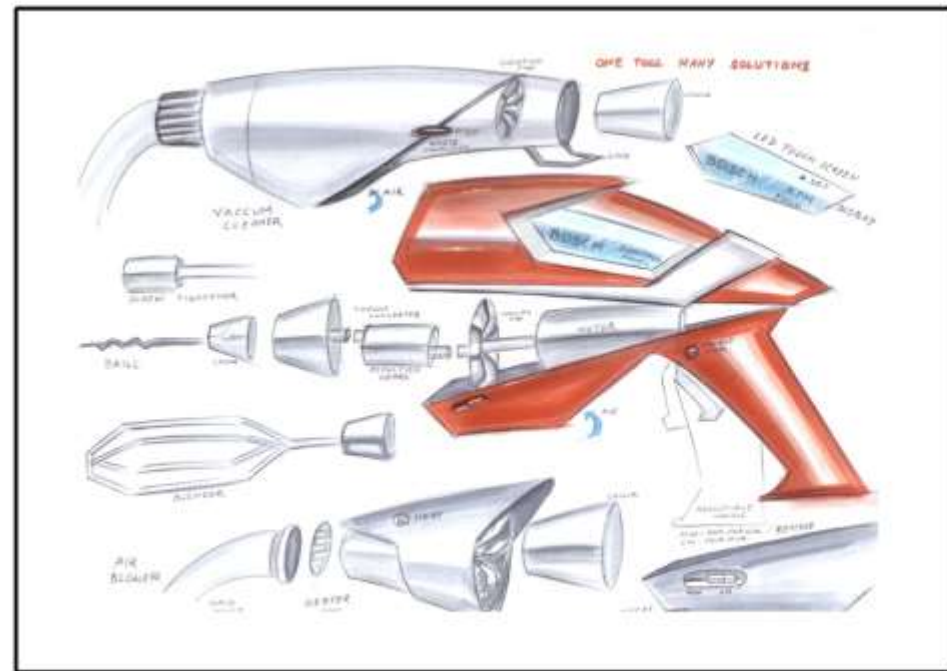
IDEATION



MECHANISM



DEVELOPMENT SKETCHES



FINAL CONCEPT

FINAL CONCEPT VIEWS



TopGear

Brief : Project for TopGear to modify the Hindustan Motors' Ambassador into a PEUGEOT 208 GTI.





FRP Process



PoP MOULD

11.20.2017

MISCELLANEOUS



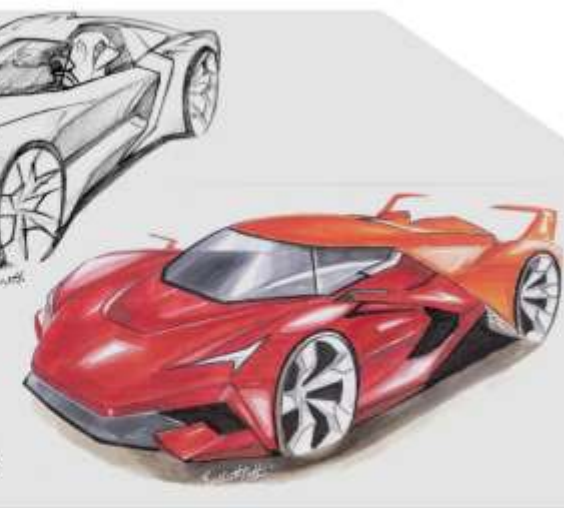
PHOTOSHOP SKILLS



ANALOG SKETCHING TECHNIQUES



MARKER RENDERS



HAND SKETCHES



Thank You For Your Time

Please share your feedback and suggestions



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