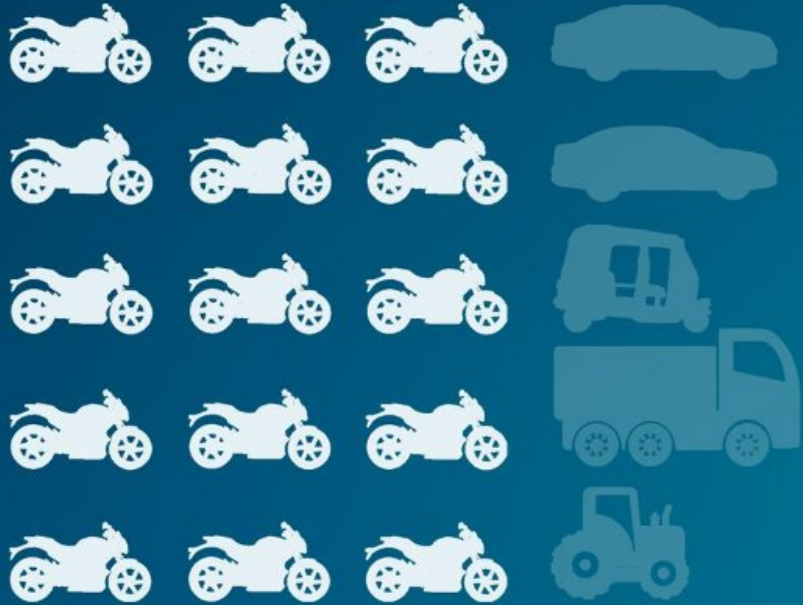


# Design of Urban Commuter

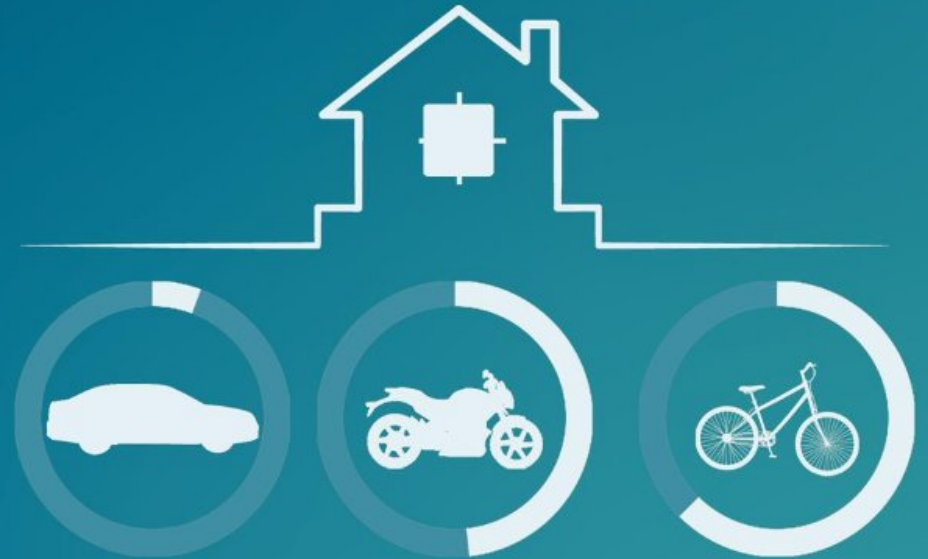
to bridge gap between two wheeler and four wheeler

# PRE RESEARCH ON AUTOMOTIVE INDUSTRY IN INDIA

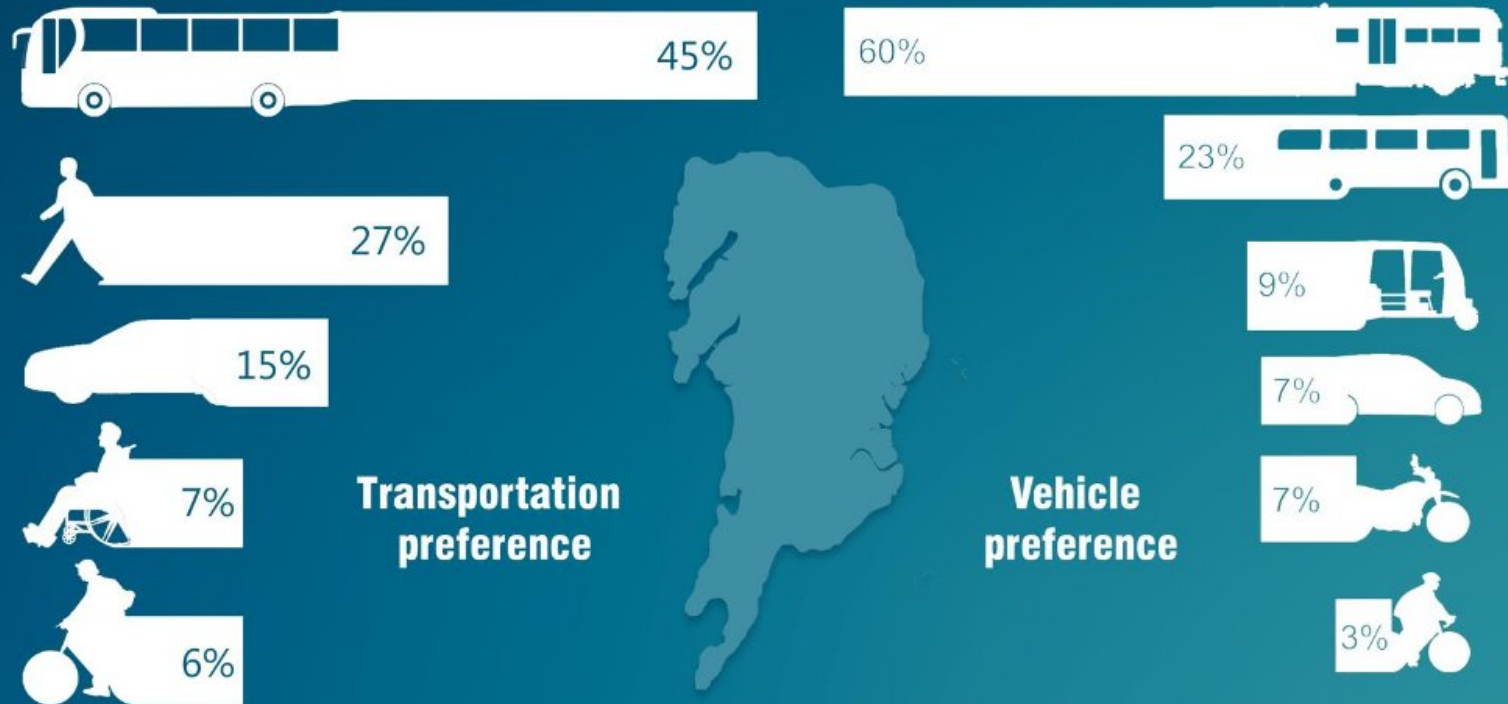


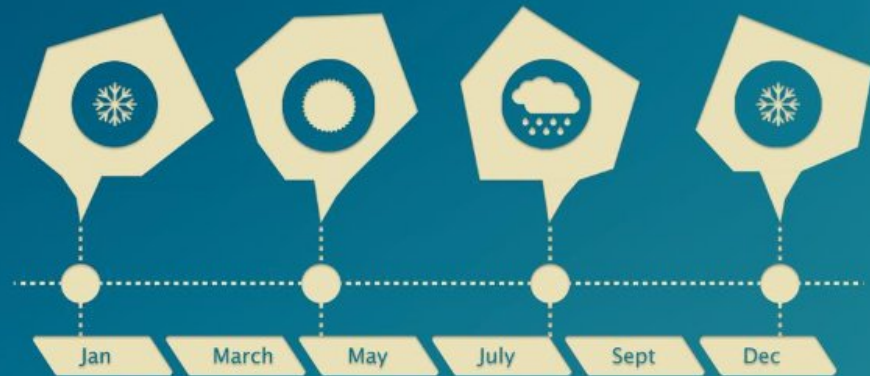
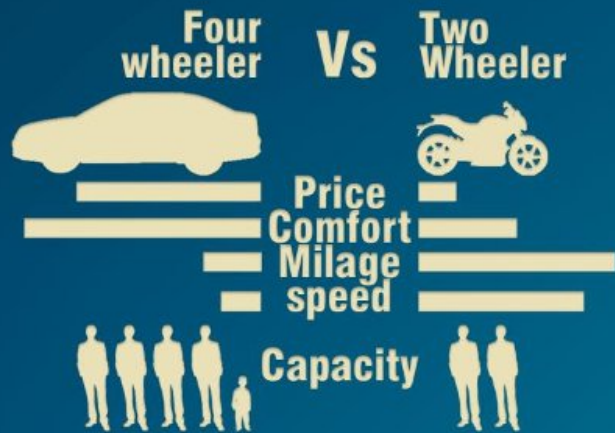
**Two wheeler cover 80% market share**

## Percentage of household that have vehicle



## How People commute in Mumbai





**Air pollution due to vehicle**



**430 Vehicle / km in Mumbai**

**INDIA LOSES ₹60,000 CR  
DUE TO TRAFFIC CONGESTION**



### Lit C-1

₹16 Lakh 

200 Km 

363 KG 



### GOLD WING F6B

₹14 Lakh 

225 Km 

369 KG 



### BMW C1-E

 ₹??

 250 Km

 185 KG



### Icona E3WM

₹?? 

150 Km 

400 KG 



### Peraves monotracer ecomobile

 ₹70 Lakh

 290 Km

 550 KG



### Renault twizy

 ₹5 Lakh

 84 Km


 474 KG

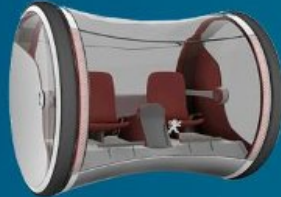


### ozone peugeot

 ₹??



 ?? KG



## SIMILAR VEHICLES

### Honda 3R-C

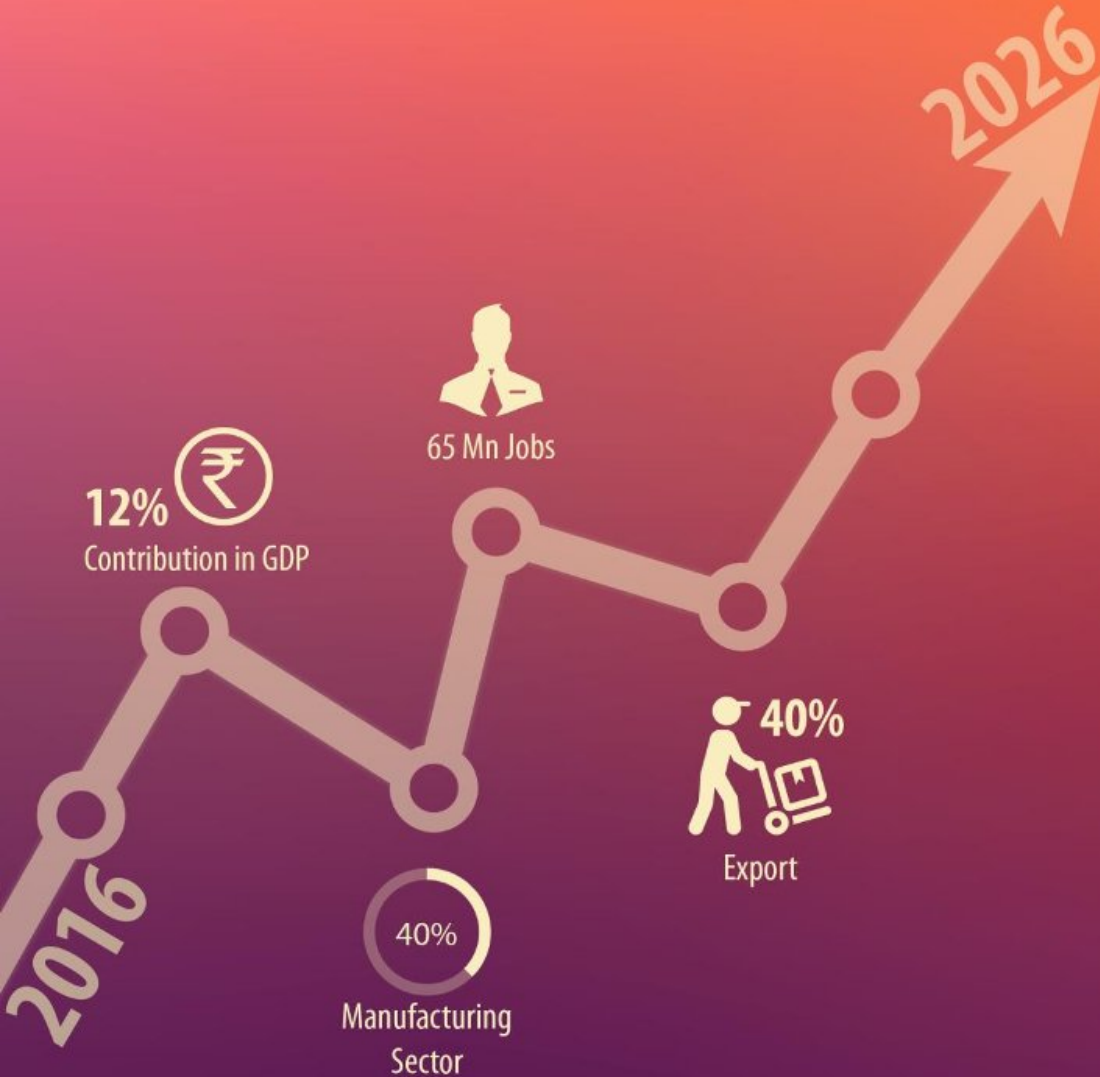
 ₹??

