

# **Design of Tourist Bus for Delhi**

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**School of Design Studies**

University of Petroleum and Energy Studies

Dehradun

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# **Design of Tourist Bus for Delhi**

*Project submitted in partial fulfilment of the requirements*

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MASTER OF DESIGN

IN

TRANSPORTATION DESIGN

Under the guidance of

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## **Declaration**

I hereby declare that the project work entitled “To Design Next Generation Motorcycle for Indian Market” submitted by me in partial fulfilment of the requirements for the award of the degree of Master of Design (Transportation Design) at School of Design Studies, University of Petroleum and Energy Studies was carried out by me during 15 Jan 2015 to 16 April 2015 at “School of Design Studies, Dehradun” under the supervision of “Manas Ranjan Mishra”.

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## **ABSTRACT**

The overall brief of the project to design a tourist bus for Delhi keeping aesthetics more special. This project is done on four phases as per design methodology like **1. Research Phase, 2. Problem identification phase, 3. Ideation Phase, 4. Implementation phase.**

The project is started based on the literature survey on the tourist buses around the world and how the other countries are designed dedicated vehicle and running them in their streets. Now later this research it is found that India doesn't have such type of dedicated vehicle where they are running regular city service buses as tourist bus. so later based on the design process I designed the tourist bus for Delhi city.

Thus the project topic is "**TO Design of Tourist Bus For Delhi**"

## TABLE OF CONTENTS

<b>S.no</b>	<b>CONTENTS</b>	<b>PAGE</b>
<b>1.0</b>	<b>Introduction</b>	7
<b>2.0</b>	<b>Data collection</b>	8
2.1	Literature review	8
2.2	User research	20
2.3	Market search	24
2.4	Product study	27
<b>3.0</b>	<b>Design Brief</b>	36
<b>4.0</b>	<b>Concepts</b>	
4.1	Initial concepts	37
4.2	Refined concepts	46
4.3	Rendering of concepts	49
<b>5.0</b>	<b>Digital and Physical model</b>	50
<b>6.0</b>	<b>Conclusion</b>	52
	<b>REFERENCES</b>	53
	<b>APPENDIX – I (if any)</b>	

## LIST OF FIGURES

<b>Figure No.</b>	<b>Content</b>	<b>Page No.</b>
1.	Route of Hop on Hop off Delhi bus (green route)	11
2.	Boucher of Delhi Tourist bus map	12
3.	Metro Rail in Delhi	13
4.	Logos of tourism centres in Delhi	16
5.	Sanfranciso Hop on Hop off bus	17
6.	Big Bus Washington D.C	19
7.	Side view of Delhi bus	21
8.	Bus stop Identification mark	21
9.	Bus interior	22
10.	Hop on Hop off bus office	22
11.	Tourist getting into the bus	23
12.	Line diagram of Tata Marcopolo bus	25
13.	Tata Marcopolo (A.C) bus	25
14.	Specifications of Tata Marcopolo bus	26
15.	Types of buses	31
16.	Bus seat dimensions	33
17.	Bus Seat height dimensions	34
18.	Initial sketches	36
19.	Front view variations sketches	37
20.	Side view variation sketches	39
21.	Final iterations	46
22.	Digital rendering	48
23.	Alias Model and Keyshot rendering	49-50

## LIST OF TABLES

<b>Table No.</b>	<b>Content</b>	<b>Page No.</b>
1.	Service Door dimensions	28
2.	No. of emergency doors required	29
3.	Dimensions of emergency exit	29
4.	Requirements of emergency exit	29
5.	Dimensions of seats	30



## 1.0 INTRODUCTION

Double-decker buses and open top buses are commonly used, for providing a good view. Large coaches are used internationally by tour operators, intercity bus lines and charters, for short and long distance destinations. These buses are larger than regular transit buses with 2 to 4 axles (6 to 10 wheels).

The history of tour buses in India began in the early 20th century when trucks were converted to provide a means for sightseeing within large India cities. Gray Line, the largest sightseeing operators began operations. Sightseeing was likely a side business for many intercity bus operators because the same types of buses were used (this remains true even today).

Many People/tourists travel in sleeper buses, commonly referred to as "tour buses". While most if not all of the buses and coaches listed above are for commercial applications, there are many coaches manufactured for personal use as motorhomes. These bus based motorhomes are considered the top end of the RV market.

So this project is based on to design the tourist bus for Delhi keeping in mind there aesthetics and colour trends of Delhi this are found on based on Design process.

## 2.0 DATA COLLECTION

### 2.1 Literature review

Delhi is a city that bridges two different worlds. Old Delhi, once the capital of Islamic India, is a labyrinth of narrow lanes lined with crumbling havelis and formidable mosques. In contrast, the imperial city of New Delhi created by the British Raj is composed of spacious, tree-lined avenues and imposing government buildings. Delhi has been the seat of power for several rulers and many empires for about a millennium. Many a times the city was built, destroyed and then rebuilt here. Interestingly, a number of Delhi's rulers played a dual role, first as destroyers and then as creators.

The city's importance lies not just in its past glory as the seat of empires and magnificent monuments, but also in the rich and diverse cultures. No wonder chroniclers of Delhi culture - from Chand Bardai and Amir Khusro to present day's writers - have never been at a loss for topics. In Delhi, you will discover that the city is sprinkled with dazzling gems: captivating ancient monuments, fascinating museums and art galleries, architectural wonders, a vivacious performing-arts scene, fabulous eating places and bustling markets.

Delhi has been the political hub of India. Every political activity in the country traces its roots here. This was true even of the mythological era. The Pandavas of the Mahabharata had their capital at Indraprastha, which is believed to have been geographically located in today's Delhi.

Fast facts:-

Area: 1,483 sq km

Latitudinal parallel: 28.3oN

Longitudinal meridian: 77.13oE

Altitude: 293 m above sea level

Population: 16.78million (Census 2011)

Average Temperature: 45oC (Max) - usually in May - Jun, 5oC (Min) - usually in Dec - Jan

Desirable Clothes: Woollen for winters and light cotton for summers

Rainfall: 714 mm

Monsoon: July to mid-September

Population: 13.85 (Census 2001)

Season: Extreme climate with very hot summer and very cold winter

Best time to visit: October to March

STD Code: 011

Languages: Hindi, English, Urdu and Punjabi

Religions: Hinduism, Islam, Sikhism, Buddhism, Jainism, Christianity, Zoroastrianism, Judaism and Bahai Faith

The local transportation is the lifeline of the capital city of Delhi. More than half of the population in Delhi is dependent on local transport for commuting purposes. The means & modes of transport in New Delhi are many, ranging from the Metro Trains, Local Trains, Buses, Taxies and cabs.

#### 2.1.1 HOHO Bus Service: -

Sightseeing tours are popular in cities all over the world. Organized tours are expensive, rigid and need definite planning in advance. The Hop-On/Hop-Off Bus service provides sightseeing options to tourists who are willing to explore Delhi with a more flexible schedule. These tours are conducted in specially designed buses which move continuously along a route, allowing tourists to board or alight at any of the pickup/drop off points. The route of these buses covers monuments, museums, galleries, gardens,

shopping malls, hotels and bazaars. All in all, the service is designed to provide a complete experience of the city to a tourist [1]. The following are the salient features of the Hop On/Hop Off bus service-

- Air-conditioned environment friendly luxury buses
- Frequency- every 30 minutes
- Flexibility - tourists can hop on and hop off at any pick up/drop off point
- Entertaining and knowledgeable tour guides
- Route covers all major tourist destinations in Delhi
- Audio guides
- Online booking Facility
- Onboard ticketing facility
- Covers more than 18 tourist locations

Monument entry tickets are available to save time

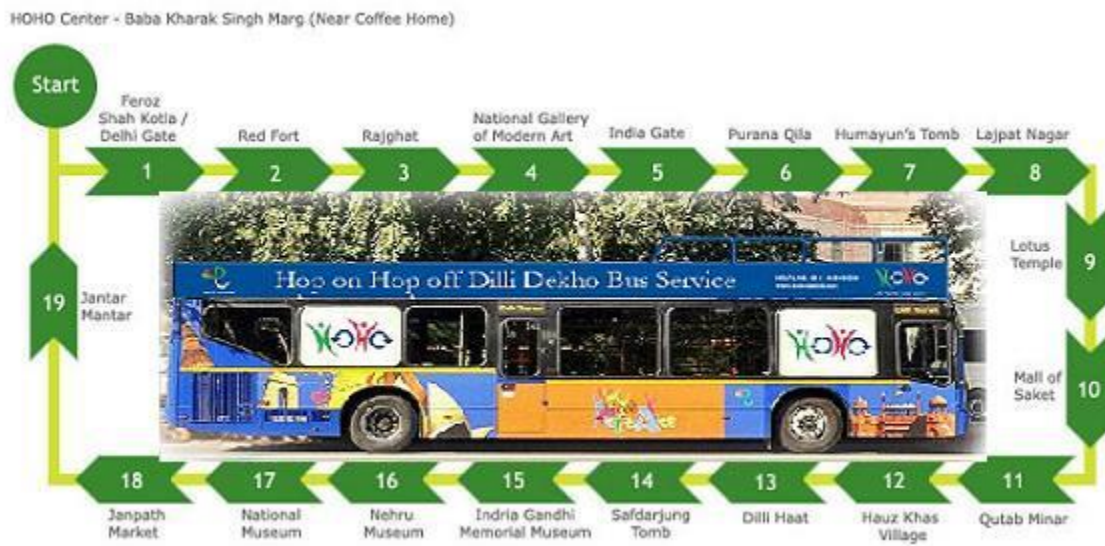


Fig 1. Route of Hop on Hop off Delhi bus(Green Route)

