IDC
IIT Bombay

P2

PROJECT **REPORT**
Mobile Clinic *for rural area & inaccessible regions*

Submitted by:

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Mobility & Vehicle Design,196390009

TITLE : MOBILE CLINIC FOR RURAL & INACCESSIBLE REGIONS

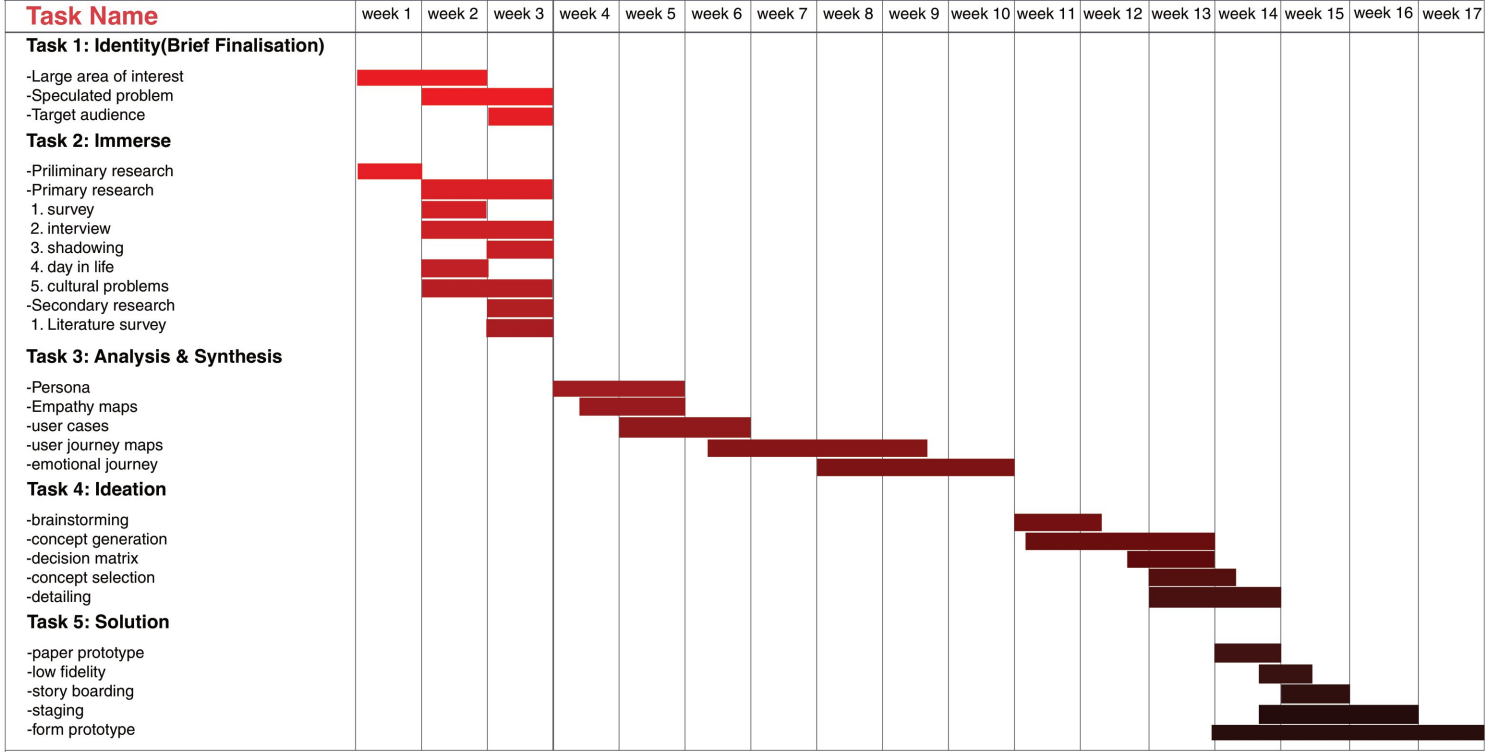
MD2 PROJECT REPORT (Stage 1)

Student's Name**- Mohit Kumar Solanki**

Project Guide**- Prof. Nishant Sharma**

September,2020
IDC School of DESIGN, IIT Bombay

GANTT CHART


Task Name
week 1
week 2
week 3
week 4
week 5
week 6
week 7
week 8
week 9
week 10
week 11
week 12
week 13
week 14
week 15
week 16
week 17
Task 1: Identity(Brief Finalisation)
-Large area of interest
-Speculated problem
-Target audience
Task 2: Immerse
-Priliminary research
-Primary research
1. survey
2. interview
3. shadowing
4. day in life
5. cultural problems
-Secondary research
1. Literature survey
Task 3: Analysis & Synthesis
-Persona
-Empathy maps
-user cases
-user journey maps
-emotional journey
Task 4: Ideation
-brainstorming
-concept generation
-decision matrix
-concept selection
-detailing
Task 5: Solution
-paper prototype
-low fidelity
-story boarding
-staging
-form prototype
Stage 1 Jury
(16th Sept.)
Stage 2 Jury
(21st Oct.)
Stage 3 Jury
(6-7 Dec.)

PART 1- ***RESEARCH & ANALYSIS***
DURATION - 6 WEEKS

MOBILE CLINIC

for RURAL & INACCESSIBLE REGIONS ▷

A design solution that is aimed at bringing low cost, modern healthcare closer to rural & isolated villages & towns.

INTRODUC-TION

I started this project with the intention of-

- *Studying prevailing rural-healthcare system of India.*
- *Identifying the drawbacks & shortcomings if any.*
- *Proposing an improvement/ an alternate approach to improve the overall rural well being.*

*My MAIN FOCUS is to approach the problem from **different angles**, while taking into conideration:*

- *Diverse demographic of India*
- *Mental model & belief system of rural India*
- *Solution's feasibility in being implimented, i.e. technological simplicity & affordability*

LARGE FIELD OF INTEREST

*I started off by defining the large field of interest- which encompasses **all possible domains** directly & indirectly related to rural healthcare. The real goal of this is to get a good understanding of the **BIG PICTURE** by identifying the factors influencing the complex system.*

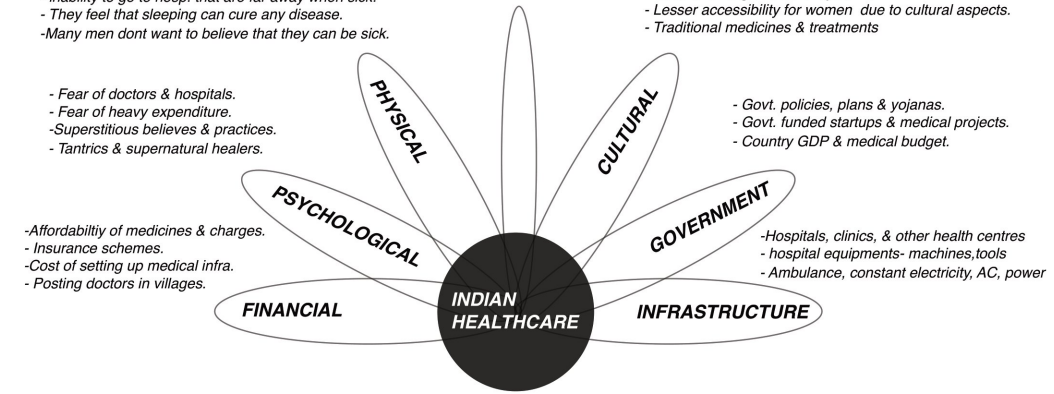
MAJOR CONTRIBUTING FACTORS:

RURAL HEALTHCARE

- *inability to go to hosp. that are far away when sick.*
- *They feel that sleeping can cure any disease.*
- *Many men dont want to believe that they can be sick.*

URBAN HEALTHCARE

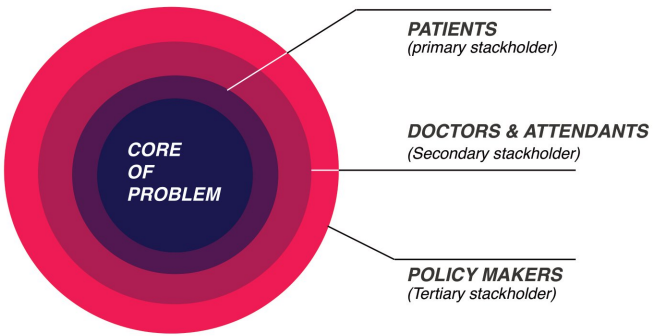
- *Cultural & religious belief systems.*
- *Lesser accessibility for women due to cultural aspects.*
- *Traditional medicines & treatments*



TARGET AUDIENCE

*My immidiate next stop was to identify my target audience, for this I plotted a **Stackholder Diagram** and from it determined my Primary, Secondary and Tertiary Stackholder.*

STACKHOLDER DIAGRAM:



TARGET AUDIENCE:

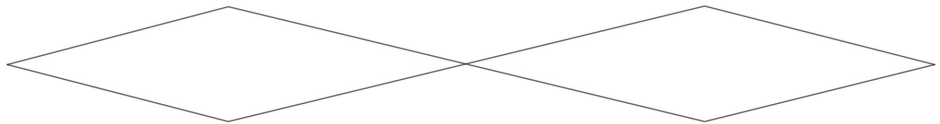
PRIMARY
LOCATION ----------: Rural India
SPENDING CAPACITY : People of lower to middle income group
EDUCATION : Minimal to none
GEN. AWARENESS : Minimal to none

SECONDARY
Indian Doctors,
Hospital Management

TERTIARY
Government & policy makers

DESIGN PROCESS

I followed a CONVERGENT - DIVERGENT design process (double diamond)



PATIENTS	***IMMERSE***	***ANALYSIS & SYNTHESIS***	***IDEATION***	***SOLUTION***
-large are interest	*Preliminary research*	*- Personna*	*- Brainstorming*	*- Paper prototype*
-speculated prob	*Primary research*	*- Empathy maps*	*- concept genration*	*- low fidelity*
-Target audience	*-survey*	*- Use cases*	*- Descision matrix*	*- Storyboarding*
	-interview	*- User journey maps*	*- concept selection*	*- Staging*
	-shadowing	*- Emotional Journey*	*- Detailing*	*- Form prototype*
	-day in life			*- CAD modelling*
	-cutural probes			*-Renders*
	Secondary Research			
	-literature survey			

PHASE 1

IMMERSE

PART 1- ***RESEARCH & ANALYSIS***

RESEARCH PHASE

WHAT THIS RESEARCH MEANS

The main purpose of this research was to 'COLLECT DATA", that is

- About the user- (or) - About the scenario
-Can be direct observation- (or)- can be direct interferance
-from already published sources- (or)- direct from the focused environment

Basic idea is to collect as much "RELEVANT DATA" as possible and document it in way to be easily processed to make ' meaningful information'.

THE RESEARCH PLANS

While doing research, it become very easy to lose track of which data is relevant and which is not. So it is critical for any research to have a Solid Plan, so as to not loose track.

I went by the textbook and divided my reserch into 3 categories:

Preliminary Research - To skim the surface, in order to get an idea about what we really need.

Primary Research - To go to the field, and collect first hand data

Secondary Research - To use published information, in order to backup our findings.

I used the defined tools of each research, in order to collect data in an orderly & systematic manner.

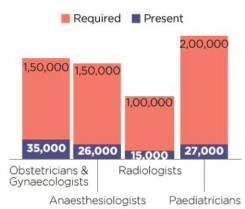
Why India has a glut and acute shortage of doctors?

India should in next six years meet the WHO benchmark of one doctor per 1,000 people, but the national average hides deep imbalance where individual states are concerned.

Long queues onside doctor's clinics, overcrowded hospitals and the huge backlog of patients for surgeries clearly suggest that the country needs more doctors. The Data shows that India needs 4.3 lakh doctors added to it's existing pool to reach the WHO standard od doctor- patient ration of 1:1000 instead of current 1:1499.

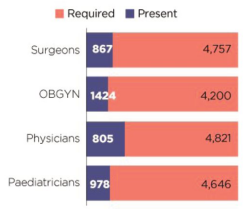
With an annual output of nearly 80000 doctors, the country should meet the WHO norms within the next six years. But like most things in our healthcare system, this is complicated too as the shortage isn't uniform across the geographical terrainns. Maharashtra, Kerela, Andhra Pradesh, Karnataka, Tamil Nadu & Punjab already have more than one doctor per 1000 people.
But the situation in Bihar, Chattisgarh, Jharkhand, UP & MP is deplorable. At the current rate at which their colleges are producing doctors, Bihar will take at least 56 years to achieve WHO standards and Jharkhand more than 87 years. Even in states with the required number of doctors, there are districts with poor health indices because doctors crowd the cities. For instance, Tamil Nadu has declared 16 of its 32 districts backward on various health indices, primarily due to doctor shortage in the rural areas

Specialists available and needed for Indian population



Source: Association of Healthcare Providers (India)

Majority of positions for specialists are vacant in CHCs

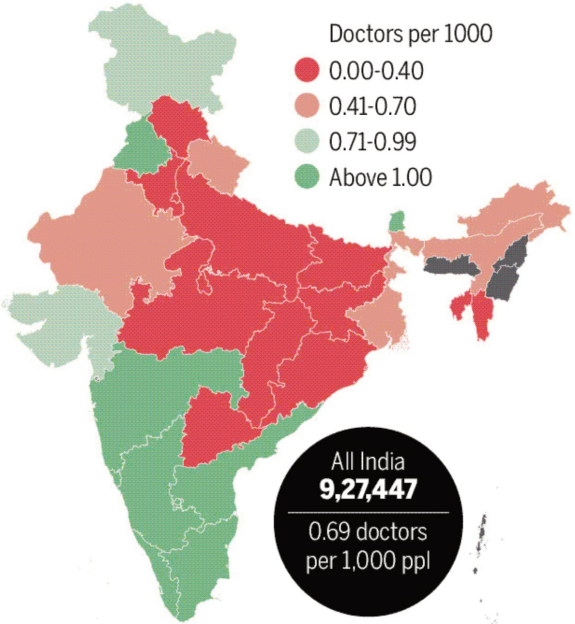


Source: Status of health manpower in rural areas, Government of India

THE-KEN

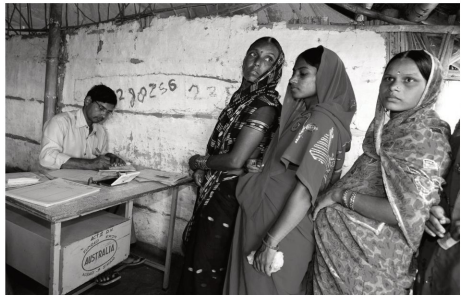
Graphic by Prajakta Patil

SOUTHERN STATES HAVE ACHIEVED 1:1,000 RATIO



*No. of available doctors, which MCI estimates is only 80% of those registered as doctors

PRELIMINARY RESEARCH



Rural healthare is divided into 6 major domains.