 ?? Km

 ?? KG



# **SECONDARY MARKET SURVEY**



## Vision statement of Automotive Mission Plan 2016-26

“By 2026 the Indian Automotive Industry will be among the top 3 of the world in engineering, manufacturing & export of vehicle & auto components, & will encompass safe, efficient & environment friendly conditions for affordable mobility of people & transportation of goods. In India comparable with global standards, growing in value over 12% of India’s GDP & generating an additional 65 Million jobs”.



VS



Maneuverability  
 Lower price  
 Practical  
 Cheaper maintenance  
 Adventure  
 Enjoyment  
 Easy  
 Parking  
 Traffic cutter

Stable  
 Road grip  
 Status Symbol  
 Social money  
 Togetherness  
 Safe  
 Weather proof  
 Luggage



₹36,000



₹43,000

ECONOMY  
SEGMENT



₹57,000

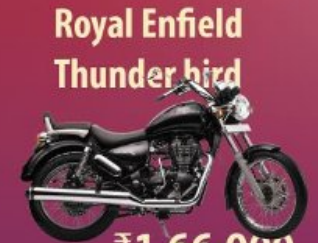


₹83,000

EXECUTIVE  
SEGMENT



₹86,500



₹1,66,000

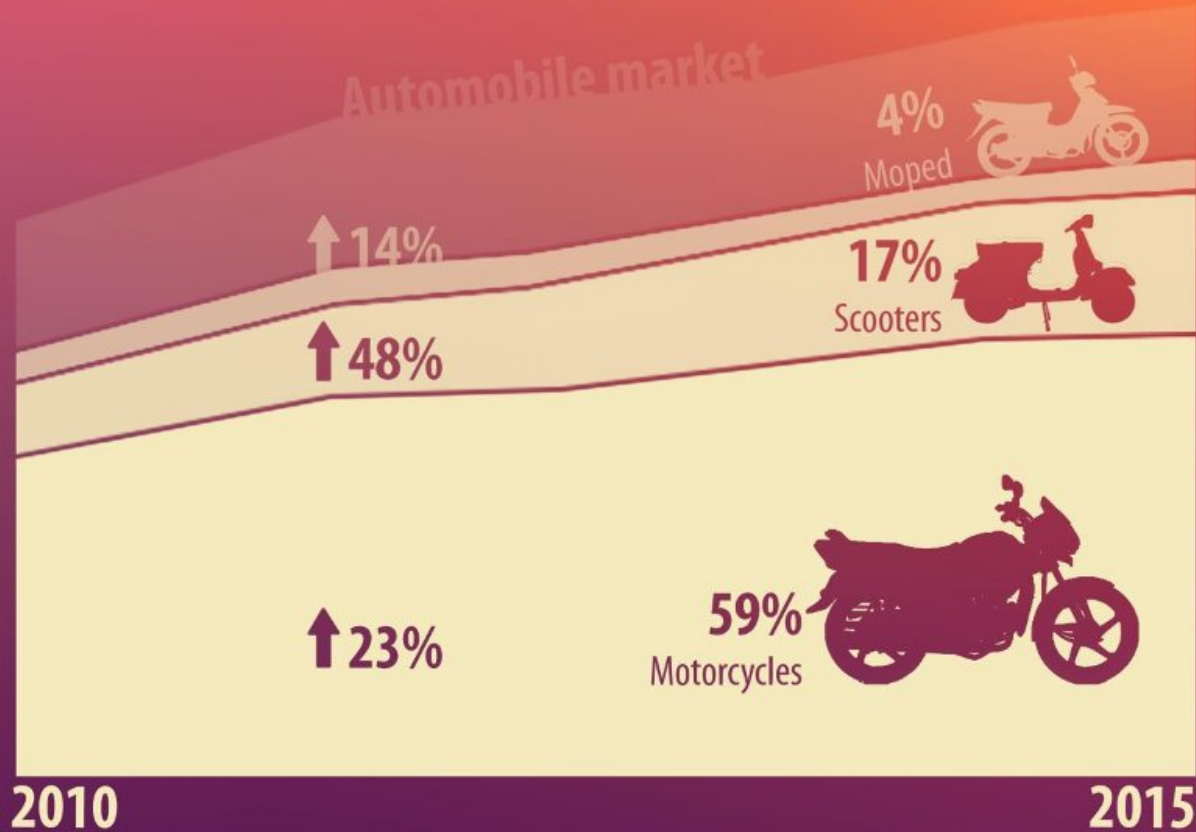
PREMIUM  
SEGMENT

# IMPACT OF AFFORDABILITY ON TWO WHEELER MARKET



Premium motorcycle to see fastest growth

# INDIAN TWO WHEELER MARKET AND GROWTH PATTERN



**INDIA** is second largest two wheeler manufacturer.

**Scooters** to outperform industry & lead growth

# Buying Behavior Analysis



Upto  
22 Years



Power & Style



23-30  
Years



Milage

30-40  
Years



Multi purpose,  
Aspiration

40-50  
Years



Comfort,  
Brand

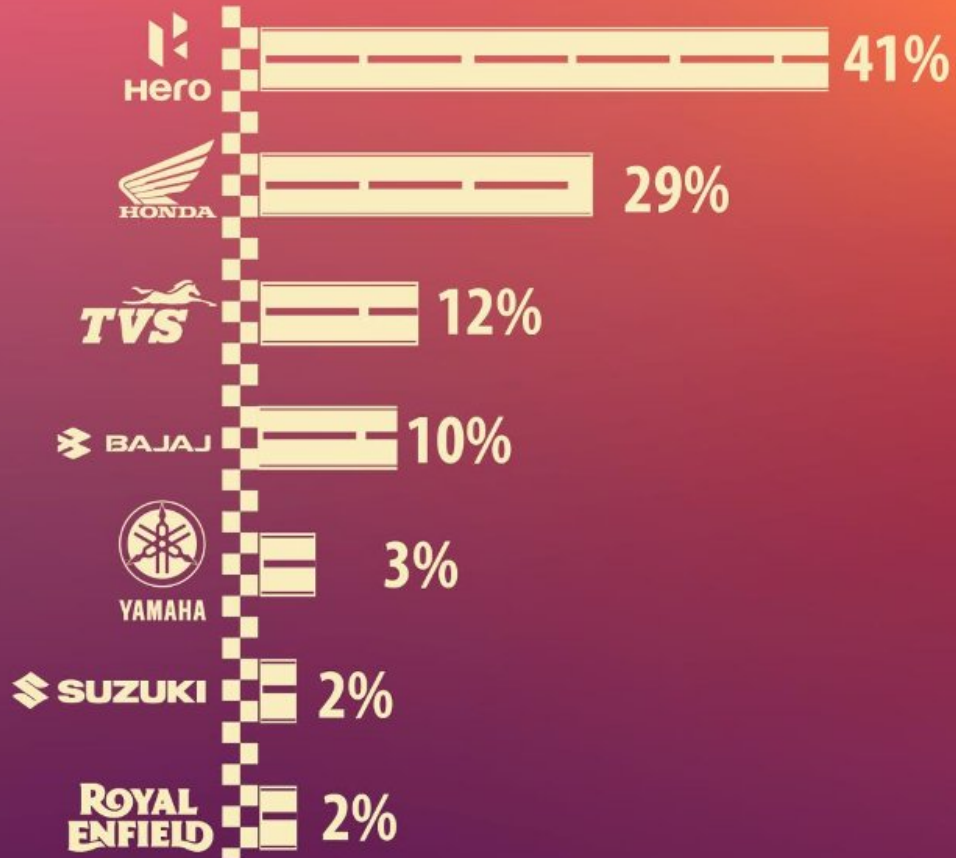


50+  
Years



Comfort

# MARKET ANALYSIS



2,26,668 units



2,04,609 units



76,693 units

June 2016 Sales

# TAKEAWAY

Two wheeler is **economical, practical** and more **manoeuvrable** vehicle in urban area.

**Premium motorcycle** to see fastest growth

**Scooters** to outperform industry and **lead growth**

**Buying Behavior** varies according to age group

Fresh product like Activa can clock **highest sales**

# **OBSERVATIONAL RESEARCH**

# CHILDRENS ON TWO WHEELER





## EXPRESSIONS



# CUSTOMIZING VEHICLE





**HELMET SPACE**



**INDIAN WOMAN ON TWO WHEELER**



**LUGUAGE ON  
TWO WHEELER**

# OVERSEATING





**WEATHER  
PROOFING**

# TAKEAWAY

Carrying **kids** on two wheeler is big concern for parents or guardian.