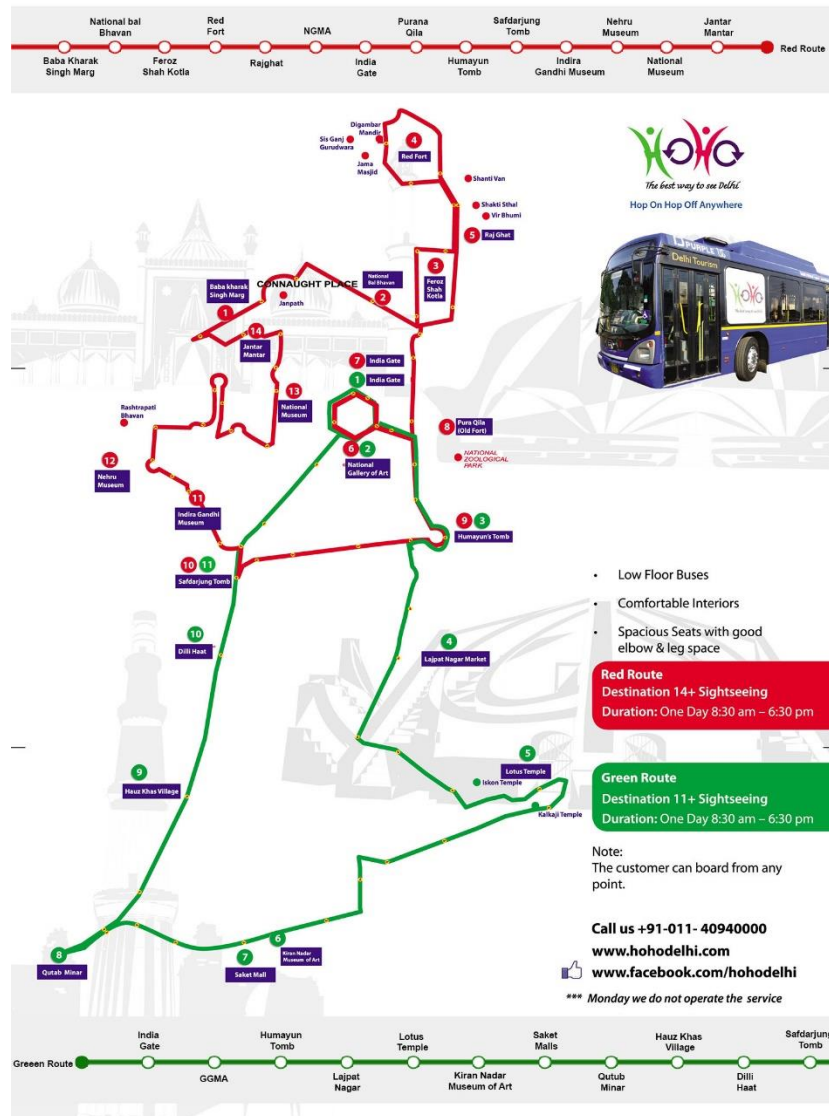


Fig. 2: Broucher of Delhi tourist bus

### 2.1.2 Metro Rail:-

The pride of the capital 'Delhi Metro' is a rapid transit system serving Delhi, Gurgaon and Noida in the National Capital Territory of Delhi. It is known for its world class standards with regard to safety, reliability, punctuality, and comfort. It has a combination of elevated, at-grade and underground lines and uses both broad gauge and standard gauge rolling stock

### 2.1.3 Travel Card:-

Most convenient for the frequent commuter. A stored value card, The Minimum recharge value of a travel card is Rs. 100/- and the maximum is Rs. 1000/-. Subsequent recharge will be in multiple of Rs. 50/-, refundable on return of card.



Fig 3: Metro in Delhi

Validity: One Year from the date of purchase or one year from the date of recharge whichever is later. Renewal: No extra charge. Facility to check balance on Card: Ticket Reading Machines at all Metro Stations.

2.1.4 Tourist Card:-For unlimited travel over short periods. There are two kinds of cards - 1 day and 3 day. Value of 1-Day Card: Rs 100. Value of 3-Day Card: Rs 250. Refundable Deposit: Rs 50/- payable at purchase (refundable on return of card)

Token:- Minimum value is Rs. 8/- and maximum value is Rs. 30/- [2].

#### 2.1.5 Taxi/Car Rental:-

DTTDC has a full-fledged Transport Department with Travel Transport Counters and Tourists information offices at various disembarkation points in Delhi (viz., Airport, Railway Stations, City Centre Connaught Place) with a variety of tourists vehicles and coaches.

The Transport Division also handles transport and travel related services for national and international events. The Transport Division has significant experience in making excellent transport arrangements for various national and international events.

With a vision to provide a safe, clean, comfortable, efficient, cost-effective yet sophisticated, and personalized public transport system, radio taxis were recently introduced in Delhi to improve the commuting experience. If you would like to Rent a Cab or Hire a Cab in Delhi, you can easily avail professional, comfortable, air-conditioned Radio taxi services from various Radio Cab companies.

Radio Taxis are available for local commuting as well as long distance purposes. Hiring a cab in Delhi allow you to get the cab number and driver's mobile number as well.

The radio taxis are fitted with GPRS technology, digital fare meters and thermal printers for issuing bill/receipt etc. The billing is done on a per kilometre basis from point to point. Radio cabs are available 24x7 in Delhi, so there are no problems of timing and safety.

#### Black & Yellow Roofed Taxi

Delhi is the only city in India which has taxicabs running only on Compressed Natural Gas. To hail a taxicab, you normally just wait on the street or go to locations called taxi stands. Taxicabs are referred to as taxis in Delhi and the word cab is rarely used.

The fares charged by taxi operators in the national Capital Territory of Delhi are as under:

#### Taxis (Black & Yellow Top)

Rs 25/- for first Kilometre (upon downing the meter) and thereafter Rs. 14.00/- per Kilometre for Non-AC taxis and Rs. 16.00/ per Kilometre for AC taxis for every additional Kilometre

#### Night Charges

25% of the fare (11:00 PM to 5:00 AM)

#### Waiting Charges

Rs 30/- per hour or part thereof (Subject to a minimum of 15 minutes stay)

#### Luggage

Rs. 10/- shall be charged as extra luggage charges whereas the driver/ operator shall not charge and money for a shopping bag or a small suitcase

#### 2.1.6 City Bus:-

One of the cheapest modes of transport in Delhi consists of the environment friendly CNG buses. Delhi Transport Corporation has the World's largest fleet of public transport running on environment friendly clean CNG fuel.

#### Green Card

DTC issues Green Card daily which is valid for traveling in all DTC City bus services except Palam Coach & Tourist services throughout the day. The fare is Rs. 40/- on non-AC buses and Rs. 50/- on AC buses.

#### Delhi Darshan - Dedicated Tourist Bus Service

DTC Bus Services conducts Delhi Sight Seeing Tours for tourists visiting Delhi. DTC daily operates Sight Seeing Tours from Scindia House in Connaught Place. The Delhi Darshan ticket of Rs. 100/- will be valid in all city services on the pattern of DTC Green Card (i.e.

Commuters can travel on any DTC ordinary fare bus free of cost for the day). Children between the age of 5 - 12 years will be charged half ticket i.e. Rs. 50/-.



## Bus Routes

There are numerous bus routes connecting various destinations in Delhi. There are about 814 routes, out of these routes DTC buses are plying on 750 routes on Delhi Roads. DTC's 'Outer Mudrika (OMS)' bus route is the longest one encircling the entire Delhi and covering a distance of 102 Kms

Different types of tourism centres available in Delhi are

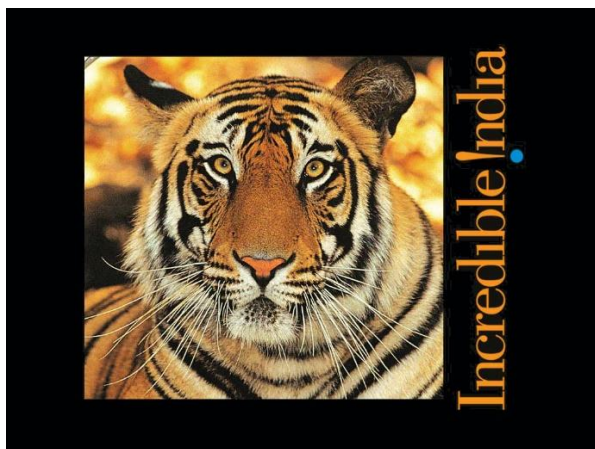


Fig 4: Logo's of tourism centres in Delhi

## 2.1.7 Tourist vehicles in the world-wide in glance of short notes

### San Francisco Hop On-Hop Off: -

The company has been operating bus tours in San Francisco since 1997, and in 2005 we took on the "City Sightseeing" brand, and imported San Francisco's first open-top double-decker buses from London. Today, City Sightseeing San Francisco is the largest sightseeing operator in San Francisco, carrying almost 1.5 million passengers in the last 5 years, with a fleet of over 20 open-top vehicles, as well as minibuses and vans.

We operate a large variety of tours in and around San Francisco, and cover most of the most popular attractions. In San Francisco itself, we offer 4 different open-top routes, to offer you the most comprehensive tours of the city. Outside of San Francisco, tours include Muir Woods, Wine Country, Monterey / Carmel and Yosemite National Park.

The worldwide brand "City Sightseeing" operates in over 100 cities all over the world, and was established in 1998 in Seville, Spain.

An open-top HopOn HopOff tour is a great way for you to explore a new city, or one which you just want to explore further. You'll get the best views of the sights, will have an expert and entertaining tour guide, and you can hop off the bus anytime you'd like to spend more time in a particular place[3].



Fig 5: San Francisco Hop On-Hop Off

## Big Bus Washington DC:-

DC bus tours, you can experience all the famous Washington DC tourist attractions, including the impressive White House and Capitol Hill buildings, as well as the Jefferson Memorial – all from the comfort of our open-top double decker buses.

Enjoy informative and entertaining commentary on our tours of Washington DC and learn about the history of the city, as well as the importance of significant landmarks such as the Lincoln Memorial and Ford's Theatre.

Our hop-on, hop-off buses give you the freedom to appreciate and explore DC at your own pace and with a choice of 24 or 48 hour tickets you can really take your time discovering the city[4].

- See top Washington DC tourist attractions
- Largest fleet of double decker open-top buses
- E-tickets sent straight to your Smartphone
- Hop-on, hop-off bus tours
- Live guided commentary on Red Loop tours
- Digital commentary in 8 languages on Blue loop
- Free admission to Madame Tussauds
- Free walking tours (seasonal)
- Free entry to Crime Museum (48 hour tickets)



Fig 6: Big Bus Washington DC

Hong Kong Rickshaw sightseeing bus:-

#### The Rickshaw Theme

Open-top Sightseeing Bus - Rickshaw Theme In the late 19th century, the classic Hong Kong rickshaw was a major means of transportation around the busy streets of Hong Kong. As the city grew, buses have gradually replaced rickshaws and become one of the most popular public transport. To recall those early days, New World First Bus Services Limited launched the Rickshaw Sightseeing Bus brand. Embracing the old Hong Kong icon of the rickshaw, the service symbolizes a new generation of sightseeing bus routes with local characteristics to whisk passengers through times present and past, and to truly experience the local lifestyle.

Specially decorated in a rickshaw livery, the "NWFB Rickshaw Sightseeing Bus" offers you a convenient hop-on, hop-off service. Like riding on a rickshaw in the old days, you can explore Hong Kong with a 540-degree panoramic view, this time on an air-conditioned double decker, and enjoy a spectacular sight of all the attractions along the way[5].