A web based DESK RESEARCH is conducted in these domains in order to get a clear understanding of the overall scenario & understand its internal dynamics from different perspective.

RURAL HEALTHCARE

Psychological	***Infrastructure***	***Financial***	***Govt. policies***	***Demographics***	***Logistics***
need of users & doctors	*needed & what is available now*	*constraints of patients, docs & govt.*	*what is imlimentable by govt.*	*influence of culture & region on mindsets*	*easy access to hospitals & medicals*

INSIGHTS FROM EACH DOMAIN (DESK RESEARCH)

-*Patient* **afraid** *of hosp. admission*	**-40%** *shortage in comm. health centers*	-**can't afford** *multiple visit to doctors*	-*med policies(over promised)*	- *Treatment not specific to* **region**	-*Village often in* **remote locations**
-No *supervision*	**-12%** *shortage pri. health centres*	-*travelling expenses &* **inconvenience**	-*lack of* **grounded, user centered** *research*	- *no measure of public epidemic'*	-*lack of* **roads***(proper connectivity)*
-*people feel they can recover their own*	- *several villages share distant hospitals*	-*med. tests & tratments* **expensive**	-**No incentives** *to set adequate policies*	- *many regions* **ignored**	- *local public cannot afford vehicles*
-superstitions	**-lack** *of equipments*	-*most target audience* **low income** *group*	-*less* **budget** *allocate for rural healthcare*	- *no updated region-wise* **health record**	- *takes too much to reach* **nearest** *hospital*
-**mpolite** *behaviour of locals*	**- Lack** *of reliable electrcity supply*	-**Insurance**	-*lack of public* **aware ness**	- *cultures/ believes/ habitual* **differences**	-*meds takes too long to* **reach** *villages*

THE SPECULATED PROBLEM APPROACH *(FOR DIRECTIONALITY)*

- Throughout the process of preliminary research, I'm skimming through several sources online, in order to get an understanding of the overall scenario and to identify what the problem was or potentially could be, i.e. identify a " SPECULATED PROBLEM".

- I'm focusing my entire primary research around this speculated problem.

- I will then make minor corrections theoughout our research to arrive at the actual 'problem statement'.

- This approach gives directionality & makes sure my research stays on track.

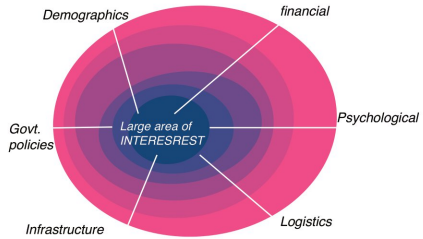
THE SPECULATED PROBLEM

Post PRELIMINARY RESEARCH, I arrived at the conclusion that rural areas simply didn't have enough medical setups to support its huge population.

But apart from that I also made a few unique observations that i wanted to dig deeper in my primary research. Most interesting of these were:

- Despite having PHC's in their villages, many people chosen to ignore it-causing serious fatalities.
- Even if there is a clinic in the village, lots of people struggle with affordability.
- There aren't enough health centres in India.

NATURE OF THE EXPLORATION
Diagram showing how I performed Priliminary research



"UNIFORM EXPLORATION"

In priliminary research, I selected a large area of interes-rt, and explore all of it's parameters in an uniform and unbiased manner.

At the end of this excercise, i develped a judgement on what the problem could be & direct the rest of the research in exploring this problem.

PHASE 2

RESEARCH & ANALYSIS

BACKGROUND

India, the world's largest democracy and second largest country, is quickly becoming a global power and is projected to become the third largest global domestic product earner by 2030 according to a 2015 report released by the United States Department of Agriculture Economic Research Service . While India has made great strides to provide healthcare to its over ***1.25 billion people****, it still faces challenges in terms of infectious diseases, including* ***human immunodeficiency virus (HIV), syphilis, and hepatitis B, chronic diseases, nutritional deficiencies, newborn health outcomes, health inequality, gender inequality, and violence against women.*** *Due to acute healthcare provider shortages, especially in rural areas, new strategies are needed to address those underserved communities and populations .*

Mobile Medical Units(current scenario)

The National Health Mission (NHM) introduced Mobile Medical Units (MMUs) to bring healthcare facilities to those living in remote and underserved areas. There should be at least one MMU in each district, and a maximum of five, NHM guidelines said.

a total of 1,427 MMUs in India, nearly a third (415) were in Tamil Nadu, followed by Rajasthan (206), Madhya Pradesh (144) and Assam (130). India's most populous state, Uttar Pradesh, and the hill states of Uttarakhand and Tripura, had none. Arunachal Pradesh and Nagaland had 16 and 11, respectively.

The NHM recommends equipment such as an electrocardiogram machine, a refrigerator and a steriliser.

As per NHM guidelines, the government can fully own and operate MMUs or provide the capital expenditure. It must also provide drugs and other supplies.

"No MBBS doctor agrees to a salary of less than Rs 1 lakh a month," *So it is practically impossible to have MBBS doctors in all the units.*

CASE STUDY

A majority of 700 million people lives in rural areas where the condition of medical facilities is deplorable.

Rural Health care is one of biggest challenges facing the Health Ministry of India. With more than 60% population living in rural areas and low level of health facilities, mortality rates due to diseases are on a high.

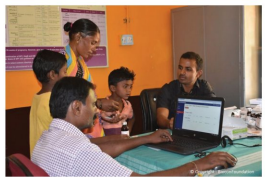
Healthcare is the right of every individual but lack of quality base, shortage of qualified medical functionaries, and non- access to basic medicines and medical facilities thwarts its reach to 60% of population in India. A majority of 700 million people lives in rural areas where the condition of medical facilities is deplorable. Considering the picture of grim facts there is a dire need of new practices and procedures to ensure that quality and timely healthcare reaches the deprived corners of the Indian villages. Though a lot of policies and programs are being run by the Government but the success and effectiveness of these programs is questionable due to gaps in the implementation.