Owner tries to **personalize** their vehicle

owner tries to showcase their **social status** through their vehicle

User feel **uneasy to use helmets**

Two wheelers are uncomfortable for **Indian women**

User want to carry **luggage** on their vehicle

**Overseating** is common in Mumbai.

# **USER STUDY**

# 69 USERS



**60** Male  
**9** Female



18-22    22-30    30-40    40-60

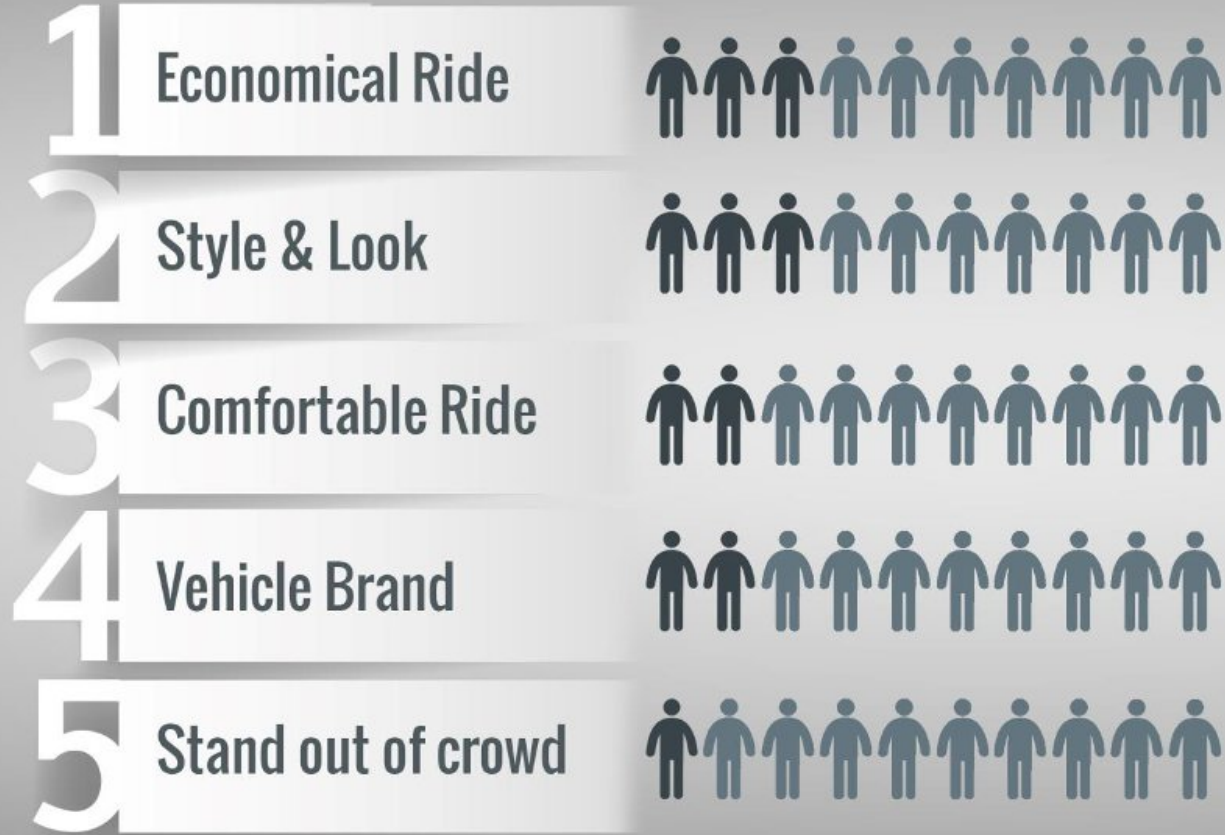


**30% PEOPLE USE MOBILE PHONE  
WHILE RIDING**



**MOST OF THE PEOPLE PREFER  
PARK THEIR VEHICLE NEAR HOME**

# BUYING DECISION



# What do people carry stuff while riding?



Shoes



Wallet



Cigaret pack



Note book



100 kg  
Wheat bag



Vejitables



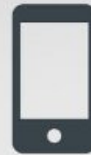
Mobile charger



Laptop



Helmet



Mobile



Rain coat



LPG Cylinder



Water bottle



Back pack



Lipstick



Pepper  
spray



Perfume



Comb



Formal shoes



Purse



Scarf

# COMMENTS



Amol (25) Honda Dazzler  
Parking issue, Helmet got stolen



Kale (42) HONDA ACTIVA  
Bike should be skidproof



Prakash Gaikwad (32) Yamaha FZ16R  
No family bike comes with style



Sanket Chavan (21) Bajaj Pulsar 220  
Inbuild speaker & Cruiser bike sitting



Mohit Shirsath (22) Honda Dio  
Need onboard Mobile charging



Sagar (24) CBR 250  
More heat is thrown out in traffic



Prashant (19) Splendor  
Vehicle should be ready to use



Manoj Gupta (34) Honda Activa  
Need more luggage space

# USER PROFILE



# Yogesh

**Age :** 19 years

**Occupation:** Student

**Place:** Tunga Village, Powai

**Vehicle:** Duke 200

**Buying Decision:** Looks, Power, Style

**Travel Distance:** 20Km

**Aspiration:** Look different

Attract girls

Look stylish & Cool

**Habits:** Long distance riding

Smoking



# Manoj Gupta

**Age :** 34 years

**Occupation:** Vegetable seller

**Place:** Uttar Pradesh

**Vehicle:** Honda Activa

**Buying Decision:** Looks, Luggage Capacity

**Travel Distance:** 60Km

**Aspiration:** Maximum utility  
Cofortable ride quality

**Duties:** Deliver vegetable to home



# Sheetal

**Age :** 34 years

**Occupation:** House wife

**Place:** Mumbai

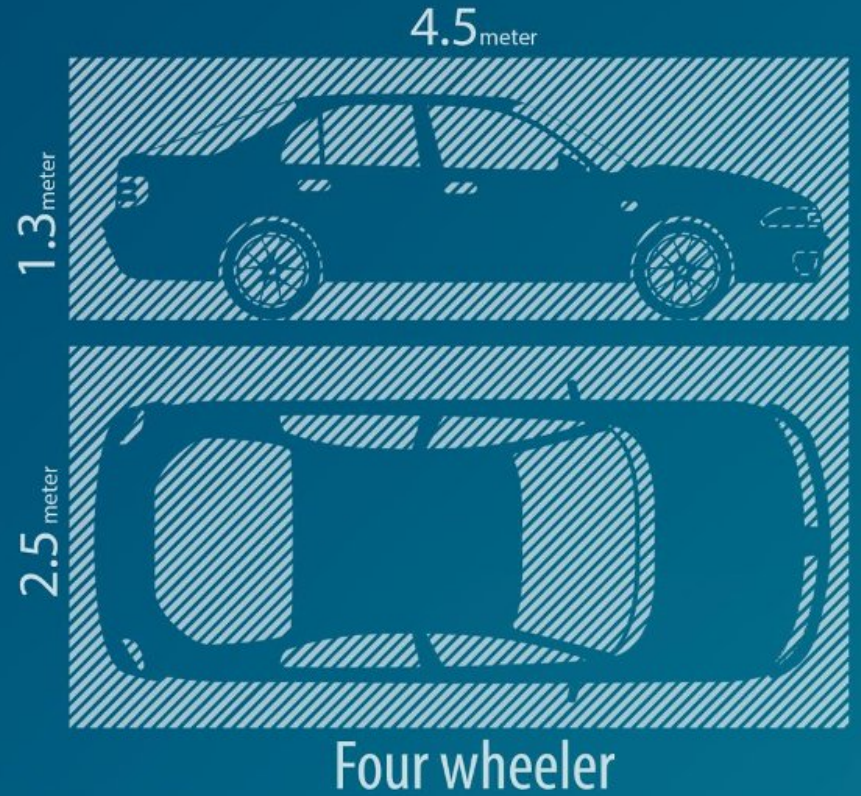
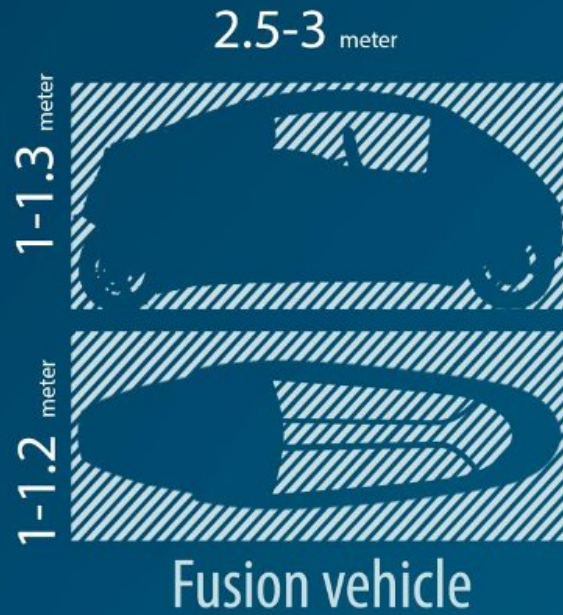
**Vehicle:** Honda Activa

**Buying Decision:** Economical ride

**Travel Distance:** 15Km

**Responsibilities:** Commute to children school  
Grossary shopping

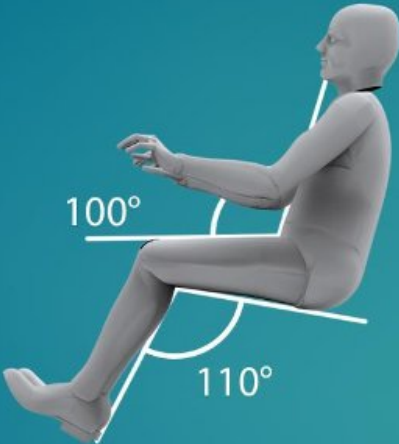
# Dimension study



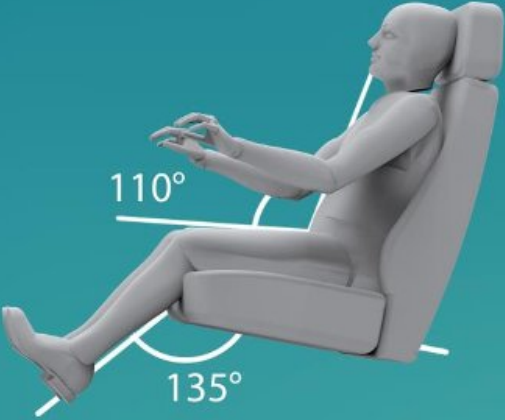
# Sitting posture



Attack posture



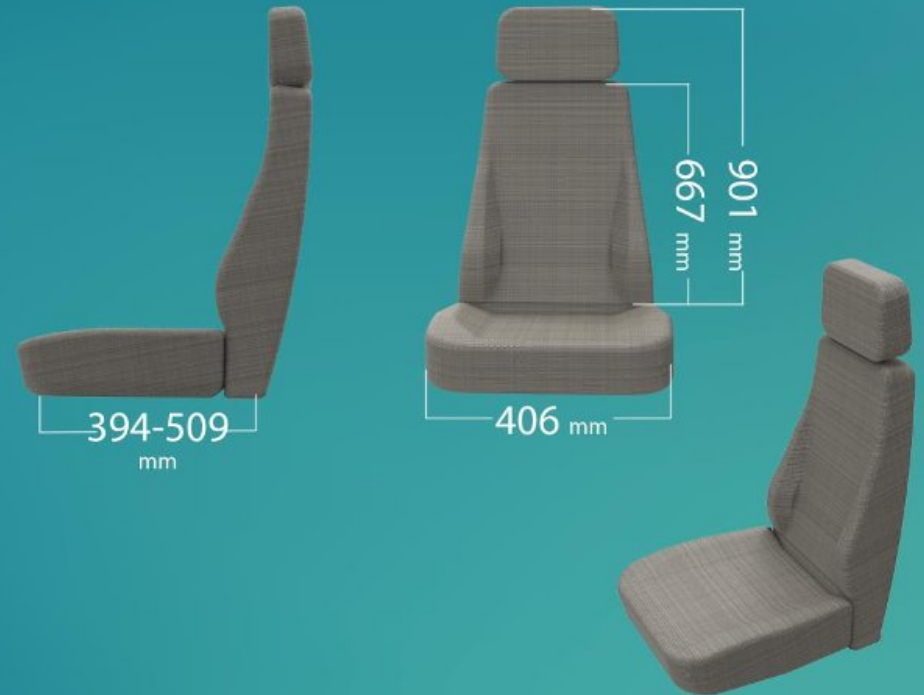
Relax posture



Resting posture

# Seat Dimensions

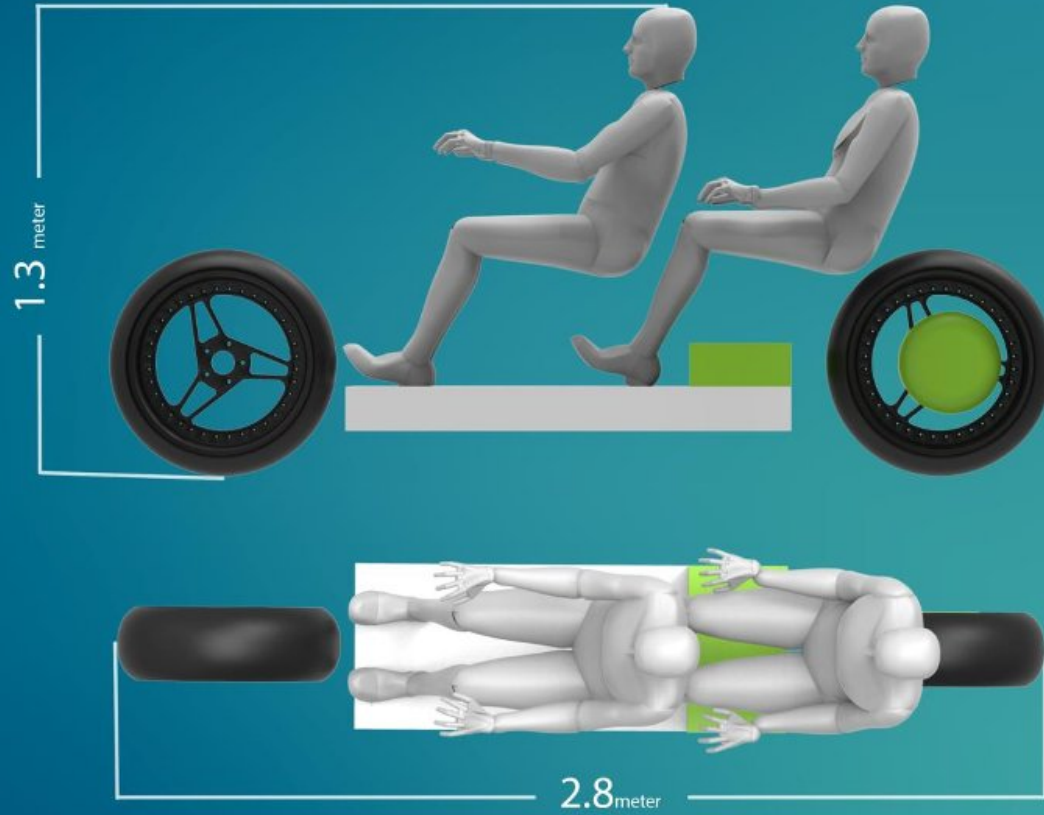
Measurements (in mm)	5th	50th	95th	SD	MIN.	MAX.
Sitting height	738	824	901	51	679	983
Cervical trunk	531	605	667	46	489	887
Mid shoulder	499	566	630	42	408	691
Shoulder breadth	349	417	479	41	276	672
Hip breadth	269	326	406	45	209	550
Buttock to popliteal	394	451	509	35	340	595
Popliteal	374	419	466	33	305	540
Elbow height	150	210	268	36	102	335



# INDIAN ANTHROPOMETRIC DATA



# REFERENCE VEHICLE DIMENSIONS



# Design of Urban Commuter

to bridge gap between two wheeler and four wheeler

Vehicle must have maneuverability of two wheeler and comfort of four wheeler.

To design a new segment which takes into consideration the following requirement

i) Exterior

Should show high perceived value

Should exhibit extension of owners personality.

Vehicle must have new identity in its class

Vehicle should be covered either hard top or convertible

Dimension: 2800mm Length X 1300mm Height X 900mm Width

ii) Interior

Should provide good climate protection

Capacity: 2 adults with bags.