## 2.2 User Research:-

- Vision of guide is difficult who are sitting on the high floor of bus while he/she is talking
- Seating comfort
- Bottle space
- Arm rests
- Audibility issue
- Language problem
- Identification of bus is difficult
- Night time identification of bus is more difficult
- Should have more luxury in buses
- Luggage space is not there
- Dustbin must provide
- Charging points
- Sunlight protection
- Tickets for entries at tourist places must provide
- Traffic jam which leads to waste of time
- Refreshments can keep as option (Indian food)
- Sunlight protection



Fig 7: Side of Delhi bus



Fig 8: Bus stop Identification



Fig 9: Bus Interior



Fig 10: Hop on Hop off Office



Fig 11: Tourists getting down the bus



## 2.3 Market Research: -

### Tata Marcopolo Bus

The standard Starbus is smart in looks and big on space. The internal styling, with superior fittings, gives space a new dimension. Incorporating high standards of aesthetics, the buses offer the following features:[6][7]

- Extra aisle space for comfortable movement and greater safety
- Wider seats with armrests and backrests that fit the body angle perfectly
- Extra legroom for greater comfort
- Ergonomically designed dashboard with a simple instrument cluster
- Spacious driver cabin for free movement
- Driving controls within easy reach
- Driver partition with a large windscreen for all-round vision and a peep window for safer driving
- Personalized lights for passengers
- Speakers for the entertainment system

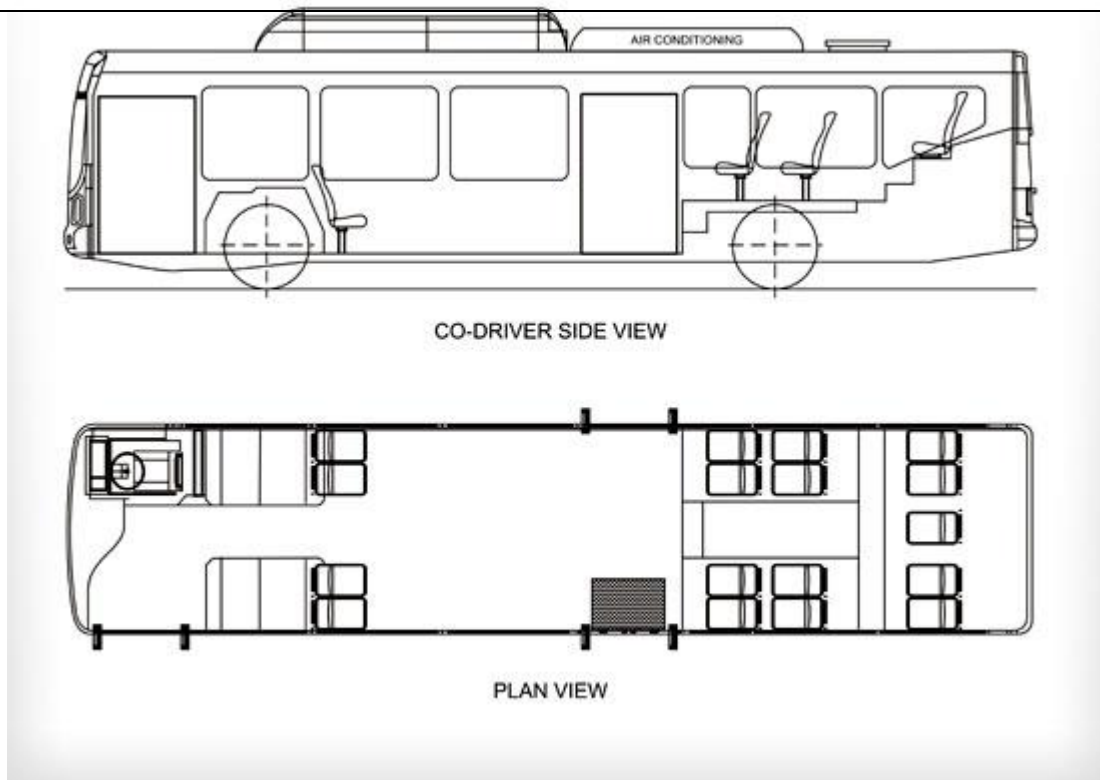


Fig 12: Outer line diagram of Tata Marcopolo



Fig 13: Tata Marcopolo bus

Model Name	Semi low floor RE bus on LPO 1618
Chassis Platform	LPO 1618 BS III Diesel; Customized
Engine	CUMMINS 6BT 5.9-180-30; BS3
Maximum Power	Water cooled ,Turbo charged Diesel Engine; 5883 cc
Maximum Torque	131 Kw at 2500 rpm
Gear Box	675 Nm at 1400 rpm
Clutch Diameter	G-600 with O.D; 6 Forward 1 Reverse
Suspension	352 mm Spicer pull type
Retarder	Semi elliptical leaf spring ,Weveller at front and Rear Pneumatic Suspension-Rear (optional). Antiroll bar at front axle only.
Tire Size	Hydraulic double acting telescopic type at front and rear
Steering	10.00 x 20 -16 PR Diagonal Ply, 10R20-16PR (OPTION-1), 11R22.5-16PR (OPTION-2)
Brakes	M/S RANE AND ZF 20.2:1 M/S FORNI(CHINA)
Fuel Tank Capacity	Ratio : 20.4:1
Wheelbase	Dual circuit,full air S-CAM brake system
Front Overhang	250 Litres
Rear Overhang	6200mm
No of Seats	2250 mm
Max Width	3200 mm
Passenger Door	Customized
Overall Length	2434 for Face & 2580 for w/o Face
Overall Height In Laden Condition	Inswing Front door, Outswing Rear door
Turning Circle Diameter	11850 mm
Maximum Speed	2925 mm
GVW	23661 mm
Electricals	105 Kmph
	16200 kg
	Battery: 2x12 Volts, 180 Ah;
	Alternator Capacity: 75 Amps

Fig 14: Specification of Tata Marcopolo bus

## 2.4 Product Study:-

Keeping in view the varying requirements of applications of buses and those of commuters, all buses are categorized into four Types, namely,

Type I, Type II, Type III and Type IV, as defined.

Each of these types of buses is further categorized as Non-Deluxe (NDX),

Semi Deluxe (SDX), Deluxe (DLX) and A. C. Deluxe (ACX), on the basis of comfort level required by different categories of commuters.

Buses are also categorized as Low Capacity, Medium Capacity and High Capacity buses to cater to the traffic demand pattern, as also the frequency of the traffic. A chart depicting the categorization of buses[8].

### 2.4.1 Overall Dimensions

Overall dimensions of the bus shall comply with the provisions laid down in Rule 93 of Central Motor Vehicle Rules, 1989, as amended from time to time. (The Committee's recommendation, notified by MoRT&H

### 2.4.2 Internal Dimensions

Entry / Exits

Service Doors

The service door(s) shall be situated on the side of the vehicle that is nearer to the side of the road corresponding to the direction of traffic and atleast one of them shall be ahead of the front Axle. However, Midi buses not carrying standee passengers and Mini buses where the front overhang does not permit the provision of front door can have the front door behind the front axle provided that atleast 650mm of service door aperture width lies in the front half of the wheel-base.

In case of buses meant for exclusive operation in hilly terrain, the front door may be provided behind the front axle provided that atleast 650mm of service door aperture width lies in the front half of the wheel-base.

Where there are two service doors, one door shall be situated in the forward half of the vehicle and ahead of the front Axle, the other in the rear half of the vehicle and behind the rear axle. In case of rear engine bus, the second service door may be located ahead of rear axle such that the rear edge of the door aperture shall be located maximum of 1500 mm ahead of the center line of the rear axle and the width of the aperture shall be 1200 mm.

A double service door shall be counted as two doors.

Each rigid section of an articulated bus shall be treated as a separate vehicle for the purpose of calculating the minimum number of exits to be provided.

#### Number of Service Doors

The minimum number of service doors or apertures shall be as follows,

Minimum dimensions of service doors / apertures for buses other than Mini & Midi, shall be as follows -

Category		Height Min. (mm)	Width min. (mm)		
			Front	Rear	Middle#
Type I	NDX	190	1200 <sup>@</sup>	1200*	1200
	SDX	190	1200 <sup>@</sup>	1200*	1200
	DLX	190	80	80	1200
	ACX	190	80	80	-
Type II	NDX	190	80	80	-
	SDX	190	80	80	-
	DLX	190	80	80	-
	ACX	190	80	80	-
Type III	SDX	190	80	80	-
	DLX	190	80	80	-
	ACX	190	80	80	-

#### 2.4.3 Window

The window panes shall be of sliding type for all buses except ACX buses. However, in ACX buses the provision for adequate ventilation in case of A.C. failure shall be made.

The minimum width of the window aperture (clear vision zone) shall be 550 mm.

The minimum height of the sliding part of the window aperture (clear vision zone) shall be 550 mm. However, this dimension is not applicable to ACX buses, where sliding window panes are provided for ventilation in

If the driver compartment and seats adjacent to it are accessible from the main passenger compartment by means of a passage, no additional external exit mentioned in para 2.2.4.9 is required.

The fitment of any welded structure / frame restricting the opening of any of the emergency exit, from inside or outside the vehicle, shall not be permitted.

The minimum number of Emergency doors/ Exits or apertures in case of other than Mini and Midi bus shall be as follows:

	NDX	SDX	DLX	ACX
Type I	2	2	2	2
Type II	2	2	2	2
Type III	-	2	2	2

In case the driver door is easily accessible from the passenger compartment, the driver door may be considered as an emergency door.

There shall be a minimum of one Emergency doors/ Exits or apertures in case of a Mini & Midi Bus.

Minimum dimensions of the emergency exits shall be as below :

Category	Height (mm)	Width (mm)
Type I	1250	550
Type II	1250	550
Type III	1250	550

Minimum requirements of the emergency windows shall be as below :

Category	Area (cm <sup>2</sup> )	Remark
Type I	4000	It shall be possible to inscribe
Type II	4000	
Type III	4000	

#### 2.4.4 Steps

Dimensions of Steps in mm shall be as given below:

	Type I	Type II	Type III
Maximum Height of First	400	425	425
Height of Other Steps	250	250	250
C* (min)	230	230	230
E*(max)	25	25	25
Step Depth (Minimum)	255	255	255

The height of the first step in relation to the ground shall be measured with the vehicle on level ground, unladen, the tire pressure being as specified by the manufacturer corresponding to maximum technical mass.

The height of a step shall be measured at the center of its width.

Where there is more than one step, each step may extend into the area of the vertical projection of the next step by 25 mm and the projection over the tread below shall leave a free surface at least 230 mm with all steps edges designed to minimize the risk of tripping.

A rectangular template of 400 mm x 200 mm when placed over the step shall have a contact area of at least 95 %, In case of a double doorway each half of the door shall fulfil this requirement.