Community participation is a major factor for a successful mobile health clinic service. The poor in India come from varied backgrounds with socio-cultural differences. Hence, resistance to avail the facilities or to reveal certain disease exposures may be present. Since referral services to an attached health facility often do not exist, patients often feel it is a futile exercise as more detailed evaluation of their illness cannot be done.

The rural population of India is exposed to a wide range of diease-causing agents, and the disease burden is very huge. Therefore, there is an urgent need to provide quality services with accessibility to all levels of health care facilities for all citizens. Mobile health clinics in rural areas play a vital role in providing health care services, particularly to the marginalized sections of society, for whom they are often the only source of health care. An additive objective of the mobile health clinic is to improve the access to the health system. Till adequate accessible fixed health care facilities are made available to the under-served section of the rural population, mobile health clinics appear to be a viable option for alleviation of their suffering.

In rural India, mobile medical clinics are useful models for delivering health promotion, education, and care. Mobile medical clinics use fewer providers for larger catchment areas compared to traditional clinic models in resource limited settings, which is especially useful in areas with shortages of healthcare providers and a wide geographical distribution of patients.

BIOCON FOUNDATION



Mobile Early Detection and Prevention of Oral Cancer (mED-POC) is a technology based program developed by Biocon Foundation for oral cancer screening and prevention. The primary beneficiary includes disadvantaged sections of the society who have limited access to healthcare resources .

Approach
Enhancing Processes
Information communication technology
Innovative operational processes
Mobile clinic

Target geography
Peri-urbanRural

Target Population
MenWomenFormal sector workers

Target income level
Bottom 20%Lower-middle income (20-40%)

Health focus
DentistryNoncommunicable disease(s)

MOBILE1000 initiative

A community dental health initiative dedicated to improving acces to affordable dental healthcare and promotion of modern oral hygiene methods in rural and under-served communities of Northern Nigeria through enlightenment campaigns,dental outreaches and distribution of oral hygiene accessories.

Approach
Financing Care
Cross-subsidization
Changing Behavior
Consumer education
Enhancing Processes
Innovative operational processes
Mobile clinic
Target geography
Peri-urbanRural
Target Population
Children five or olderChildren under fiveYoung adults (13-24)ElderlyMenWomenDisabledEthnic minority
Target income level
Bottom 20%Lower-middle income (20-40%)
Health focus
DentistryNutritionPrimary care

LIFELINE EXPRESS

IMPACT India's Lifeline Express is a mobile hospital train that travels the Indian railway system providing care in rural locations.
The Goal of the Lifeline Express is to provide comprehensive treatment for individuals suffering from disability in hard to reach, rural locations of India.

Approach
Enhancing Processes
Mobile clinic

Target geography
Peri-urbanRural

Target Population
General population

Target income level
Bottom 20%Lower-middle income (20-40%)

Health focus
Primary careSecondary/ tertiary care

iKure Techsoft

iKure applies a unique combination of technology intervention, skills training, and capacity building to create a sustainable health care model that impacts rural life nationwide. With the aim to create a comprehensive solution for delivering effective care at the grassroots.

Approach
Regulating Performance
Monitoring standards
Enhancing Processes
Information communication technology
Mobile clinic
Organizing Delivery
Health services chain

Target geography
Rural

Target Population
General population

Target income level
Bottom 20% Lower-middle income (20-40%)

Health focus
Primary careSecondary/ tertiary care

Smile Foundation's Smile on Wheels

Smile Foundation objective of providing all inclusive range of health care services to under-privileged community in outreach, remote rural areas and slums through an equipped mobile medical van. The initiative focuses on providing wide range of primitive, preventive and curative health services to the under-privileged.

Regulating Performance
Monitoring standards
Enhancing Processes
Information communication technology
Mobile clinic
Organizing Delivery
Health services chain

Target geography
Rural/ Urban

Target Population
General population

Target income level
Bottom 20%Lower-middle income (20-40%)

Health focus
Primary careSecondary/ tertiary care

Satluj Sanjeevni seva

The Mobile Medicare Unit (MMU) initiative is HelpAge India's flagship programme. This programme has immediate short-term impact towards improvement in the quality of life of our marginalised beneficiaries.MMUs address the problems of unaffordability, inaccessibility, and non- availability of basic essential healthcare to poor elderly.

Regulating Performance
Monitoring standards
Enhancing Processes
Information communication technology
Mobile clinic
Organizing Delivery
Health services chain

Target geography
Rural

Target Population
General population

Target income level
Bottom 20%Lower-middle income (20-40%)

Health focus
Primary careSecondary/ tertiary care

AVAILABILITY

Cutting -edge technology of mobile, healthcare clinics enable them to deliver on demand type of care & interventions.

QUALITY

Mobile healthcare clinics are subject to the same regulations of compliance and quality assurance as hospitals & clinics.

ACCESSIBILITY

Mobile healthcare offers everyone access to quality healthcare.

COMPREHENSIVE CARE

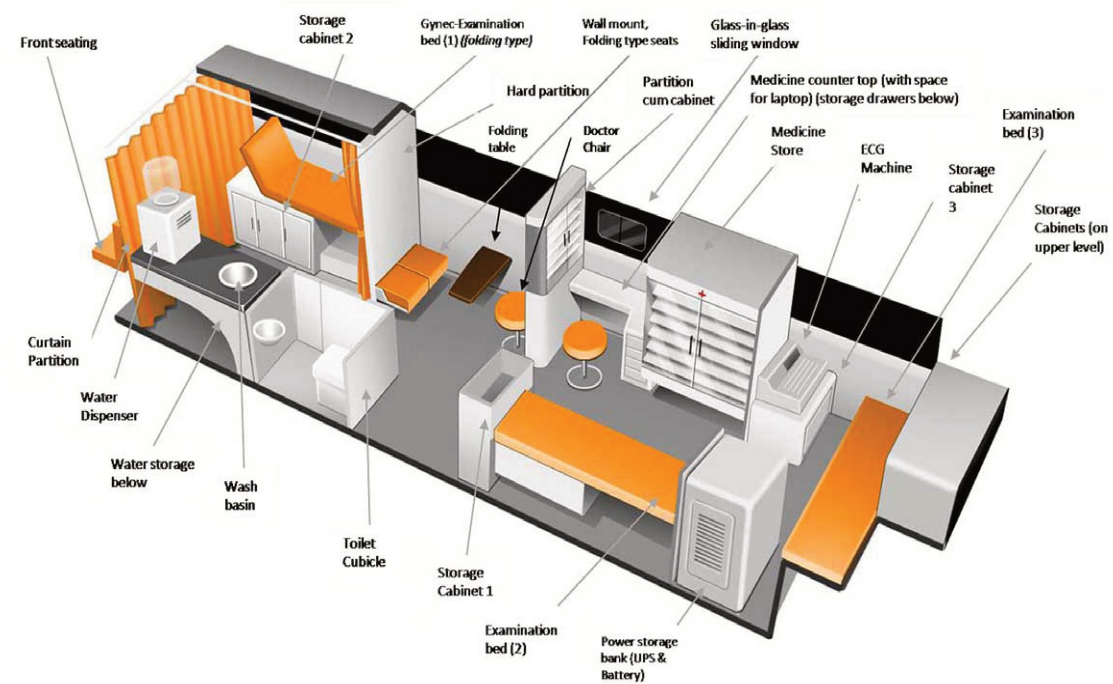
Mobile clinics are as well- euipped as some doctor's consulting rooms & clinics.