Vehicle should allow easy ingress egress even in tight parking

iii) Cost: below 1 lakh

# Design of Urban Commuter

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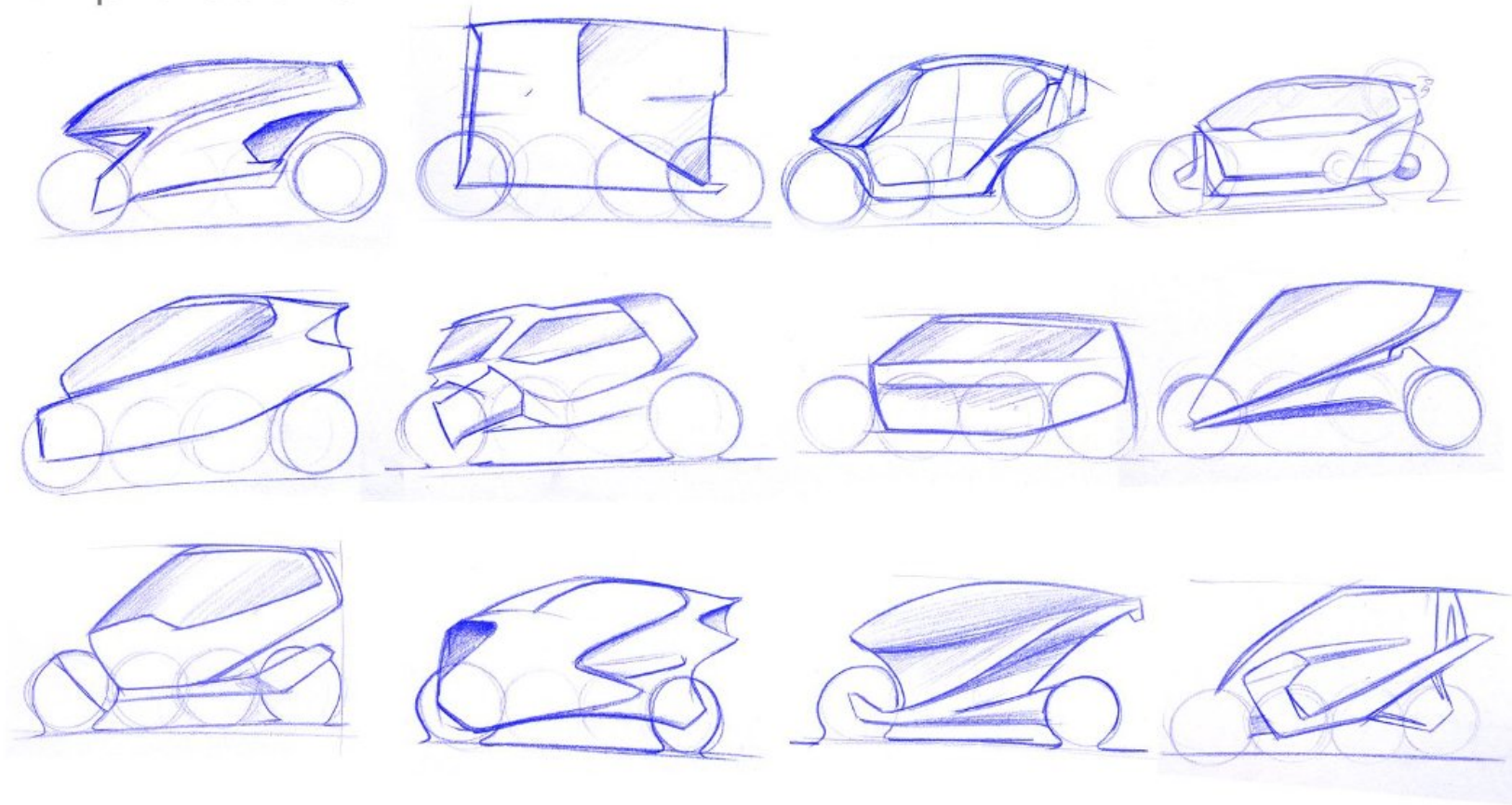
Capacity: 2 adults with bags.

Vehicle should allow easy ingress egress even in tight parking

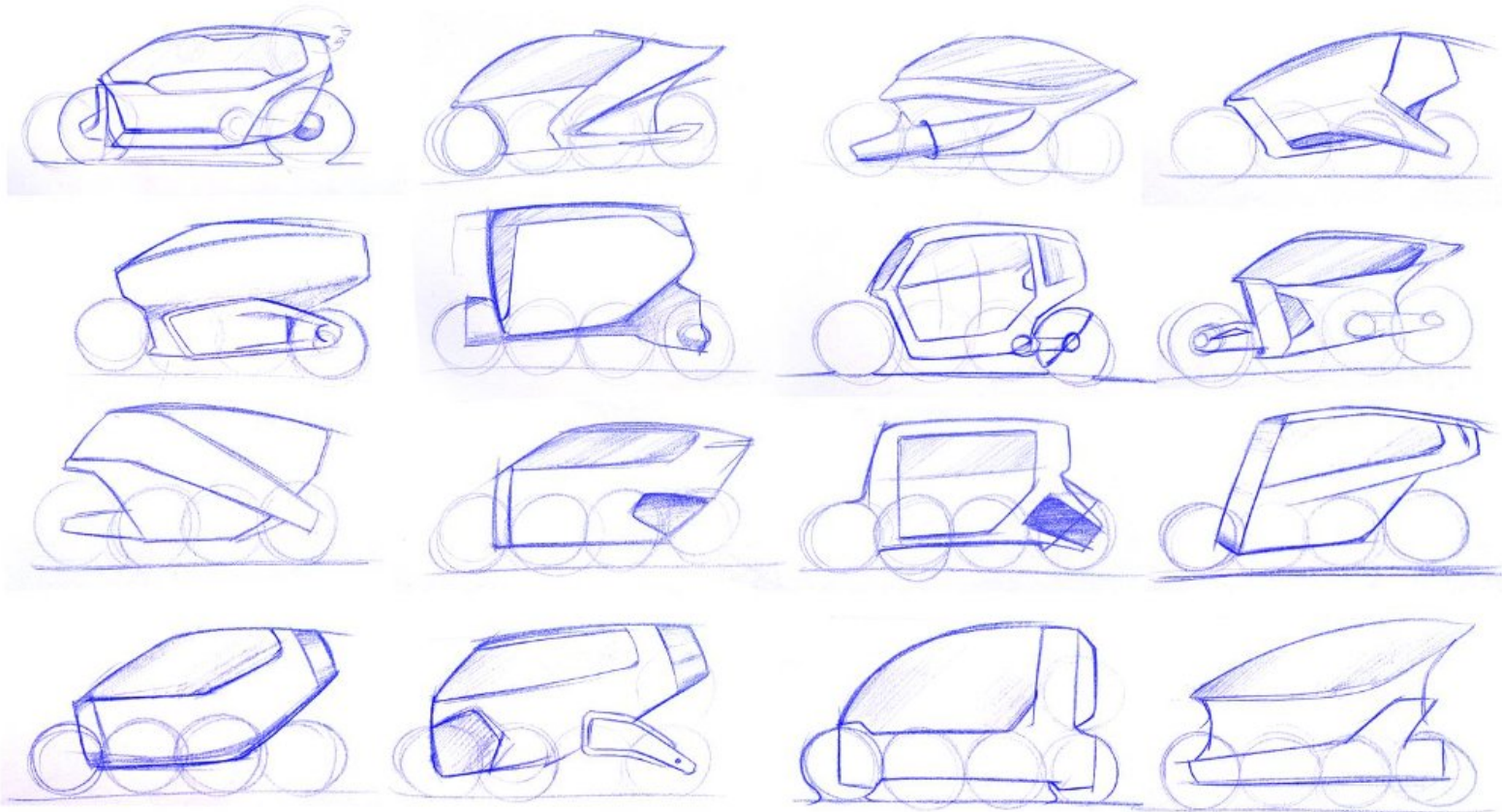
iii) Cost: below 1 lakh

**IDEATION**

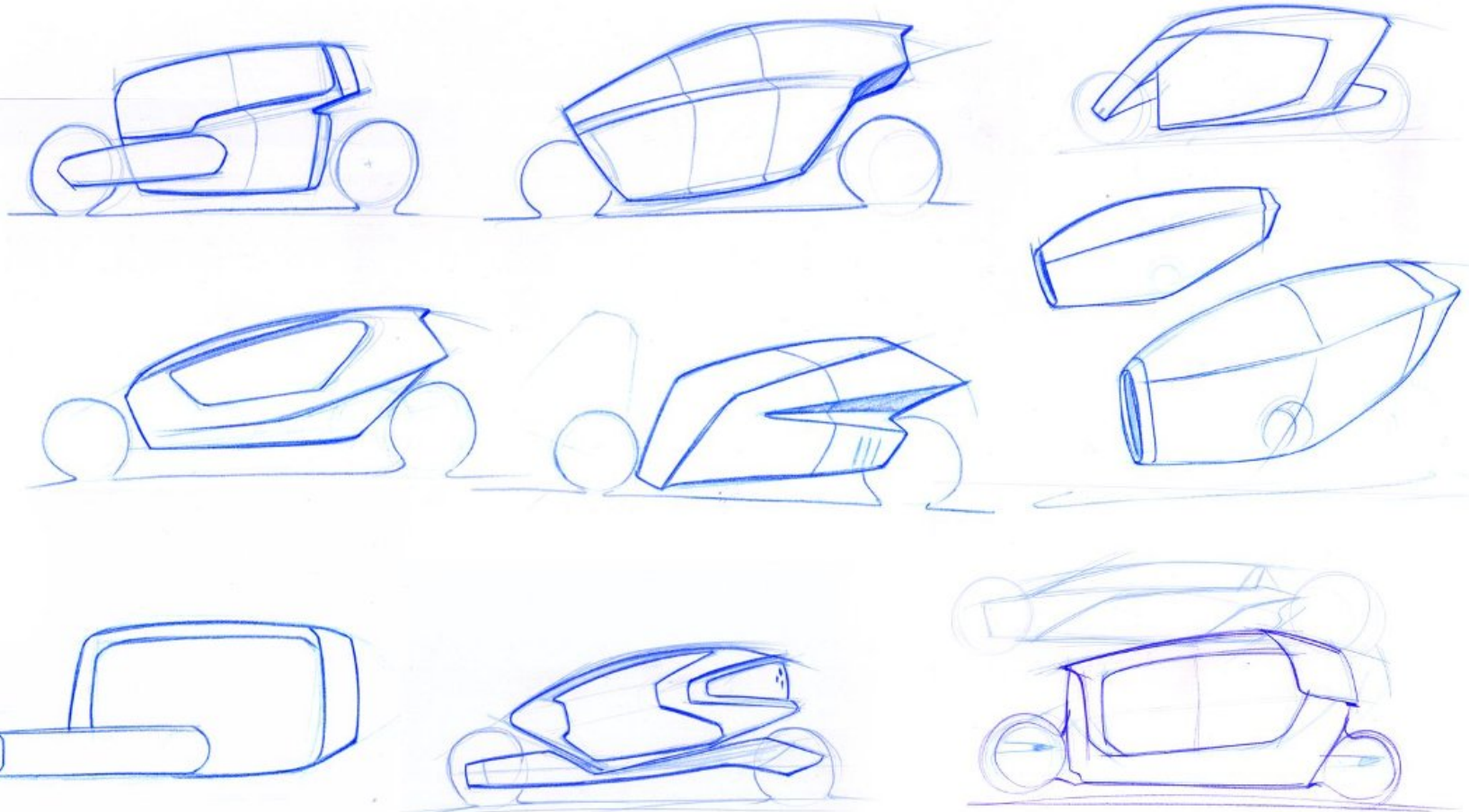
# Explorations



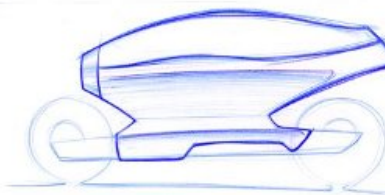
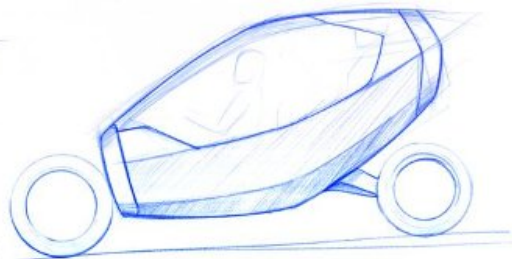
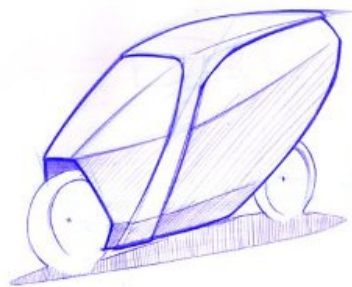
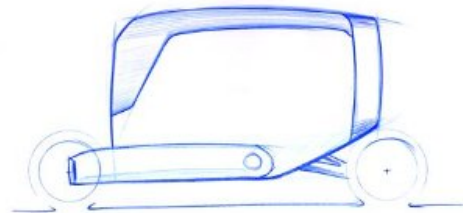
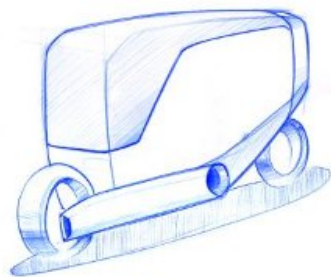
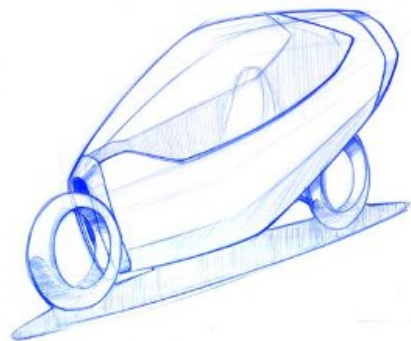
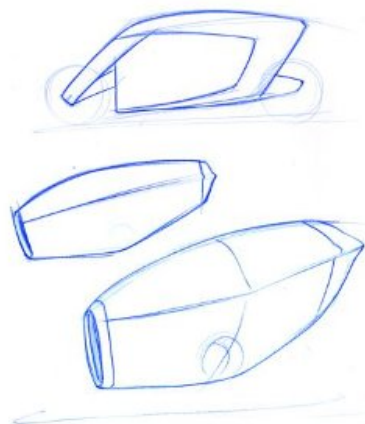
# Explorations