All steps shall be provided with anti-skid surface (Aluminum chequered plate/ grooved vinyl sheet or any non-slip coating). The anti-skid surface shall meet the requirements specified in AIS standard as and when notified.

## 2.4.5 Floor Height

The height of the floor measured in relation to the ground shall be measured with the vehicle unladen.

In case of Mini Bus of Type I NDX and SDX categories, the maximum floor height shall not be more than 800 mm. The maximum Floor Height for other than mini buses of Type I NDX & SDX categories, shall not be more than 650 mm, atleast on 50% of the floor area.

The floor height shall be measured at any one of the service doors of the vehicle in unladen condition. (reference point to be specified by the manufacturer)

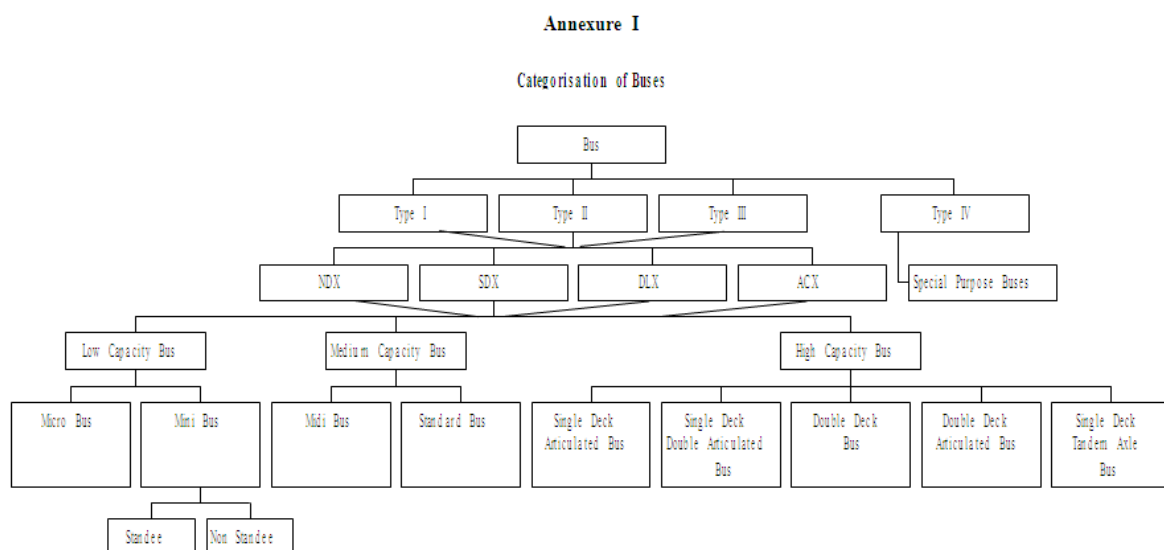


Fig 15: Types of Buses

## 2.4.6 TEST METHODS

### Design Type Approval

All bus body structures and structural aggregates shall be designed to fulfil the loading, operating and performance parameters specified in the code and / or requirements notified by the authorised agency from time to time. Bus body and



other structural units shall be allowed to fabricate and submit prototypes only on obtaining design approval. Finite Element Analysis or any other analytic technique may be used as specified by the authorised agency and amended from time to time.

The body structure during the type approval shall be considered as approved if the requirements in respect of the following parameters are met –

- (i) Strength
- (ii) Stiffness
- (iii) Structural Stability
- (iv) Vibration
- (v) Safety

Criteria where requirements are not specified shall meet requirements from a date notified by the authorised agency from time to time.

#### Body Structure Strength Test

##### Test Requirements

The body structure of the vehicle shall be of sufficient strength, to ensure that during and after it has been subjected to the test specified in the para 6.1.2.

No part of the residual space projects outside the deformed structure.

The residual space means the space to be preserved in the passenger compartment during and after the structure has been subjected to roll over test. The space is defined as the volume within the passenger compartment when swept by a transverse plane defined in Fig. 1 is moved in straight line or line such that it passes through the “R” points of all the passenger seats

For the purpose of above rule the “R” point defined in Fig. 2 shall be assumed to be 500 mm above the floor under the passenger’s feet, 300 mm from inside of the side of the vehicle and 100 mm in front of the seat back in the centreline of the outboard seats.

Delhi Transport Corporation, GNCTD Supply of Fully Built CNG Propelled Standard Floor Height Intercity Non-AC Buses

Request for Proposal Document

Members, panels and all projecting parts such as luggage racks, ventilation ducts, equipment etc. However this shall preclude the following:

- Intrusion of a structural member
- Intrusion of a conduit
- Intrusion of rear corner seats
- Intrusion of Wheel hump

In case of an articulated vehicle each part of the vehicle shall comply with the requirements specified[9]

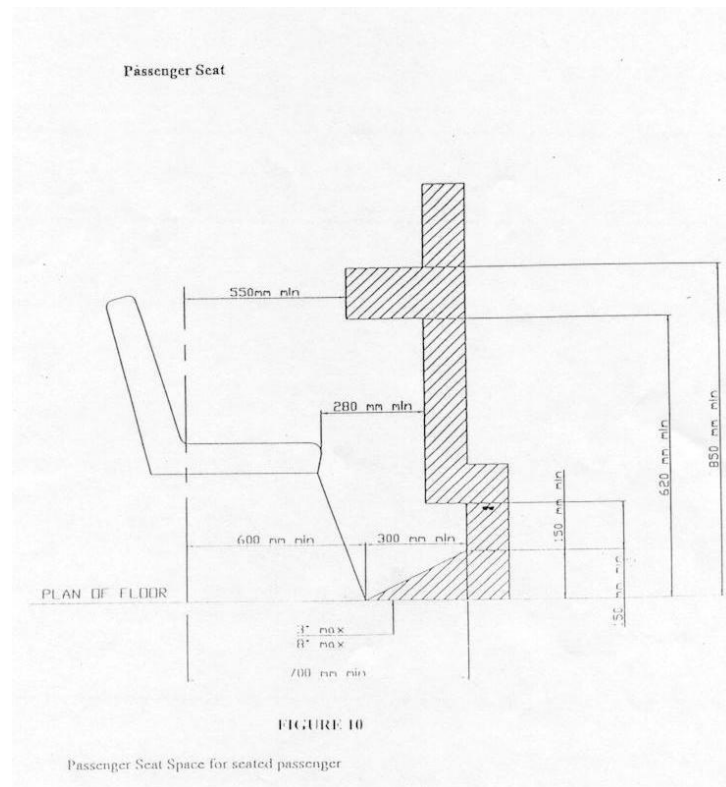


Fig 16: Seat Dimensions

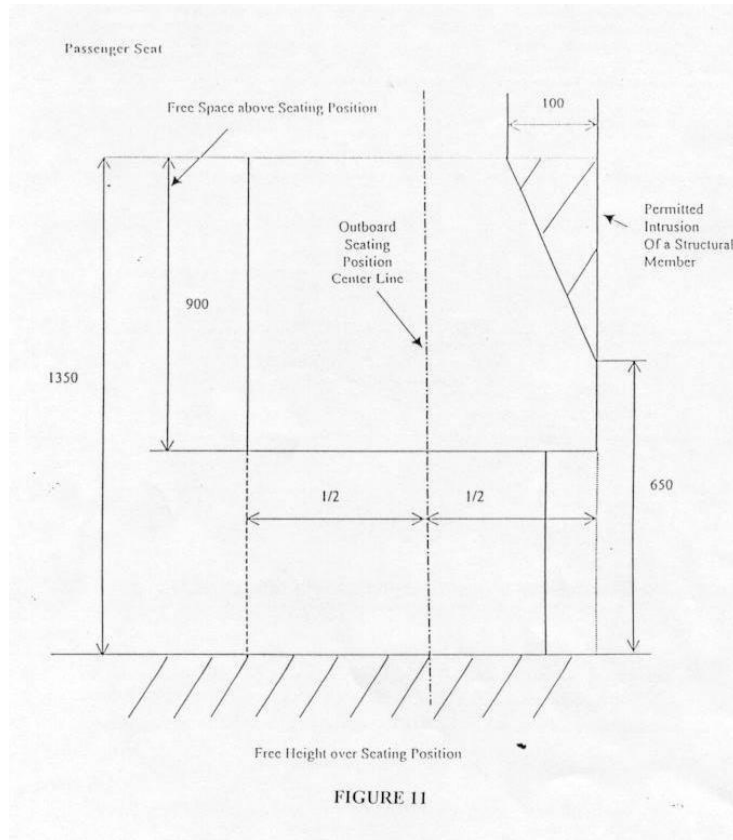


Fig 17: Seat height position

### 3.0 Design Brief:-

To design a vehicle for tourist visitors of New Delhi focusing on Aesthetics of Bus