SHARED BENIFITS

The infrastructure of mobile clinic units can be shared by multiple communities, including those in remote/ rural areas.

CONVENIENT LOCATIONS

Mobile clinics can ensure that more people have primary and dignostic healthcare brought closer to their homes



VEHICLES WHICH ARE GENERALLY USED AS MOBILE CLINIC *(TATA SUMO, FORCE TRAVELLER)*

MOBILE CLINIC INTERIORS

VEHICLES WHICH ARE GENERALLY USED AS MOBILE CLINIC IN OTHER COUNTRIES

BENCH MARK-

1. Force Traveller

WIDTH 1975 mm
HEIGHT 2550 mm
INTERNAL LENGTH 4935 mm
INTERNAL WIDTH 1650 mm
GROUNG CLEARANCE 210 mm
LADDER FRAME

2. Tata Traveller

WIDTH 1905 mm
HEIGHT 2050 mm
INTERNAL LENGTH 2335 mm
INTERNAL WIDTH 1650 mm
GROUND CLEARANCE 165 mm
LADDER FRAME

2. Tata Sumo

WIDTH 1700 mm
HEIGHT 1925 mm
INTERNAL LENGTH 4258 mm
INTERNAL WIDTH 1650 mm
GROUND CLEARANCE 182 mm

2. Tata Traveller 2020

WIDTH 1905 mm
HEIGHT 2050 mm
INTERNAL LENGTH 2335 mm
INTERNAL WIDTH 1650 mm
GROUND CLEARANCE 165 mm
LADDER FRAME

AMENITIES:

HEALTHCARE SERVICES PROVIDED BY INDIA'S MOBILE MEDICARE UNITS

Free treatment: *The doctor examines patients and, based on available equipments, clinically diagnoses them and prescribes medicines. Where required, the patients are referred to pathological laboratories for detailed investigation/ secondary/ tertiary health care service providers for specialist treatment and care.*

Free medicines: *The MMU stocks medicine for all common ailments among the elderly including Hypertension, Diabetes, Arthritis, etc. These medicines are issued to the patients free of cost by the Pharmacist on the basis of the Doctor's prescription. The Pharmacist also explains the dosage of medicines and their side effects, if any, to the patients.*

Basic diagnostics: *The MMU van is equipped with basic diagnostic equipment such as stethoscope, BP apparatus, thermometer, weighing machine etc. for checking the vital signs. In addition to this there is a 'glucometer' for blood sugar testing.*

Home visits by doctor (in case of bedridden patients): *The doctor and the paramedic team conduct weekly visits the houses of bedridden elders who otherwise cannot approach or be brought to the vehicle. The doctor and paramedic team examines & clinically diagnoses the problems presented by the elder patient or caregivers and prescribes medicines and advice the patient and their caregivers.*

Counseling for patients, elders, family members and caretakers: *The counsellor and the doctor provide necessary advice and counselling to patients and caretakers on various ailments and home care. The project team also conducts regular counselling sessions on various aspects for healthy ageing i.e. diet and nutrition, weight reduction, regular exercise, smoking, alcohol, social activities. By adopting a healthier lifestyle, the risk of a whole range of diseases can be reduced.*

Community awareness on the rights of the elderly: *Every person has the right to freedom and respect and the right to be treated fairly by others. A positive, supportive and caring attitude by family, friends, caretakers and the community will help people to continue as integral, respected and valued members of society.*

Creating awareness in the community especially among the younger generation will help to sensitize them on the various aspects of taking care of the patient and in long term will also help them in preparing for their hard time.

Other value added services include Referral services / facilities viz.

Referral linkage with local health providers: *The team promotes initiate linkages with private as well as government health care facilities so as to ensure that the required services would be available on demand. The linkage between the HelpAge India beneficiaries and these identified institutions would ensure accessibility and affordability of the services.*

Linkage with Govt. schemes and programmes: *This initiative aims to increase awareness among the elderly poor about various social security, food security and habitat security schemes, and thus enabling them to advocate/ demand their rights. We realize that elderly people need support to avail these schemes. The MMU plays a facilitating role in linking them with the local and district administration and also collecting the information from the government offices and disseminating this information to the concerned/eligible beneficiaries thus improving their access to social welfare schemes.*

All MMUs are equipped with the following team of personnel:

Social Protection Officer: *Leads the team, coordinates social and health awareness aspects of the project, and looks after all the administrative works of the project. This team will also be responsible for organizing Health Camps in the proposed locations.*

MBBS Doctor: *Examines patients and prescribes medicines, and is also the prime person for the health activities of the project.*

Pharmacist: *The Pharmacist is required legally for stocking medicines and he issues the medicines to the patient. The pharmacist also explains the dosage of medicines and their side effects.*

Driver cum Community Facilitator: *He holds a valid driving license and is trained to assist the MMU team in registering the beneficiaries. He also plays a major role in mobilizing the community.*

PRIMARY RESEARCH

Whole primary research is totally based on conversations with three major stack-holders. Interviews & face to face coversations conducted to get their personal touch & valueable insights.

Ratni Devi
Age- 67
Mandrela, JJN
Housewife

Praveena Solanki
Age- 51
Jhunjhunu(Raj.)
Housewife

Suman Bala
Age- 33
Fatehpur, Jhunjhunu
Housewife

Mr.& Mrs.Chauhan
Age- 32 & 29
Jhunjhunu(Raj.)
LIC Employee

*RESEARCH **PATIENT***

As I had direct access, I went ahead to take into account the variation in mindsets of the public, due to regional & cultural factors.
I went ahead without any planned questionnare in order to informally inquire about the healthcare facilities they avail.

QUESTIONNARE

1. how regularly you visit medical camps, hospitals?
2. How do you like sevices, facilities there?
3. Do you know the doctors? How is their reputation?
4. how accessible & affordable is the nearby hospital?
5. Do you visit tantrik or some other form of treat ments?
6. how do you manage the money for emergency?
7. How useful are the government schemes for you & how do you know about them?
8. Do you know about medical insurance?
9. What mode do you use in case of emergency?
10. Are you scared of the hospital?

INSIGHTS

1. Most of them prefer resting at home when sick.
2. people generally dont want to spend a lot of money.
3. they are afraid of medical treatments, some are afraid of hospitals, so they avoid it.
4. some of them prefer traditonal methods, babas, tantrics resulting into serious illness.

*RESEARCH **DOCTOR***

Interview sessions with 4 Doctors were conducted, in order to understand their mindset, preferences, expectations,
regarding rural healthcare, and what they feel about being posted and serving in rural areas that are isolated.