# Explorations



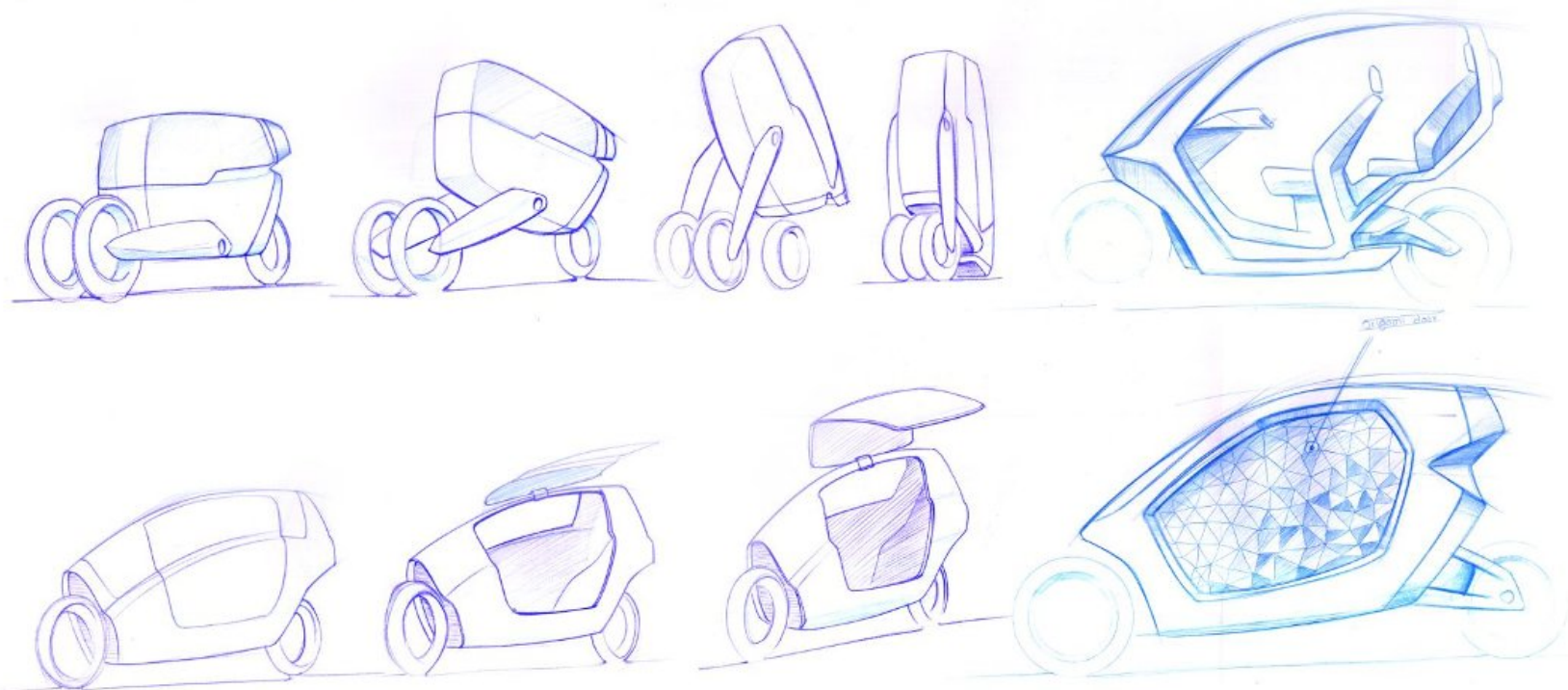
# Explorations



# Explorations

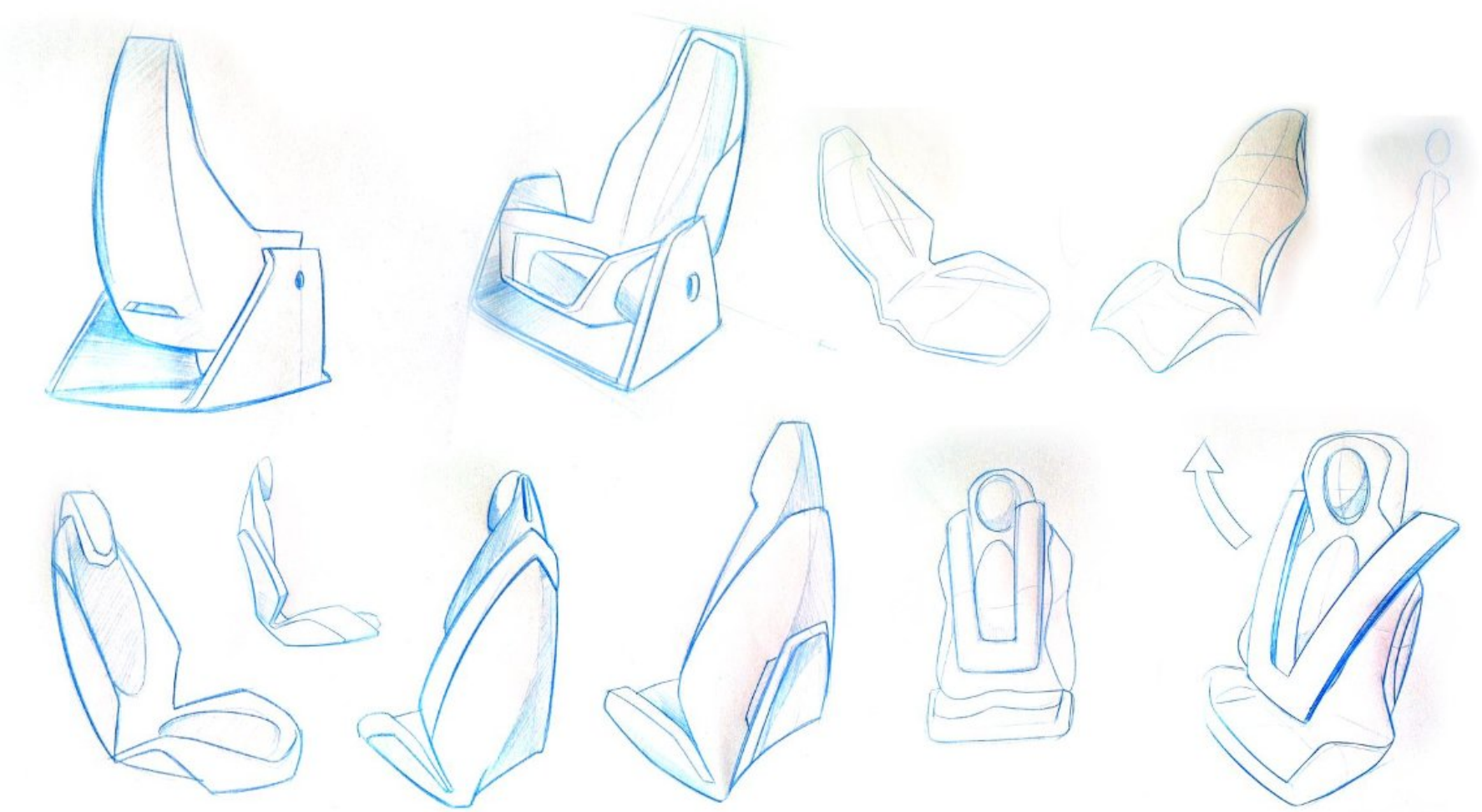


Parking in small space

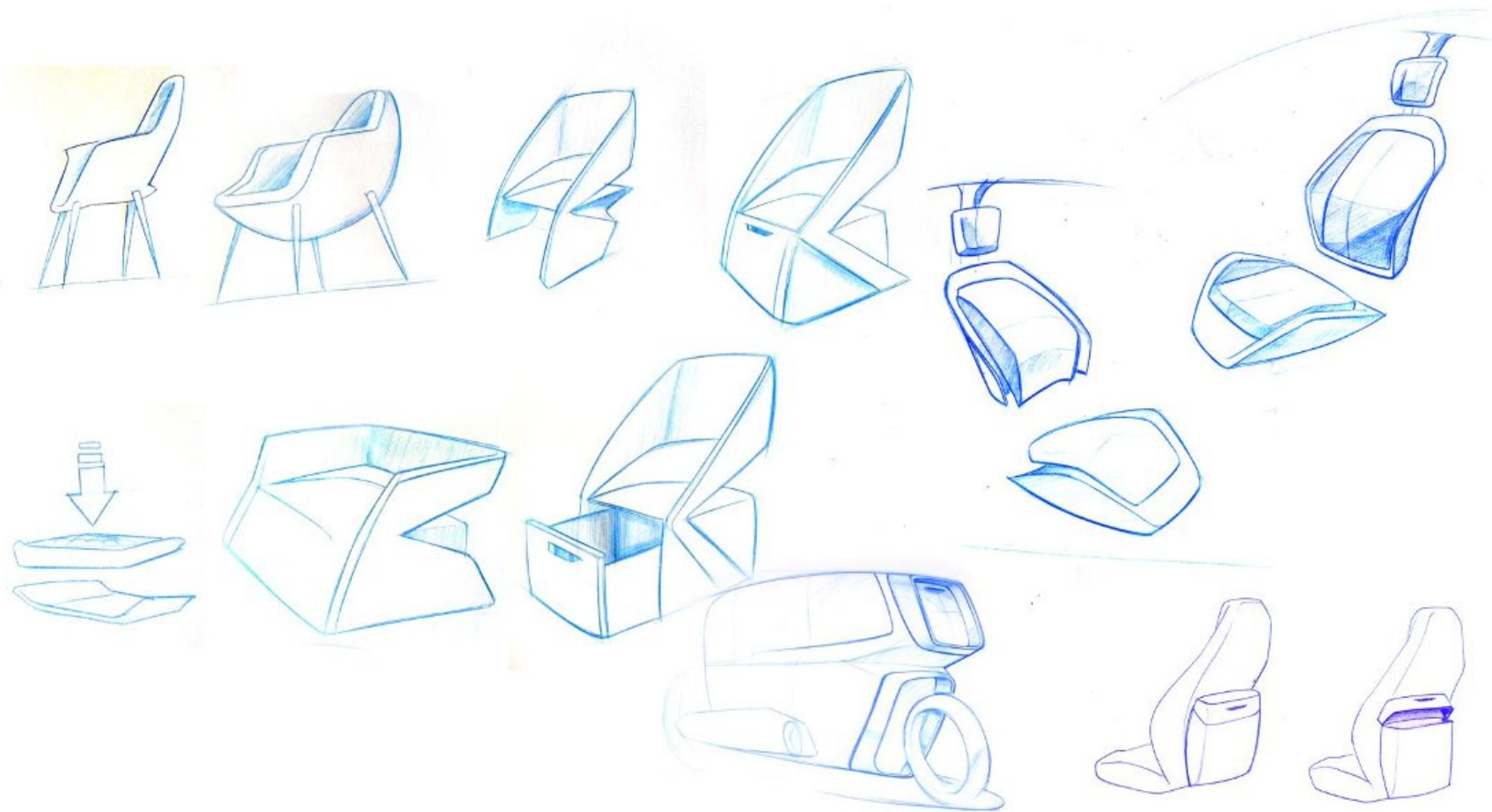


Falcon Wing Door

# Explorations



# Explorations



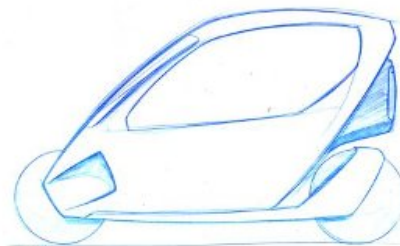
Rear storage space

Storage space behind seat

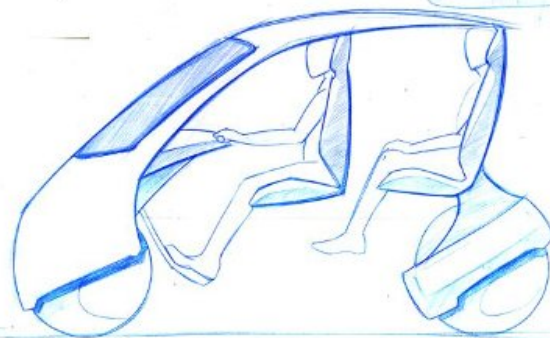