## 4.0 Concept

Fig. 18:-Initial sketches

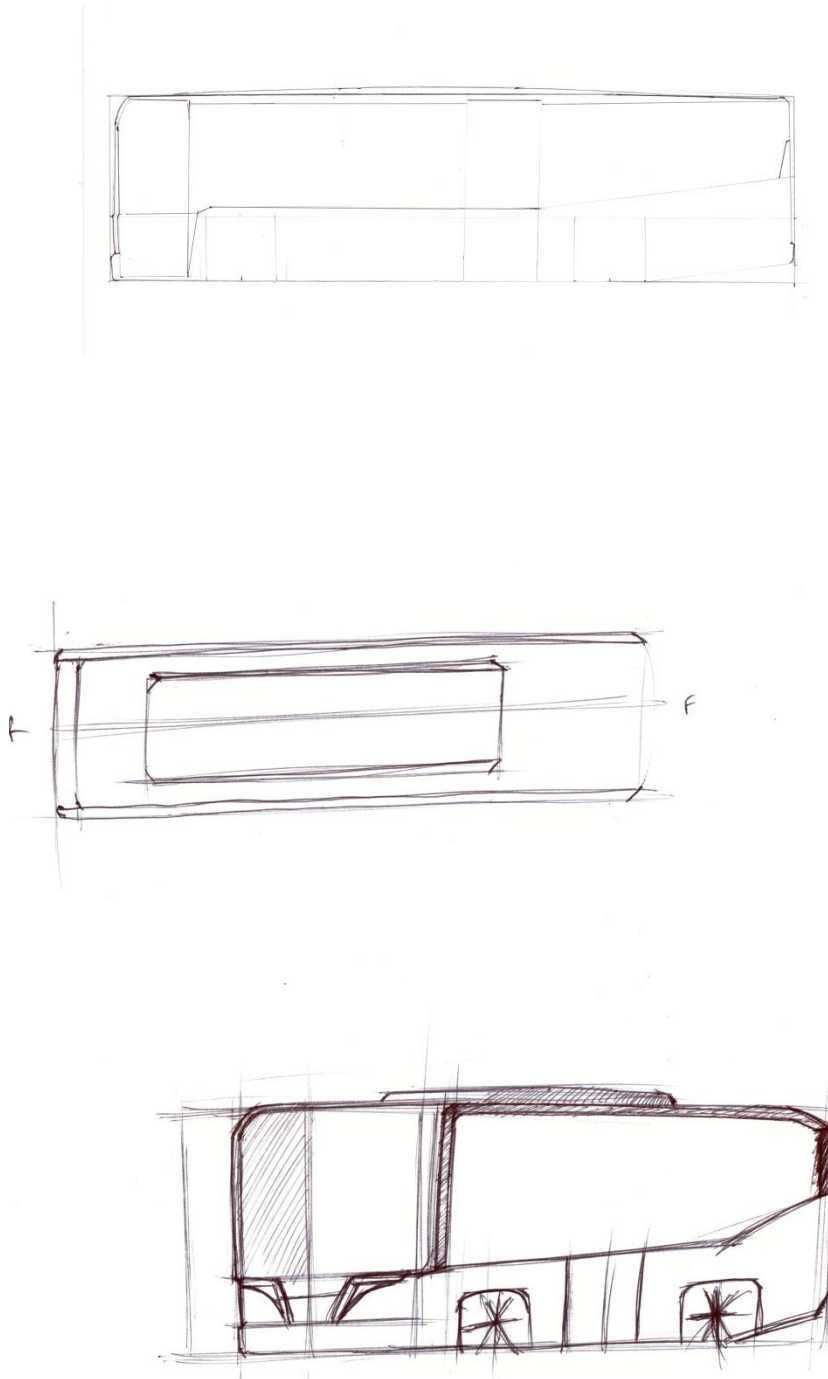
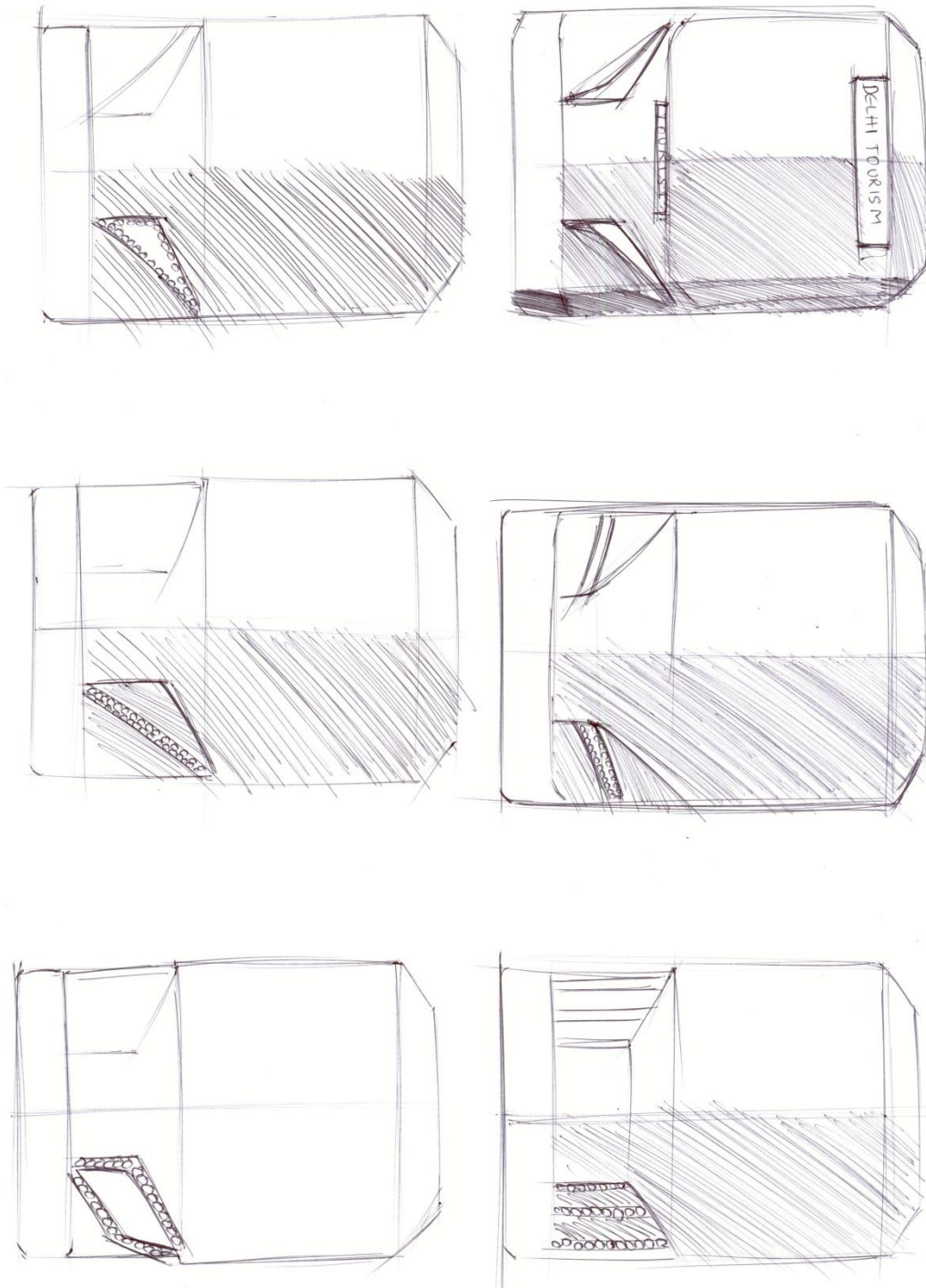
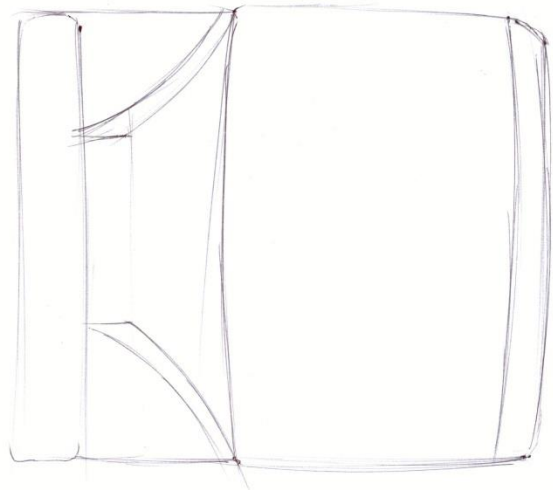
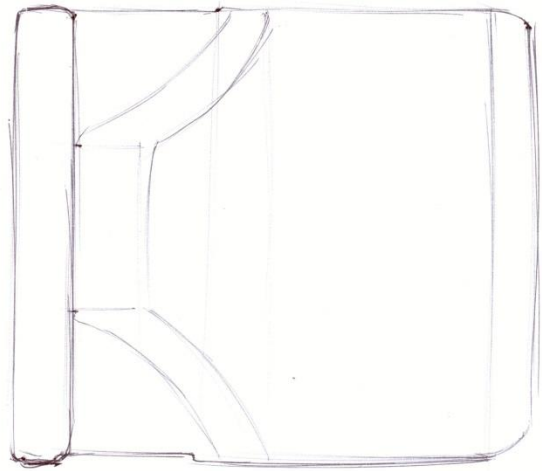
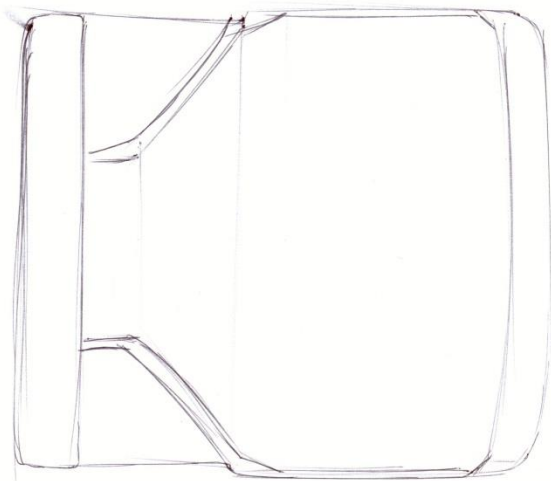