INSIGHTS

1. Most of them are satisfied with the overall quality, but still feel a lot can change.
2. feel lack of aminities, facilities, not all vehicles are air-conditioned.
3. Dont prefer going to villages because of poor infrastructure & lack of urban lifestyle.
4. language barrier, un cooperative patients.
5.Fewer patients(time under utilised)
6.Less scope for specialists(surgeon working as physician)
7. they believe haaving more doctors & hospitals is not the only solution.
8. need something which should be acceptable to the rural public.

Dr. Narendra Singhoya
Age- 34
physician, Govt. hospital
Jhunjhunu

Dr. Neelima khatwa
Age- 27
Dental Surgeon
Housewife
Jhunjhunu

Dr. Vinod Jinger
Age- 56
ENT Specialist
Fatehpur, Jhunjhunu

Dr. B.D. Bajiya
Age- 53
General Physician
Jhunjhunu

RESEARCH ***POLICY_MAKERS***

"It is more difficult to operate a medical unit in areas with higher elevation,"

"It is difficult to find staff there, it is difficult to navigate the roads there and during some days in the winter we might have to stop the operation altogether."

"We target villages identified as having poor health infrastructure or being backward through a baseline survey. MMUs visit 5-12 of these villages consistently on the same day each week. This helps us build trust within the community."

"We try to set the camp as close to the village centre and in a community building like anganwadis or schools. It is more accessible and comfortable for the patients."

"No MBBS doctor agrees to a salary of less than Rs 1 lakh a month, So it is practically impossible to have MBBS doctors in all the units. We have hired an MBBS doctor per district to oversee the operations."

"The NHM recommends equipment such as an electrocardiogram machine, a refrigerator and a steriliser. Many MMUs do not have these services."

"To run an MMU on a lower budget and because of the dearth of doctors with a Bachelors of Medicine And Bachelors Of Surgery (MBBS) degree in the Rural region, we hire Ayurvedic, Unani, Siddha and Homeopathy (AYUSH) doctors, who are not qualified to practice modern medicine as per the Indian Medical Council Act, instead of hiring doctors with an MBBS degree."

" Government has to make it cumpolsary for doctors to spend 2-5 years in village for rural public."

KEY FINDINGS OF ***PRIMARY RESEARCH***

-Simply having more doctors or hospitals is not a solution.

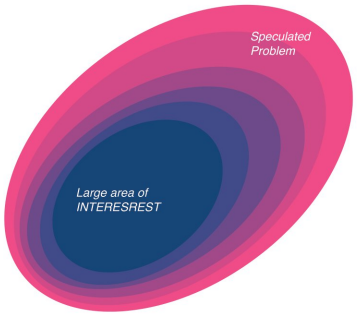
-There are not many people who will use it, as they-
- *can't spend /don't want to spend too much money.*
- *are afraid of hospitals, get confused, so they avoid it.*
- *majority of people prefer resting at home when sick.*
- *Many people in village prefer tantrics, babas over professional doctors.(lack of awareness)*

- The main focus of this project will be to create a solution which can-
- *go in inaccessible & rural areas of India*
- *attract the people in villages.*

DIRECTIONAL INSIGHT

Primary research has revealed the above insights. I will perform secondary research to collect additional data regarding vehicle specification & packaging.

NATURE OF THE EXPLORATION



UN- DIRECTIONAL EXPLORATION

In my research, I focused on understsanding my speculated problem. The field research revealed several new insights.

DISEASES

In order to understand the need of equipments, a short interview conducted to know what kind of patients they see the most in medical camps in rural areas and mobile clinic.

1. URI

A common viral infection that affects the nose, throat and airways.Upper respiratory tract infections usually resolve within seven to 10 days.Symptoms usually resolve within two weeks and include a scratchy or sore throat, sneezing, stuffy nose and cough.

Very common
More than 10 million cases per year (India).
30-40 per day

Spreads easily
Usually self-treatable
Usually self-diagnosable
Lab tests or imaging rarely required
Short-term: resolves within days to weeks

Treatment depends on severity
Treatment includes rest and medication to relieve symptoms.
No heavy equipments required.
Takes 7-15 days to get fully recovered.

Swab testing Kit

1. Arthritis

Arthritis is the swelling and tenderness of one or more of your joints. The main symptoms of arthritis are joint pain and stiffness, which typically worsen with age. The most common types of arthritis are osteoarthritis and rheumatoid arthritis.

Very common in elder people
Alo found in Kids
15-35 per day

Treatment depends on severity
Treatment includes rest and medication to relieve symptoms.
medications
non-pharmacologic therapies
physical or occupational therapy
splints or joint assistive aids
patient education and support
weight loss
surgery, including joint replacement

X-ray, Blood Pressure Kit

3. Skin Diseases

Skin disorders vary greatly in symptoms and severity. They can be temporary or permanent, and may be painless or painful. Some have situational causes, while others may be genetic. Some skin conditions are minor, and others can be life-threatening.

While most skin disorders are minor, others can indicate a more serious issue.

Very common in elder, Pregnant women, kids and people who work under sun in villages and poor hygiene is also a main cause.

15-35 per day

Many skin disorders are treatable. Common treatment methods for skin conditions include:

antihistamines
medicated creams and ointments
antibiotics
vitamin or steroid injections
laser therapy
targeted prescription medications

X-ray, Blood Pressure Kit

4. Eye Diseases

Over 60% of the India's population or, require corrective lenses or procedures for eye and vision problems.

While most skin disorders are minor, others can indicate a more serious issue.

Eye conditions: This refers to abnormal health issues that impact your vision and ability to function properly due to sight impairment. myopia, presbyopia and many others eye conditions that could affect you or your loved ones.

Eye diseases: Eye diseases are issues caused by your body's reaction to internal or external factors. From diseases such as glaucoma to conjunctivitis or 'pink eye', are diseases that can affect you.

Vision symptoms: These are common vision symptoms that have a root cause from either an eye disease or eye condition. blurry vision, eye strain and others that may symptomatic of something more serious.

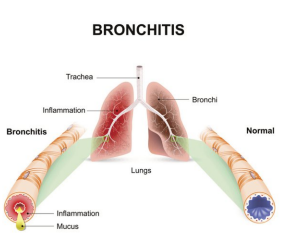
Laser Surgery, Antibiotics, Microscope,

5. Acute bronchitis

Inflammation of the lining of bronchial tubes, which carry air to and from the lungs.
Acute bronchitis is often caused by a viral respiratory infection and improves by itself.
Symptoms of bronchitis include coughing up thickened mucus and shortness of breath.
Treatments usually includes soothing remedies to help with coughing, which may last weeks. Antibiotics are not usually recommended.

Very common
More than 10 million cases per year (India)
Spreads easily
Usually self-treatable
Usually self-diagnosable
Lab tests or imaging rarely required
Short-term: resolves within days to weeks

Treatment'
Can be self healing
Nonsteroidal anti-inflammatory drug, Analgesic, Narcotic and Cough medicine.



6. Sinusitis (sinus infection)

A condition in which the cavities around the nasal passages become inflamed.
Acute sinusitis can be triggered by a cold or allergies and may resolve on its own. Chronic sinusitis lasts up to eight weeks and may be caused by an infection or growths.
Symptoms include headache, facial pain, runny nose and nasal congestion.
Acute sinusitis usually doesn't require any treatment beyond symptomatic relief with pain medication, nasal decongestants and nasal saline rinses. Chronic sinusitis may require antibiotics.