# Explorations



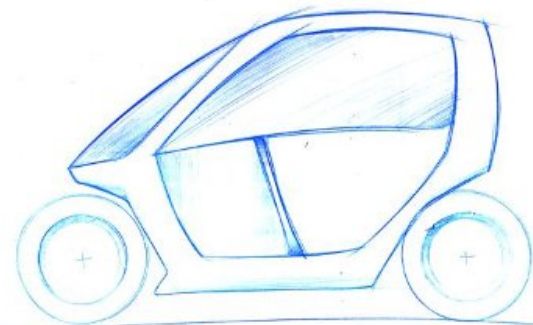
Spherical wheels



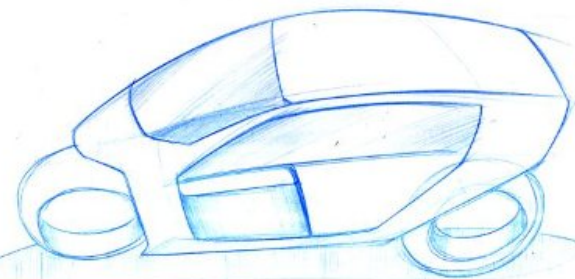
Bamboo weaved door



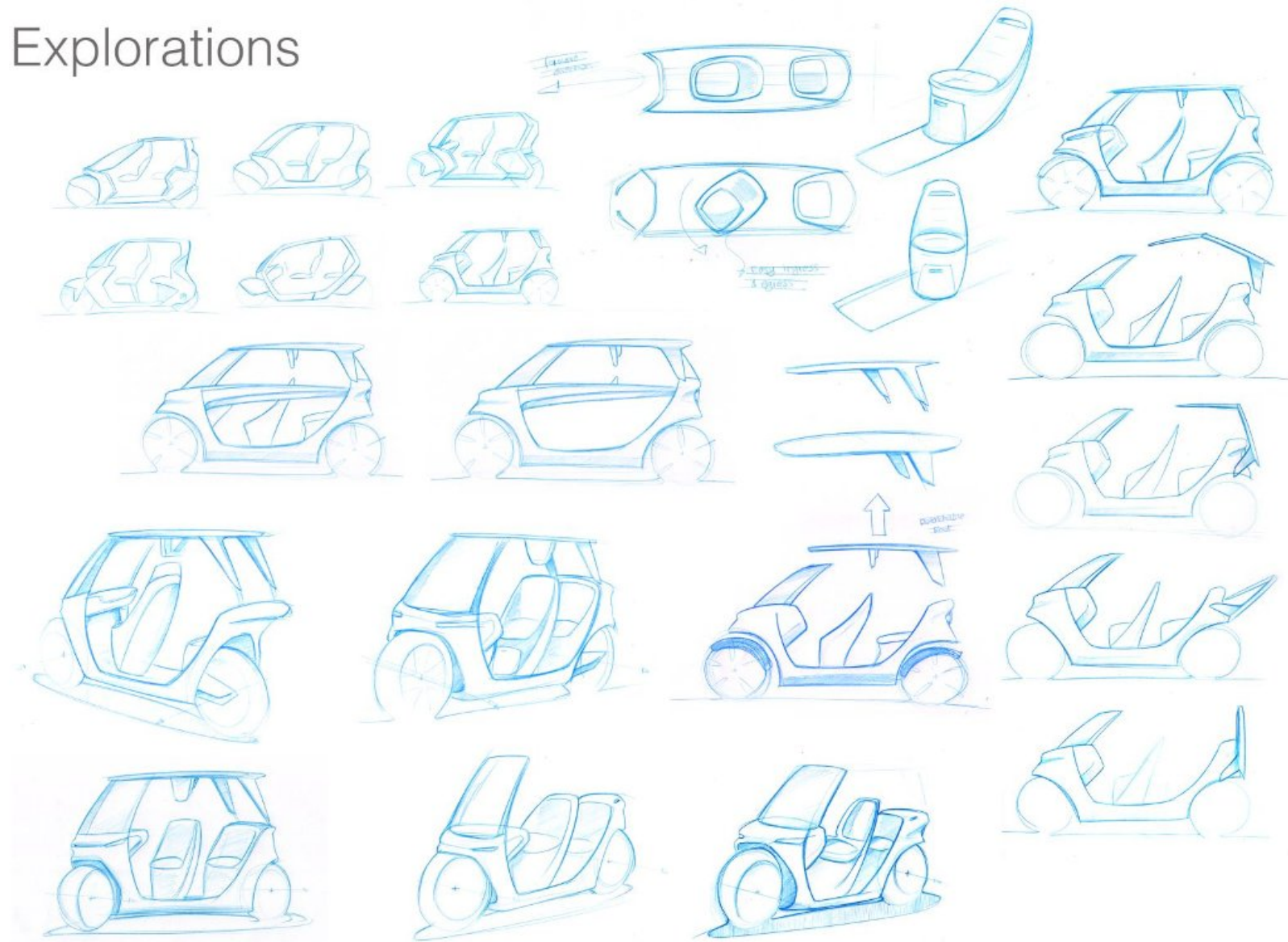
Open floor experience



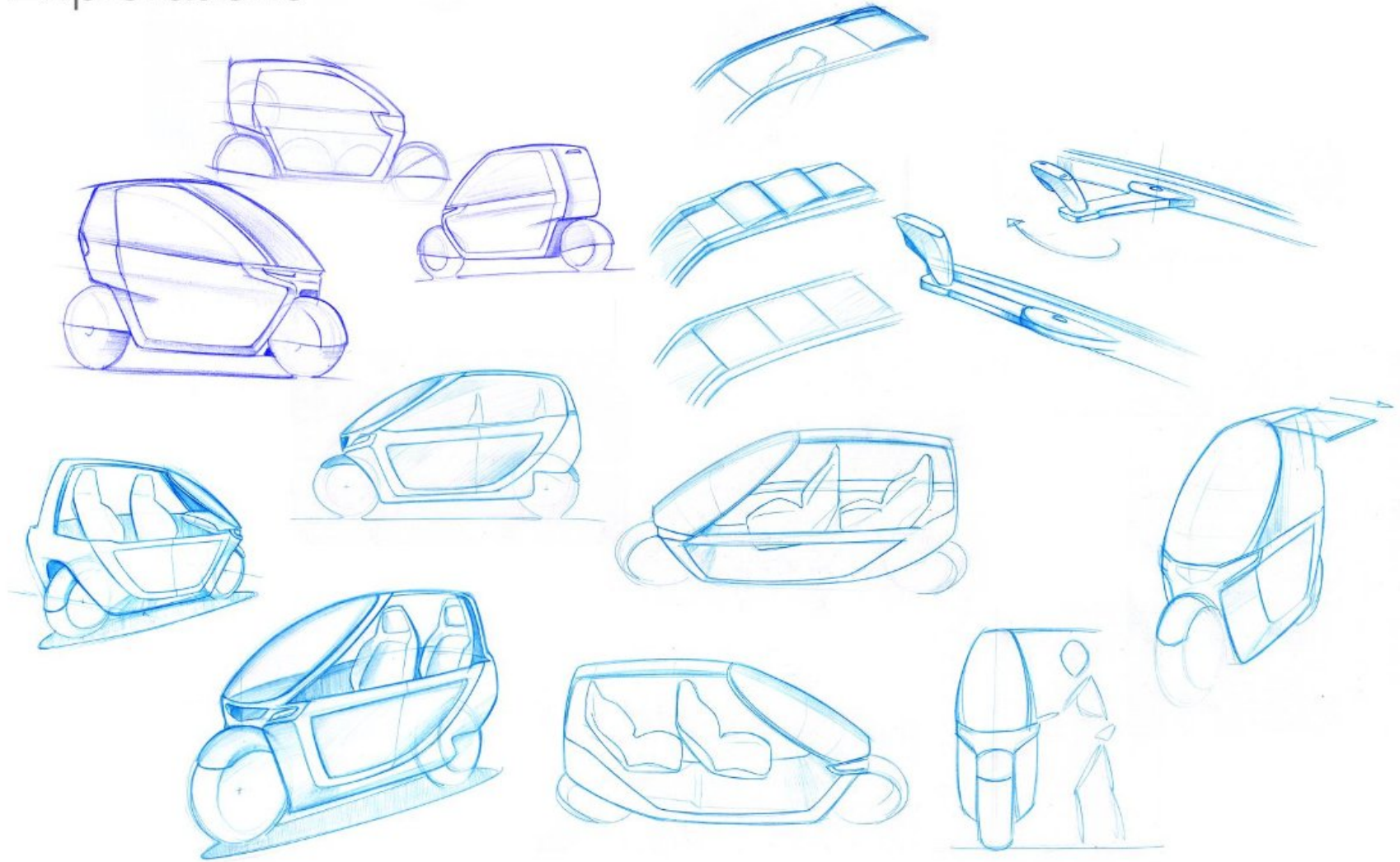
Open leg space for better control

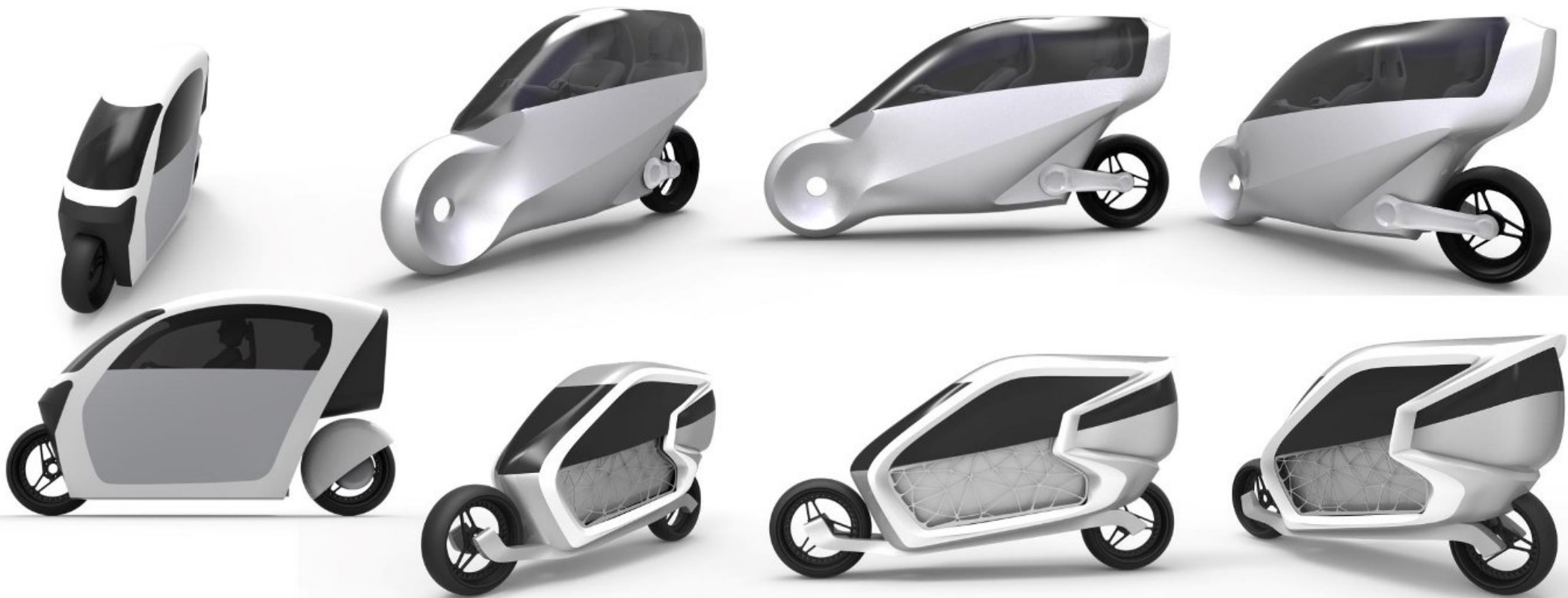


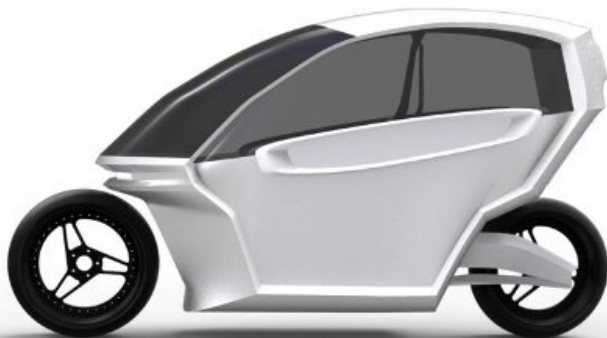
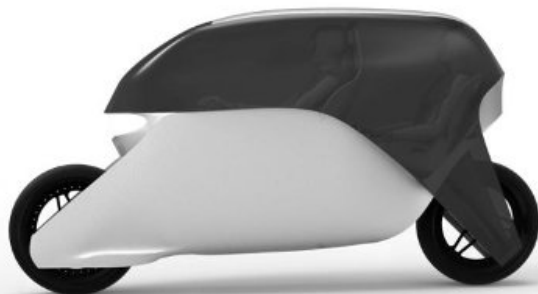
# Explorations