Fig 19: Front view variations





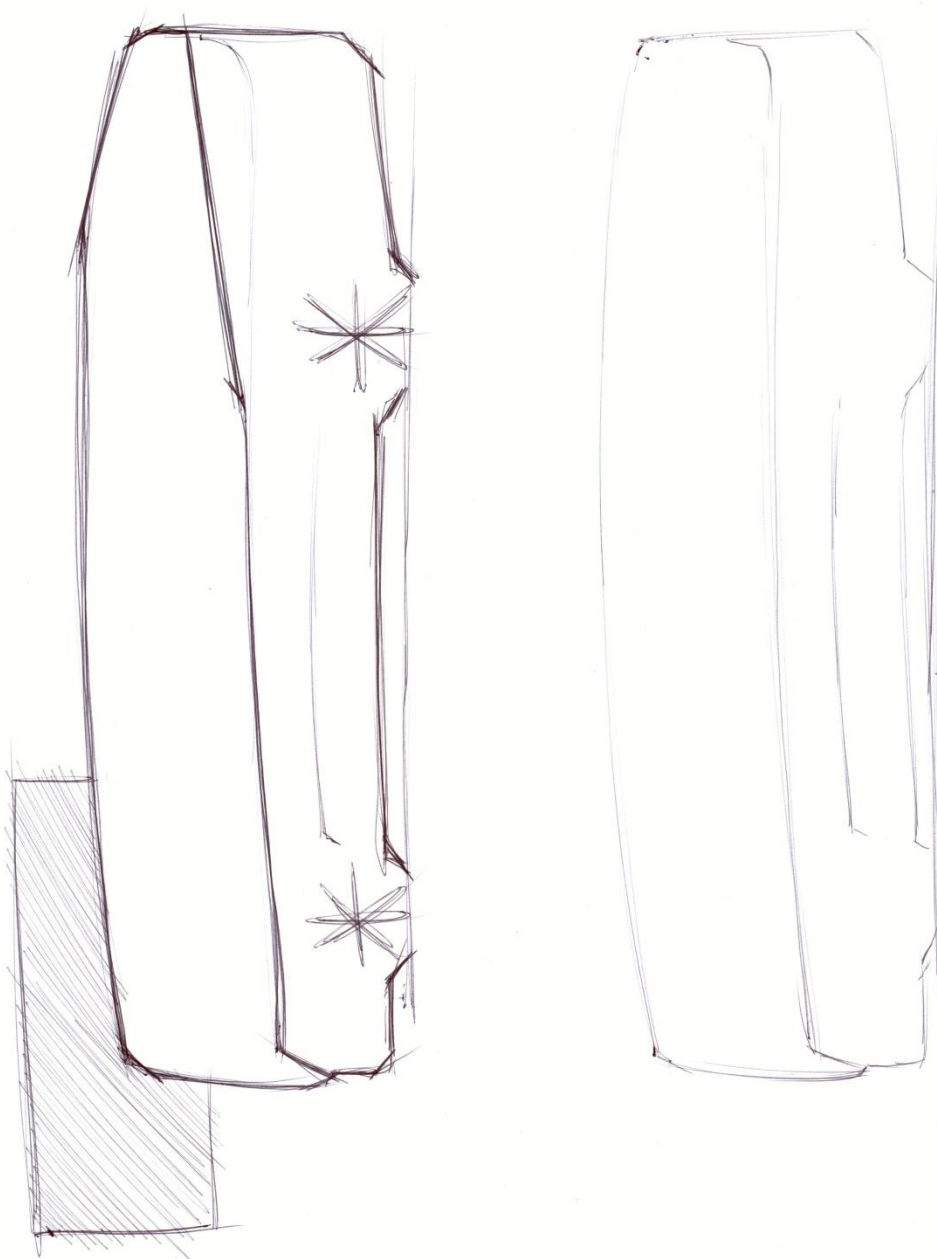
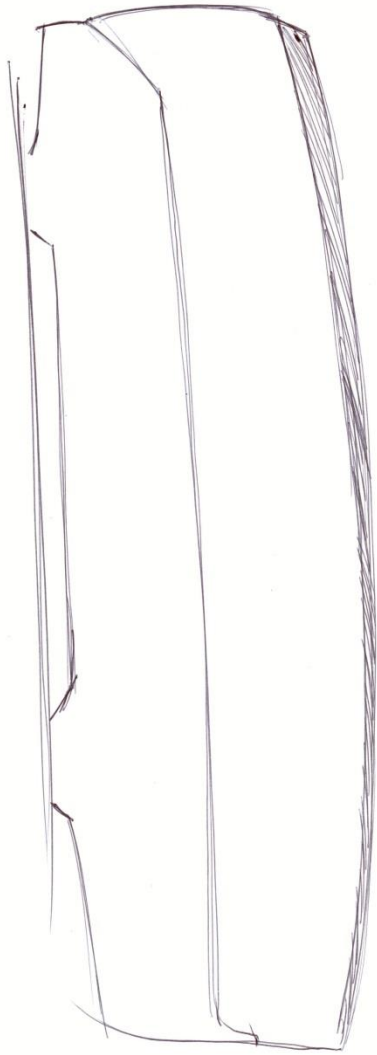
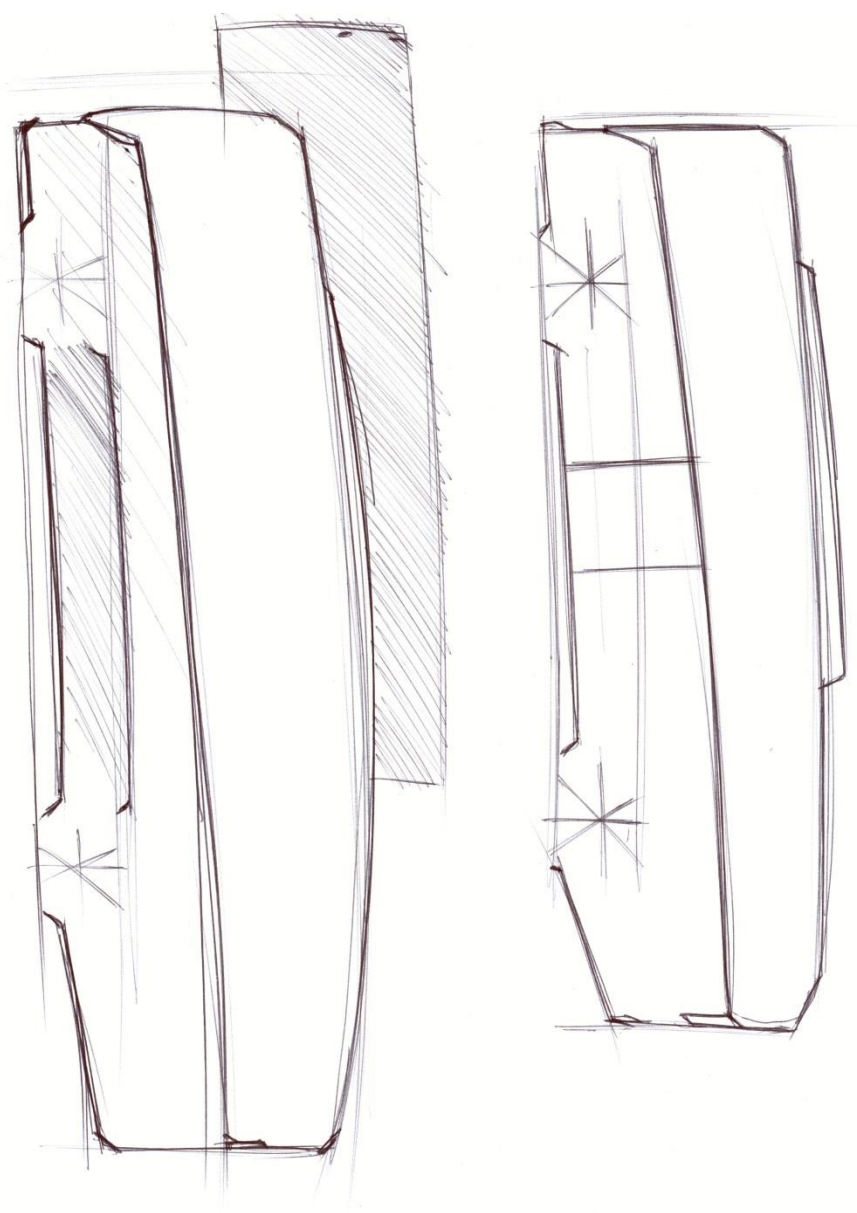
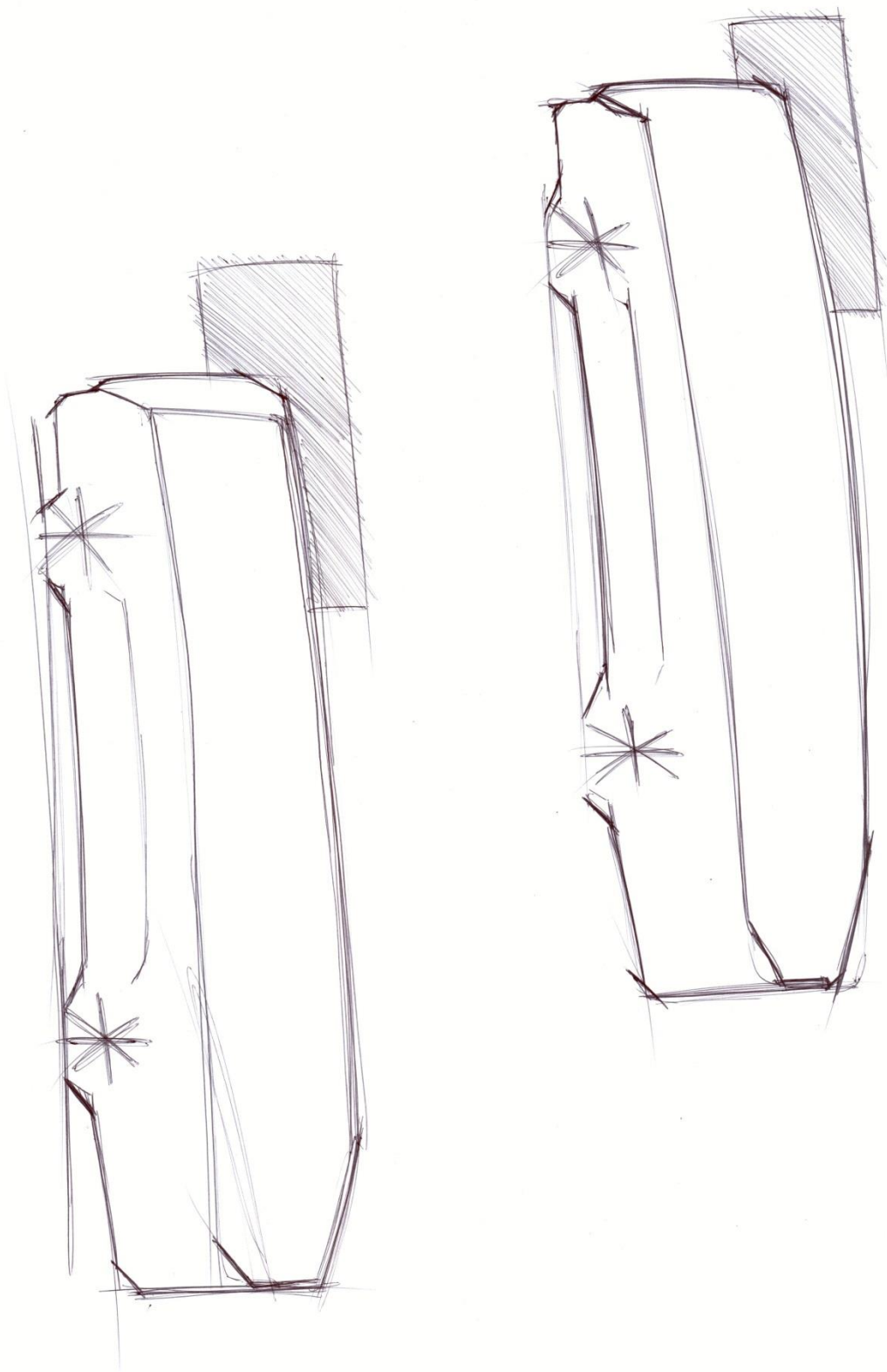