Very common
More than 10 million cases per year (India)
Treatable by a medical professional
Usually self-diagnosable
Lab tests or imaging rarely required
Short-term: resolves within days to weeks

Treatment'
Acute sinusitis usually doesn't require any treatment beyond symptomatic relief with pain medication, nasal decongestants and nasal saline rinses. Chronic sinusitis may require antibiotics.

Medications
Decongestant, Penicillin, Antibiotics, Steroid, Cough medicine, Antihistamine, Nonsteroidal anti-inflammatory drug and Analgesic

7. Piles (haemorrhoids)

Swollen and inflamed veins in the rectum and anus that cause discomfort and bleeding.
Haemorrhoids are usually caused by straining during bowel movements, obesity or pregnancy.
Discomfort is a common symptom, especially during bowel movements or when sitting. Other symptoms include itching and bleeding.
A high-fibre diet can be effective, along with stool softeners. In some cases, a medical procedure to remove the haemorrhoid may be needed to provide relief.

Very common
More than 10 million cases per year (India)
Treatable by a medical professional
Usually self-diagnosable
Lab tests or imaging not required
Chronic: can last for years or be lifelong

Steroid, Local anesthetic and Dietary supplement

Cauterization, Rubber band ligation, Freezing, clerotherapy and Stapled hemorrhoidopexy

Diathermy, Blood Pressure Kit

8. Cancer

Cancer, also called malignancy, is an abnormal growth of cells. There are more than 100 types of cancer, including breast cancer, skin cancer, lung cancer, colon cancer, prostate cancer, and lymphoma. Symptoms vary depending on the type. Cancer treatment may include chemotherapy, radiation, and/or surgery.

Laser surgery (beams of light)
Electrosurgery (electric currents)
Cryosurgery (very cold temperatures to freeze cancer cells)

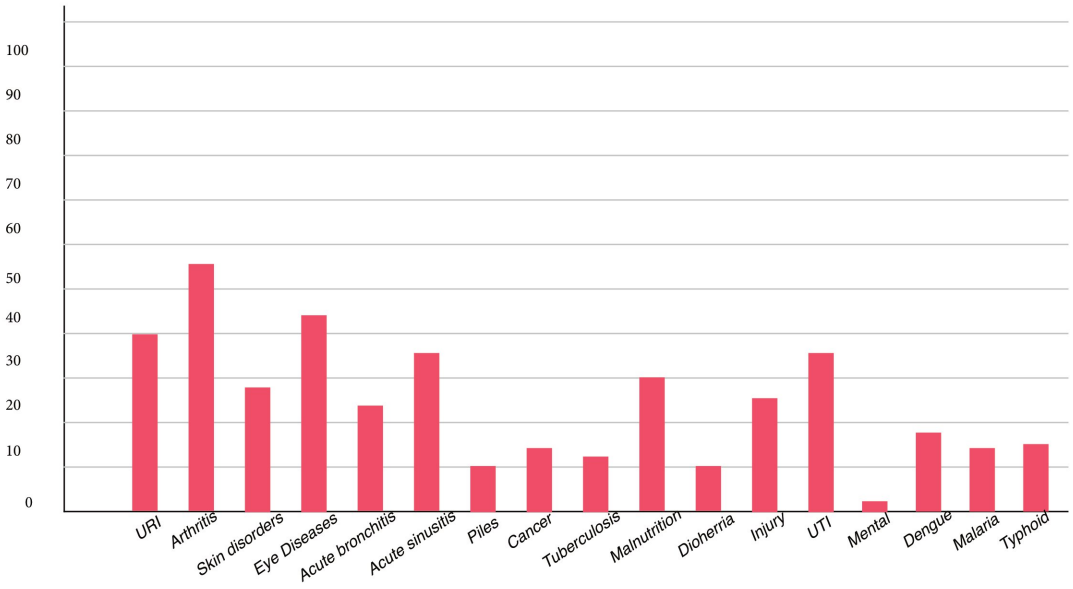
Chemotherapy
Chemotherapy uses drugs to kill cancer cells. There are two ways to get it:

"Traditional" Chemotherapy

You get most chemo medications through an injection into a vein.
Targeted therapy, in which drugs work against specific parts of cancer cells to keep them from growing or spreading.
Immunotherapy, also called biologic therapy, which gets the body's immune system to fight cancer.
Hormone therapy, also called hormone treatment or hormonal therapy, which treats cancers that use hormones to grow (such as breast cancer and prostate cancer).
5-10 per day

antihistamines
antibiotics
vitamin or steroid injections
laser therapy
targeted prescription medications

PATIENTS / DISEASE



EQUIPMENTS & KITS

For Doctor's Space	*Foldable Table with Stainless Steel top* *Steathoscope* *Clinical Thermometer* *Tuning Fork for Test hearing* *Steathograph* *ECG Machine* *Microscope* *BP meter* *Diagnostic Set (ENT)* *Infra Red Lamp* *Refrigerator* *Weight Machine* *Injection set complete* *Rubber Gloves* *Autorefractor*
For Lab	*Blood Spot harmone test kit* *Sugar level testing kit* *Pregnancy Kit* *Blood Test Kit* *Sterlizer* *Botanical Slides* *Dissecting Microscope* *Distillation Apprantus* *Electronic Balance* *Mesuring Glasses, all sizes* *Miscelleneous- Chemicals, Drugs, Test Tubes, Glass phials, glass rods,funnels, filter papers, PH Meter* *Refrigerator* *Machine for estimation os sugar in blood*

USER SURVEY

Study of emotions/ attributes you associate with a Mobile Clinic!

This is a short form designed to understand what qualities and attributes you associate yourself with.

*Required

1. Your good name? *

2. Age? *

3. Gender? *

Mark only one oval.

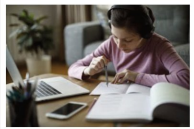
- Male
- Female
- Other

4. Profession? *

5. In which of the personalities you see yourself? *

Mark only one oval.

Enthusiastic/ extrovert



Studious/ goal oriented/ introvert

logical/ self motivated/ focused

Adventurous/ Social

Other:

Calm/ Organised

6. How do you think a vehicle (Medical Emergency Vehicle in this case) which is able to go on any terrain should look like? *

Mark only one oval.

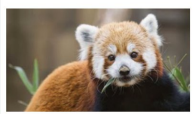
Lighweight/ Agile/ Fast

Tough/ Stable/ Joyful

Strong/ Swift/ Rapid

Strong/ Fearless/ Speedy

Tough/ Bold/ Carefree



Joyful/ Cute/ friendly

Other:

7. From the following vehicles, tell me what did you like or dislike about it. It can be anything. *

8. From the following vehicles, tell me what did you like or dislike about it. It can be anything. *

9. From the following vehicles, tell me what did you like or dislike about it. It can be anything. *

10. How do you like to feel when you sit inside a vehicle? *

Mark only one oval.