# Explorations







# VEHICLE PACKAGING

Direction 1

Luggage space



2000mm

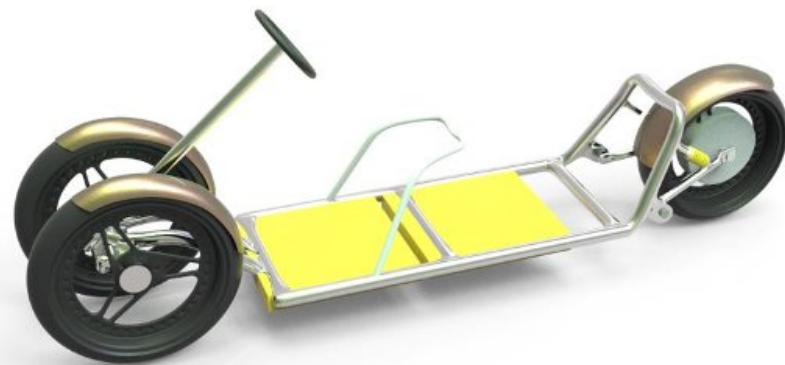
Two wheeler posture



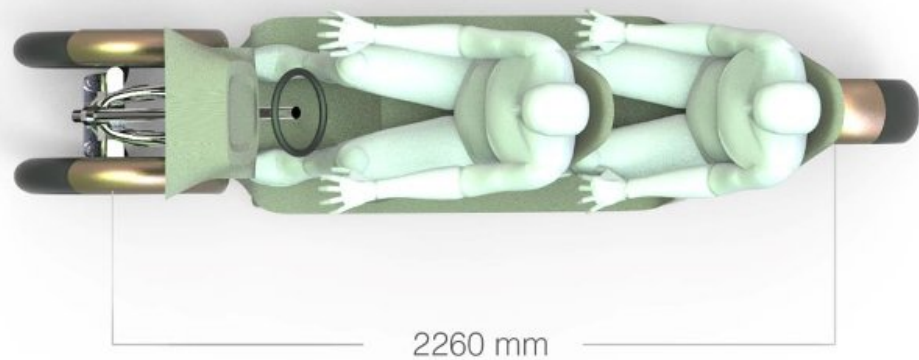


Direction 2

95th percentile male



Luggage space





Interior  
POM (polyoxymethylene)  
Process: Rotomoulding

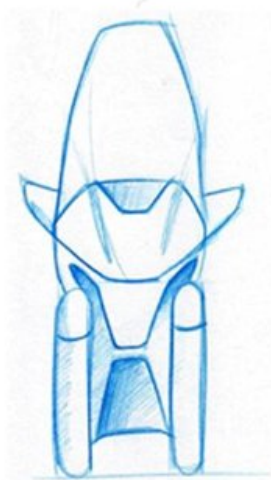
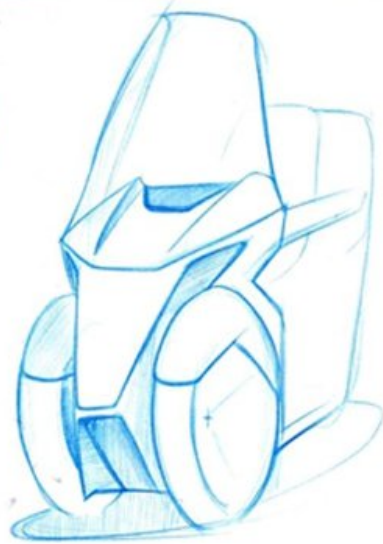
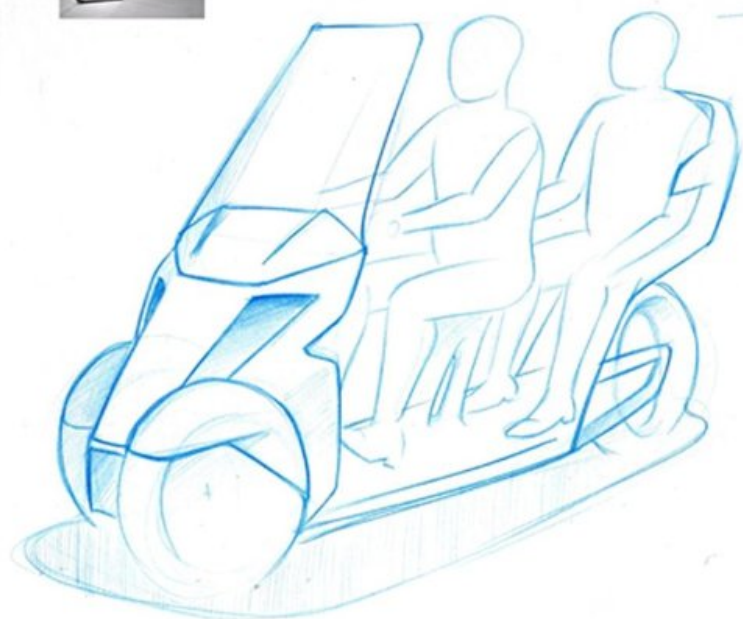
10KW X 2  
lithium-ion battery

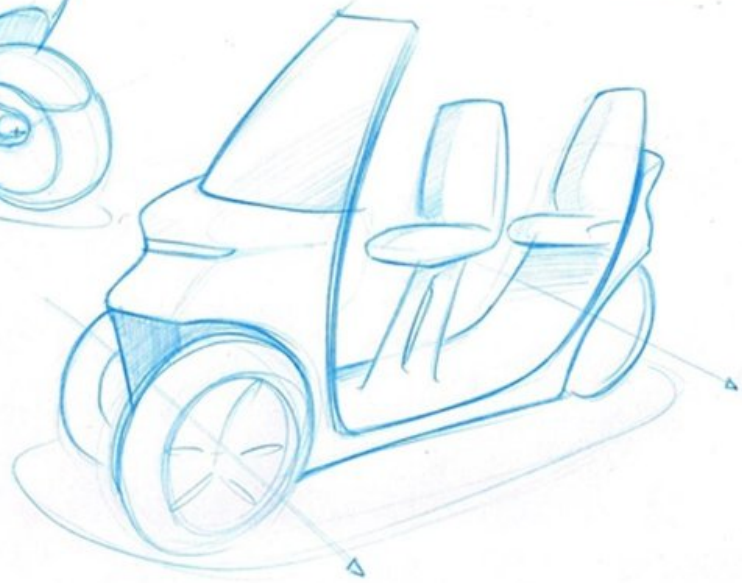
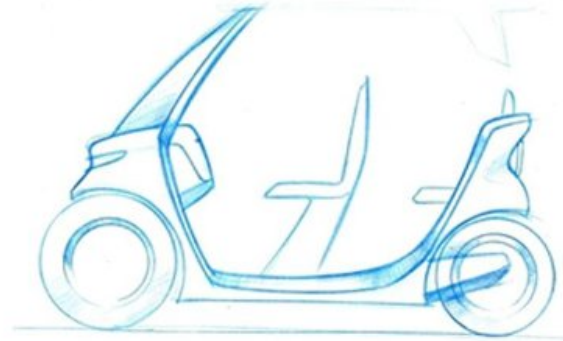
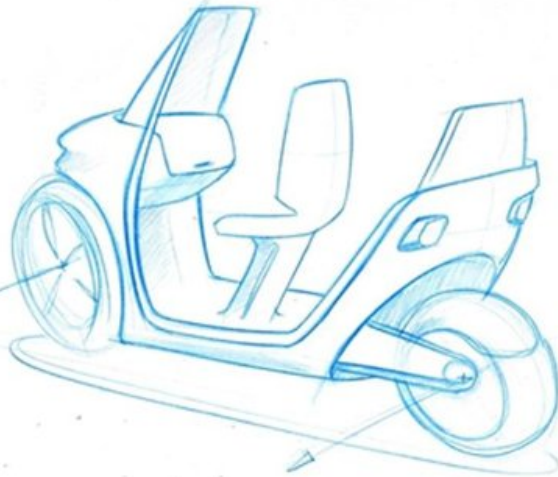
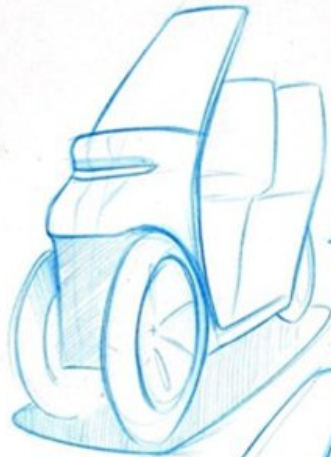
90/80R20  
Natural and synthetic  
rubber

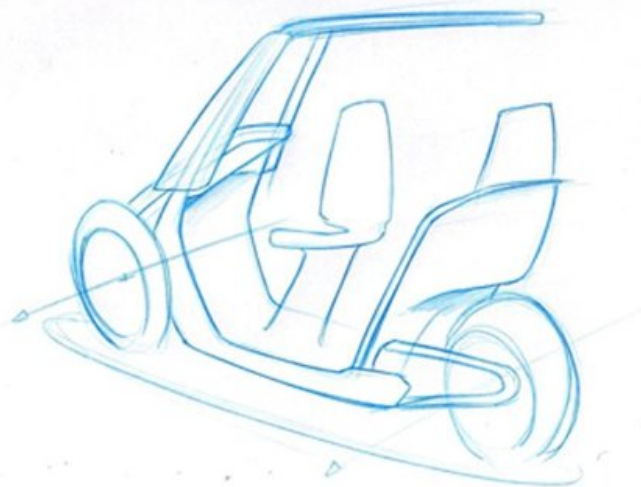
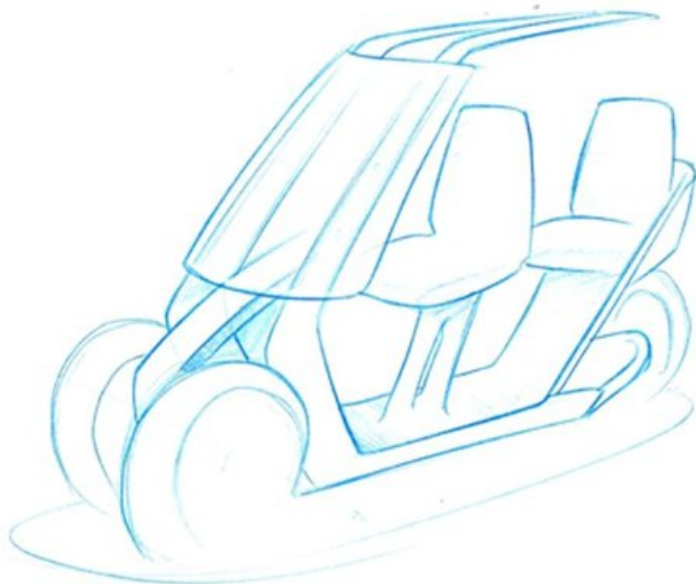
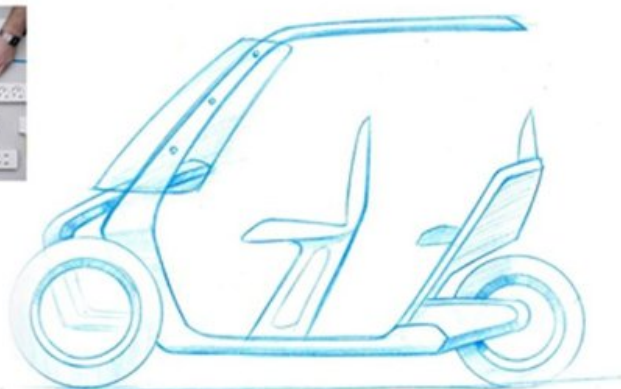
Ø300 HUB MOTOR  
4-10KW power

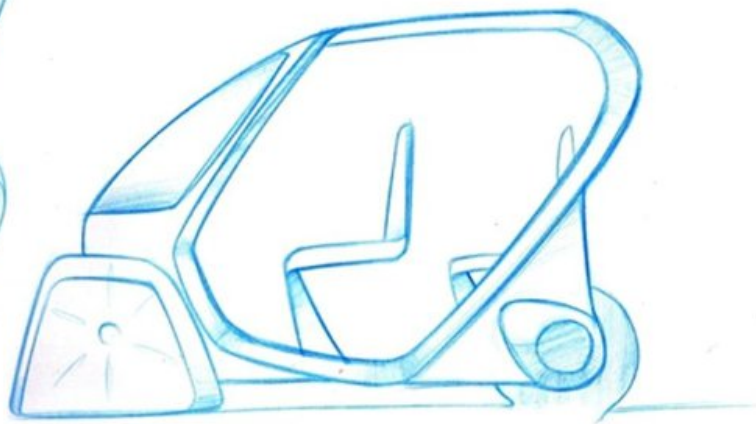
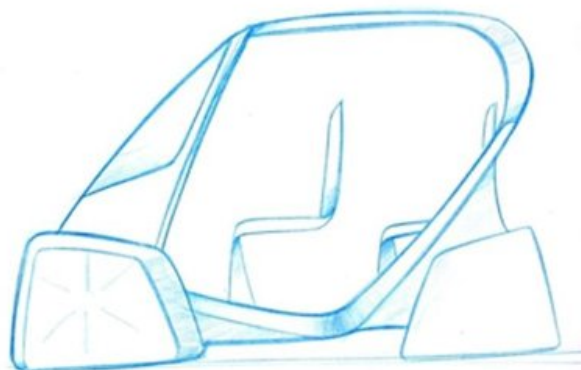
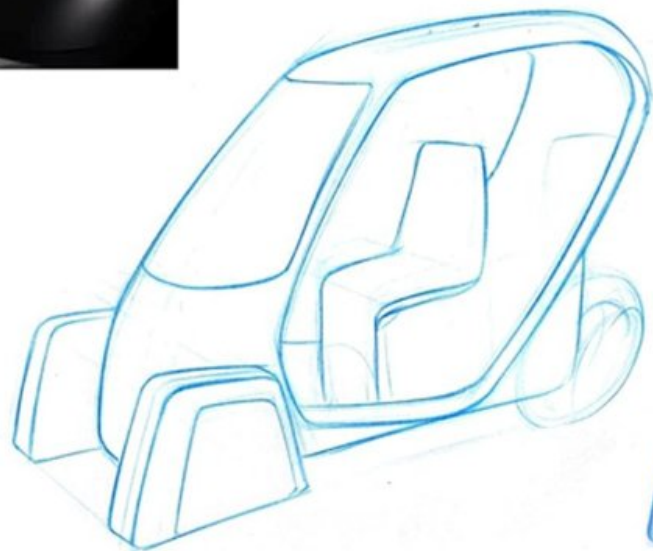
195/80R18  
Natural and synthetic  
rubber