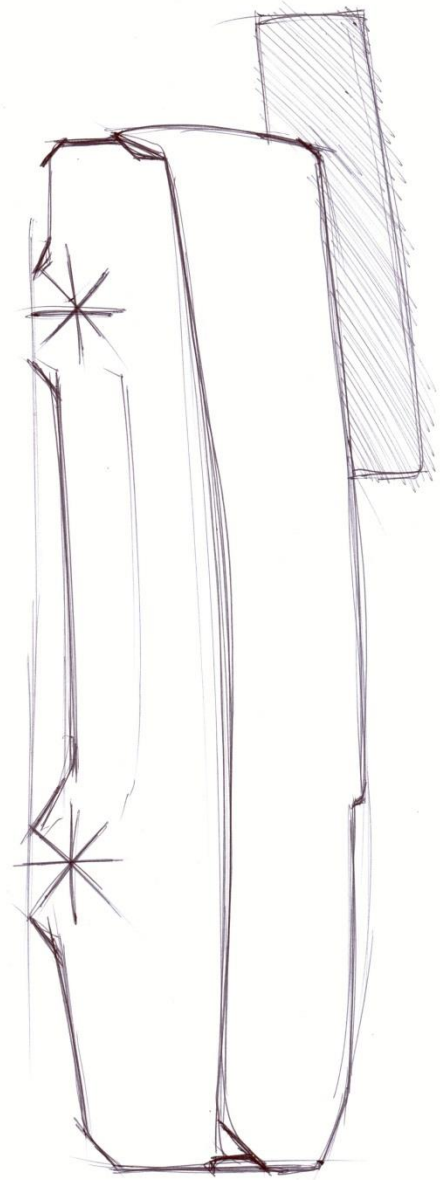
Fig 20:-Side view

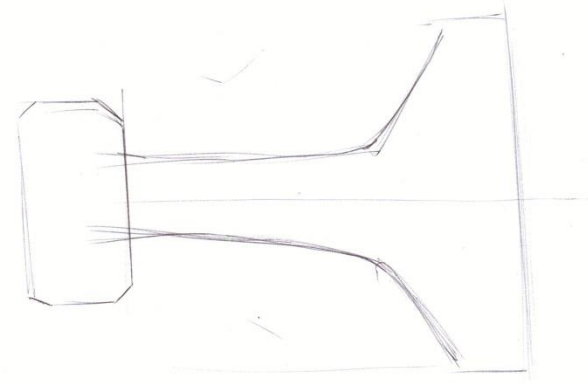
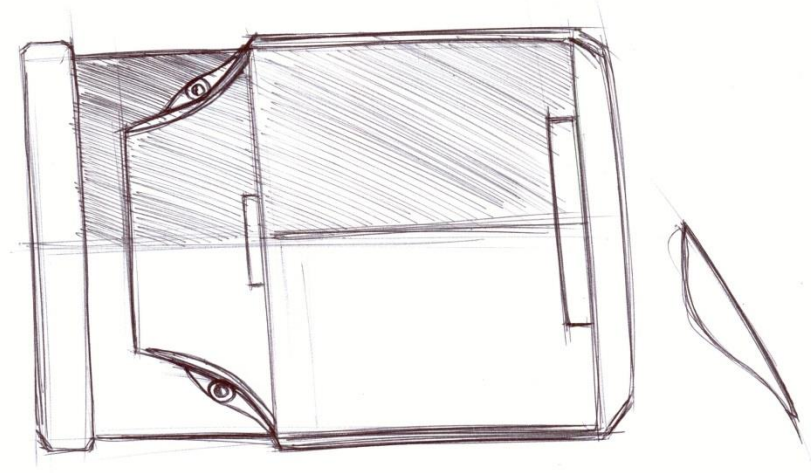
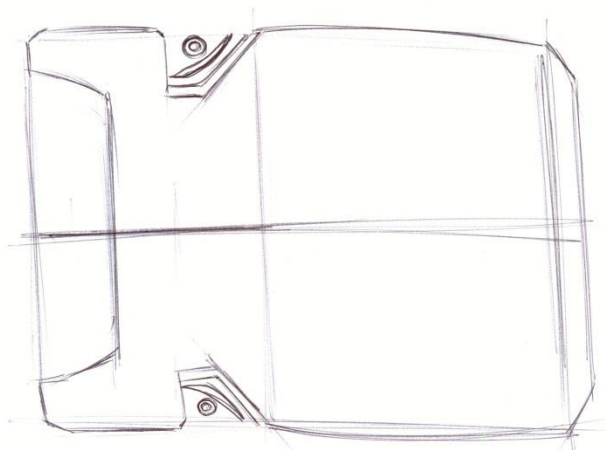












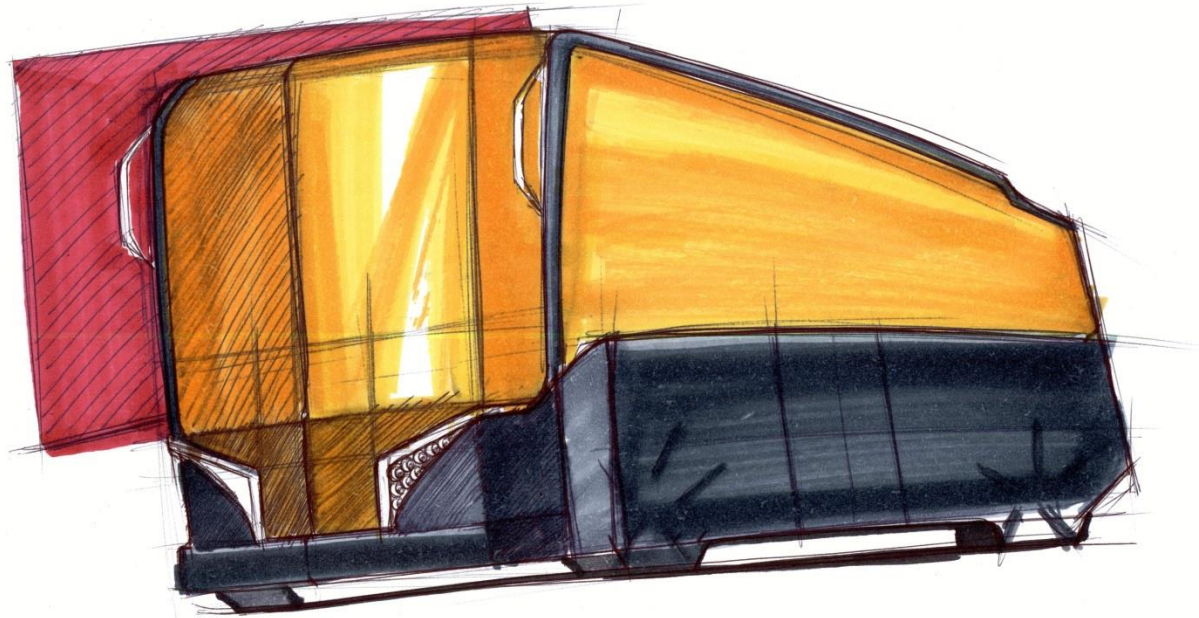
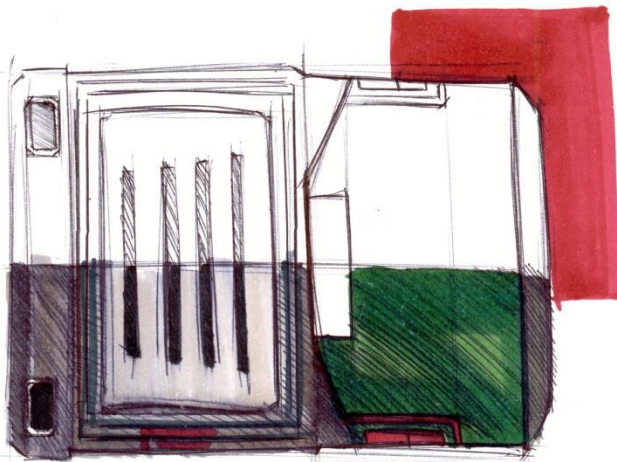
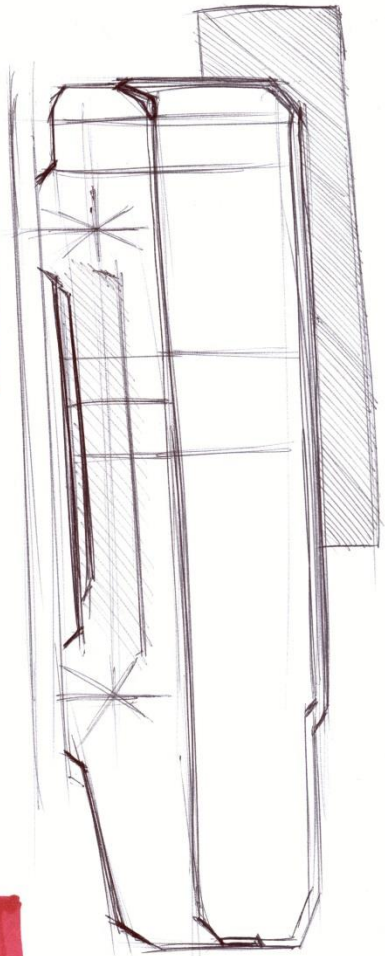
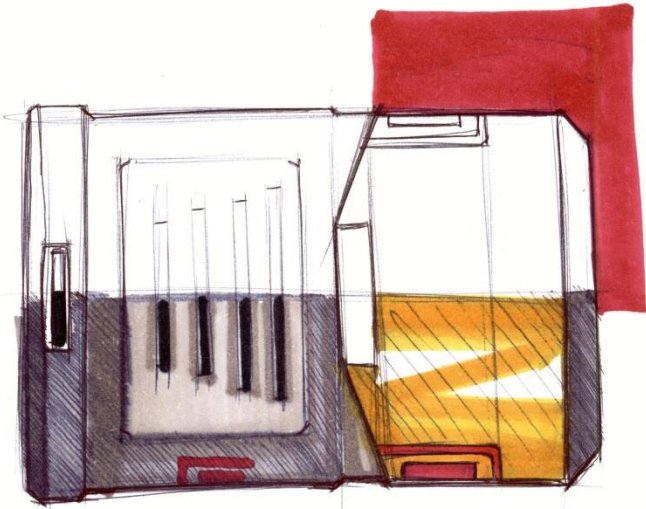
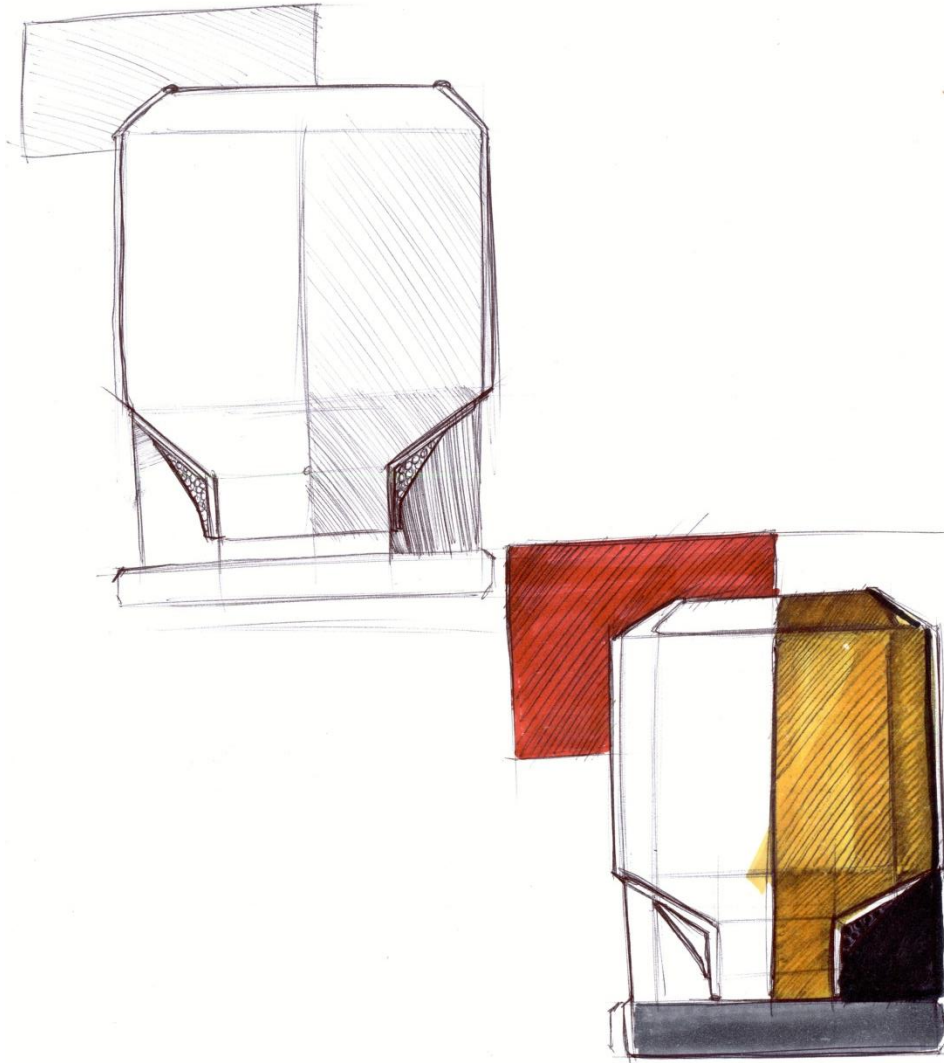