AISI 1018 Mild/Low  
Carbon Steel



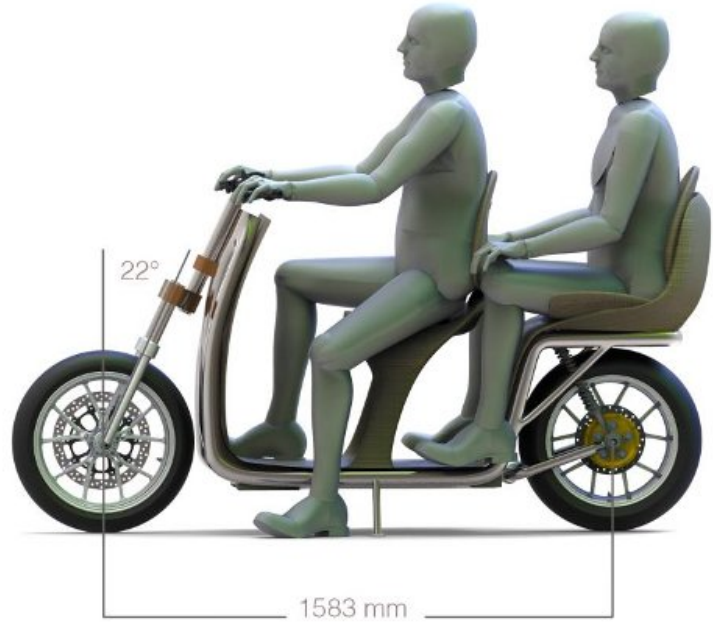






Direction 3

# PACKAGING DETAILS



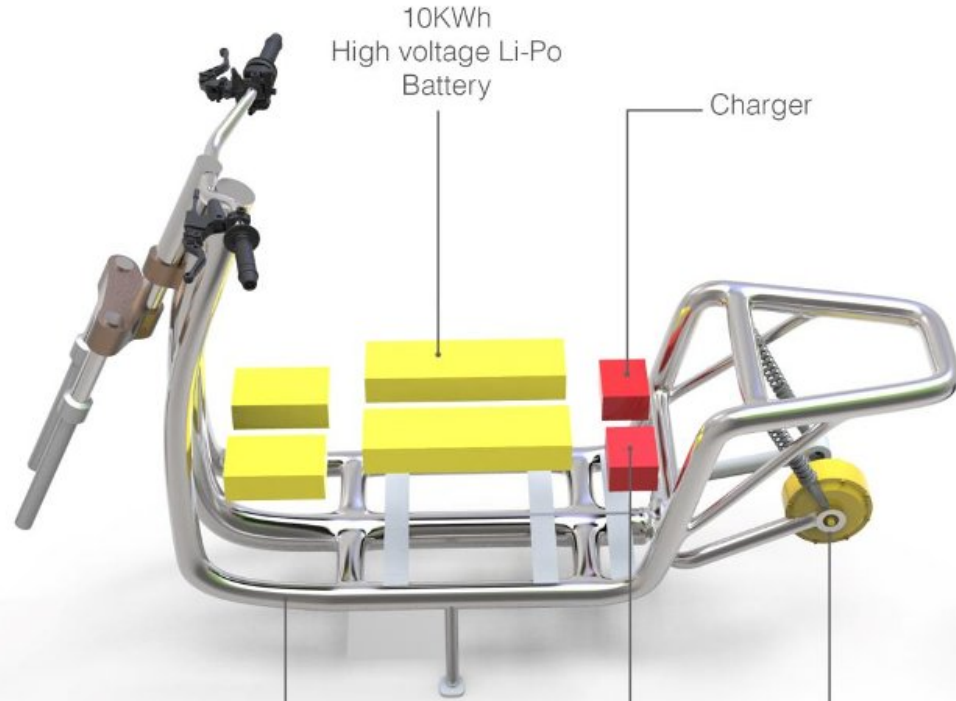
Human mannequin size is 95th percentile as per Indian anthropometric data



● Storage space



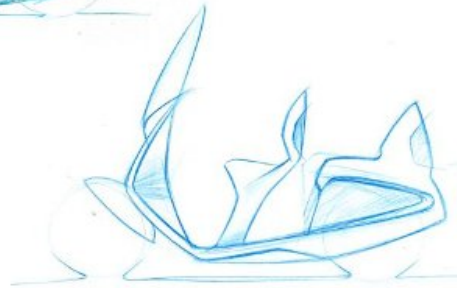
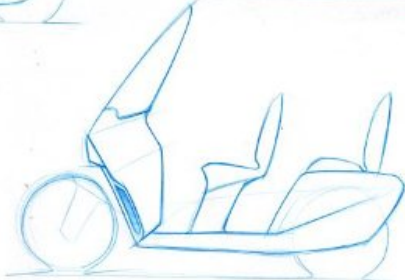
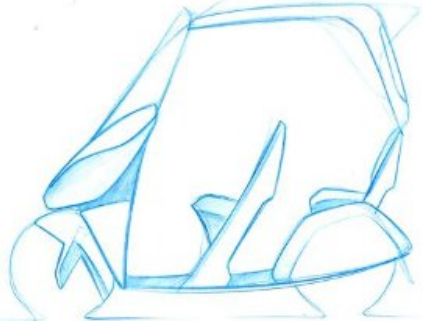
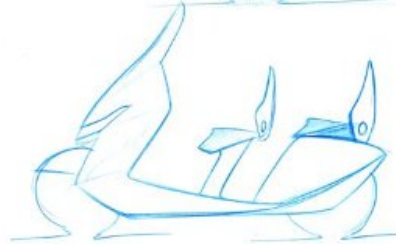
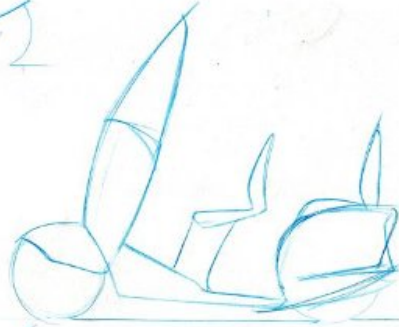
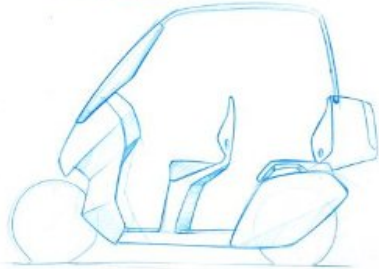
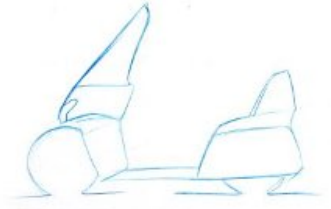
# EXPLODED VIEW



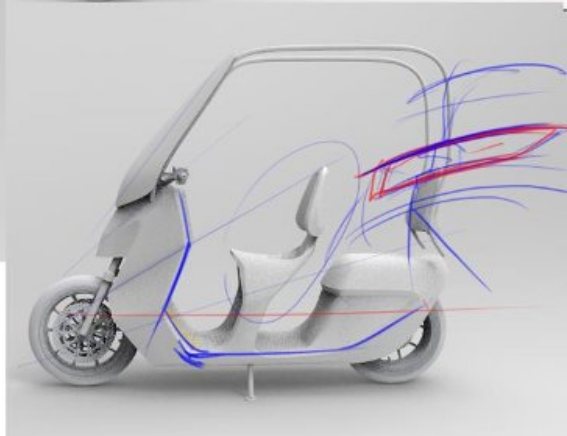
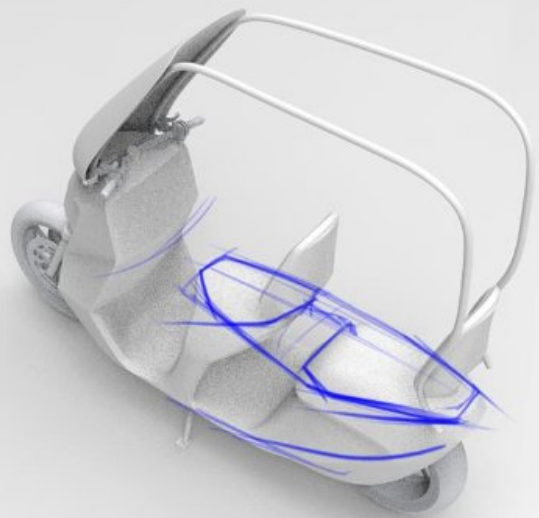
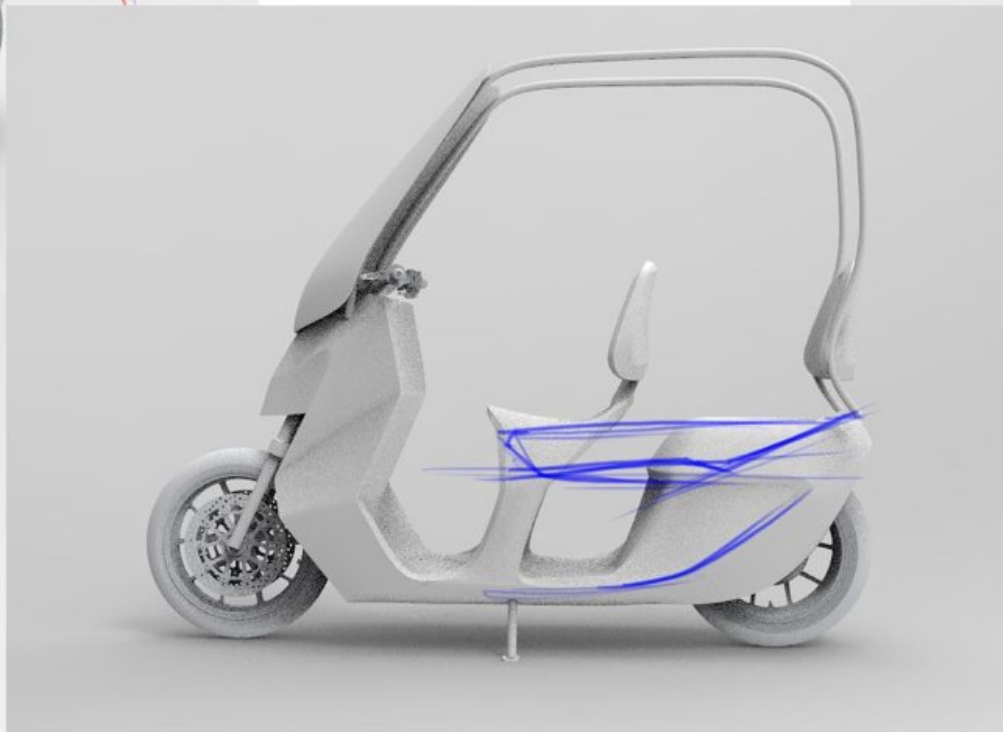
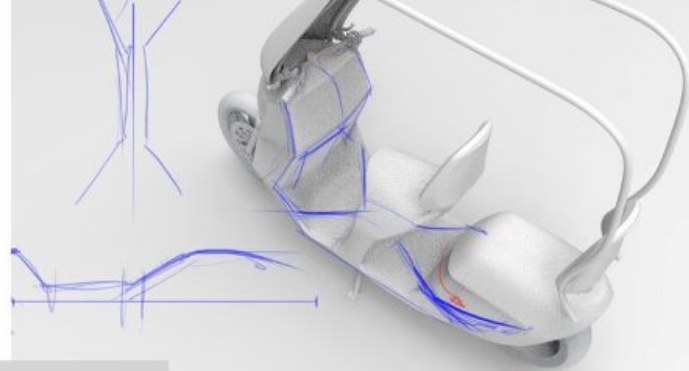
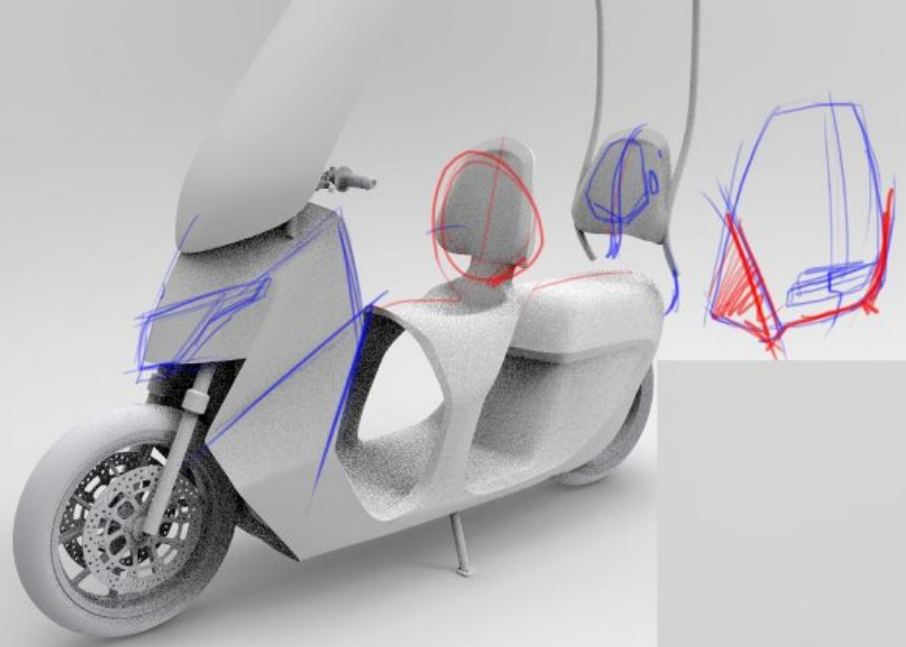
Chassis  
1018 Mid carbon steel

AC-DC converter  
+  
High voltage junction box

Hub Motor







Key  
sketch