Fig 21 :-Final iterations and hand renders







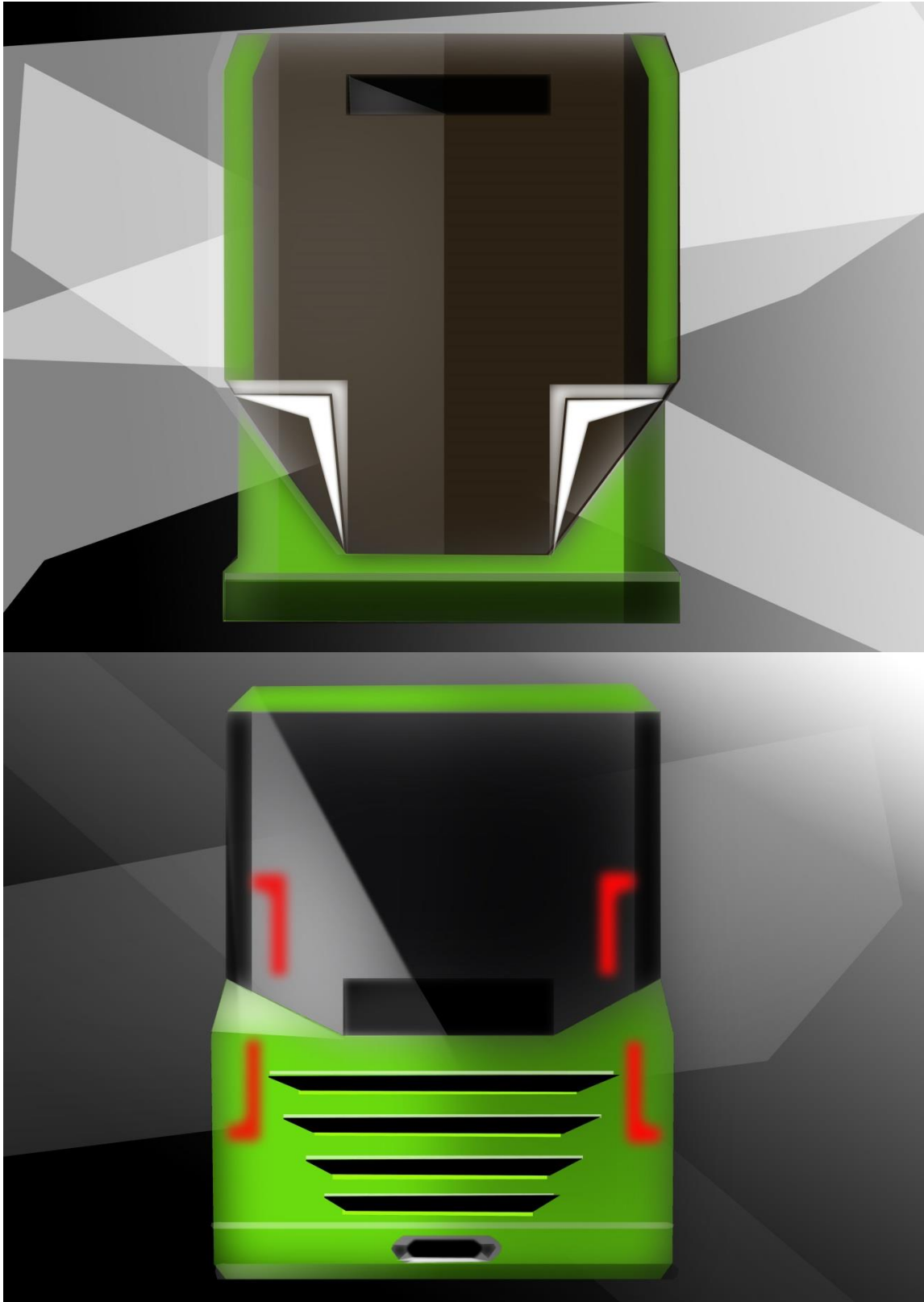


Fig 22: Digital

## 5.0 DIGITAL MODEL:-

ALIAS model and key shot rendering

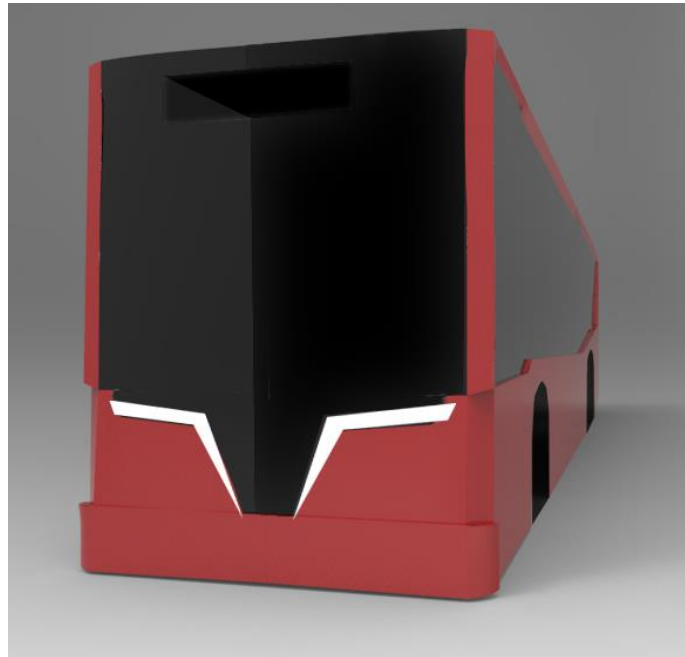
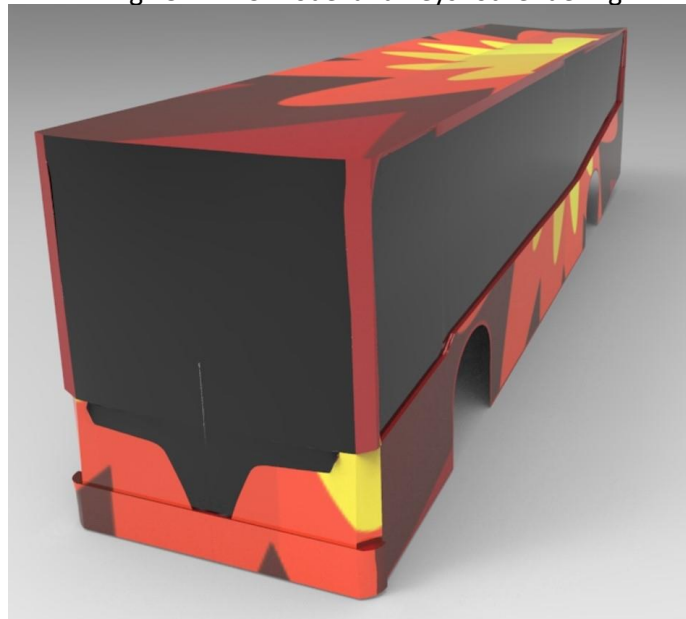
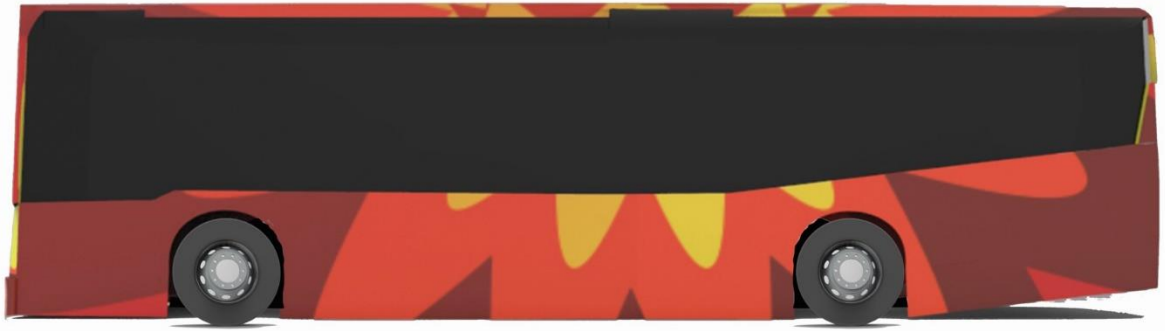


Fig 23: ALIAS Model and Keyshot rendering





Logo for Delhi tourism



देली टूरिज़्म

## 6.0 Conclusion:-

Actually there are two types of tourist buses like double decker and single floored bus out this for Indian conditions single floored bus I have chosen based on the research. Based on this conditions I have taken an inspiration board representing the new characteristics of design and at the same time condition like maintenance and visibility are also taken care while designing the bus. Even the colour of the bus and logo of the bus also represent the landmarks of Delhi like Lotus temple, colours represent like historic buildings.

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