Option 1

Option 2

Option 3

Option 4

Other: _____

Option 5

11. Please write the number of the colour you associate with the given emotion.

12. Which colours you associate with the word " welcoming" *

13. Which colours you associate with the word "Hope" *

14. Which colours you associate with the word "Calm" *

15. Which colours you associate with the word "Inviting" *

16. Which colours you associate with the word "Modern" *

USER SURVEY INSIGHTS

In order to understand the people's mentaility, their choices, preferances regarding mobile clinic, a short google survey conducted. Doctors, Professionals, Students, and interested people participated .


1. Majority of people believe they are or want to be seen as ***logical/ Self motivated/ focused & Adventurous/ Social being*** *the second most preferred.*


2. Most of them want the vehicle which can go on any terrain to have attributes of the ***Guerilla (Strong, Swift, Rapid) & Mountain Goat (Tough, Stable, Joyful).***


4. People want to have a ***secure, familiar, pleaseant*** *feeling while using this vehicle, because many of them are not used to it while professional also feel that it should give a* ***homely warm feel*** *to make them & the patients comfortable.*

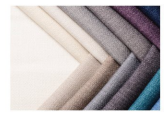
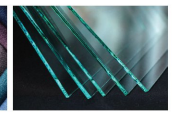
3. Normal people didn't like the ordinary look of the older version of Tata winger & Force Traveller as they find them too boxy, old fashioned & according to doctors, It looks like it's forcibly made to look like a medical vehicle. Majority of them liked the new Tata winger because of its modern looks and adequate space to install all the machinary & tools.

-Its too long
-It looks too boxy and rigid

-Looks too archaic and outdated
-Typical kidnapping van. Just no.

-I like the design language of this vehicle, it looks stable and stylish.
-Comfortable and pleasant

*5. People preferred Wood, Fabric to give a w****arm, homely feel****, & also preferred excessive use of glass (sunroof, bigger windows) to give it a* ***bigger space look.***

6. According to profesionals, to avoid contamination, use of ***textured metal sheet and Corian sheets*** *can be used as replacement as they are* ***non-porous & require low maintainance.***


7. People consider shades of yellow, orange with '**Welcoming**', Blue, Pink with '**Hope**', neutral tones of grey, yellow & green with '**Comforting & Calm**', Green, Blue, Yellow as '**Inviting**' & consider dark green, pistachio green & Beige colour as '**Modern**'.

DESIGN BRIEF 1.

USER RESEARCH
ONLINE RESEARCH
NHC WEBSITE

To design a primary healthcare vehicle, capable of going to the rural & remote areas of India capable of providing :

- Basic medical treatment in case of non life threatening diseases and injuries.
- Prelonged care during recovery after treatments or surgeries.
- Medical emergency services & first aid, and
- Assitance during outbreak of sesonal & pendemic diseases.

by acting both as a stand alone system, as well as complimenting the existing medical system by enhacing its effective range.

India is a land of diversity in all manners. From culture, economy and even the landscape of India has diverse elements, all on one landmass. The wide range of physical features of India makes the country a complete geographical study. In fact, India has every possible landscape that the earth has. From cold mountains to arid deserts, vast plains, hot and humid plateau and wide sea shores and tropical islands, the physical features of India cover every terrain. Considering all the above scenarios, the vehicle should have -

- Improved chassis (Ladder Frame)
- Front wheel drive reduce noise, vibration, hrshness levels.
- Uprated suspension leads to improced ride quality.
- A bespoke skid plate to protect the underside of the vehicle
- Semi offroad 195 R15 LT(15 inch) radial tyres for better ground clearance.

The services delivered by the mobile health team are immunization, promotion of community health, including diarrhea management, antenatal care, child nutrition, family planning services, information education and communication services (disease awareness, sexually-transmitted diseases), referral and basic laboratory tests, primary medical care, mental health, and addiction counseling. To spread awareness, the vehicle need to have-

- Projector screen provision for awareness campaigns.
- external sound system for announcements.
- storage space for pamplets & deliverables.
- hazard lights.
- Advertisement space on outerside of vehicle.
- LED panel for basic info circulation.

NEED 2.

There is a lack of adequate primary health facilities for poor in rural areas. Mobile medical vans are the best solution as recommended by the National Rural Health Mission.

NEED

- Rural Health Centers are critically short of trained medical personal.
- 8% PHC's don't have doctor's.
- 39% PHCs do not have Lab Technicians.
- 18% PHCs do not have a Pharmacist.
- 75% graduate doctors live in urban areas, serving only 28% of the population.
- Mobile Medical Units are the best & most viable solution.

WHY RURAL HEALTHCARE?

- 700 million people live in 6,36,000 Indian villages.
- Preventable and curable diseases dominate the morbidity patters of: diarrhea, measles and typhoid.
- 66% of rural Indians do not have access to critical medicine.
- 31% of the population travels more than 30 kms to seek health care in rural India.

Ref: Taken from National Rural Health Mission Report

VEHICLE WILL WORK UPON ADCR FORMULA:

AWARENESS

- Hygienic sanitation
- Hygienic water conservation
- Mother & child health care
- Immunization
- Anemia
- De- worming
- Vector borne diseases
- Hepetitis
- Typhoid
- Common cardic problems
- HIV
- Diabetes
- Snake bite
- Tuberculosis

DIAGNOSIS

- Blood pressure
- Hemoglobin
- Oxygen saturation
- Malaria
- Dengue
- Hepetitis
- Typhoid
- Diabetes

CURE

- Medicines
- Nutritional supplements
- De- worming

REFERRALS

- Cases required special care
- Cataract
- Surgical
- Gynecology
- Obstetrics
- Pediatrics

MOBILE CLINICS WILL HAVE THESE EQUIPMENTS (based on data provided by NHC):

Vehicle	*Mobile clinic*
Equipment	*1 Stretcher(1950X630X820mm), Blood test kit, Ste. scope, BP Machine, Nebuliser, Medicine Box, Dust-bin, Torch, Magnifying Glass, Weighing Scale, Fire extinguisher, GPS system, Battery backup,*
Medicine	*Antibiotcs, painkillers, anti- inflammatory, anti-pyretics, anti-allergic, nutritional suppliments, anti- diabet-ics, cough syrups, anti hypertensive, anti- fungal, anti- malerial, antacids, anti diarrheals.*
Consumeables	*Oxygen cylinder, Gloves, Mask, Hand sanitizer, Splints, Ice box*
Technology	*- Expendable Body kit, foldable furniture* *- Modular sleeping bed for 3 personnel (Doctor, Pharmacist & Driver)* *- Isolation unit for housing a single patient in case of emergency to provide sterile environment.*

3. EQUIPMENTS

All equipments have been decided after having a brief discussion with concerned authority.

- Wash basin with foot-operated tap and water dispenser of 5-ltr capacity. (600X450mm)
-Foldable doctor's seat plus squad bench to seat 4 persons; internal storage space for extrication kit.
- 50 Hz 800 VA inverter (150x 300x160mm); integrated AC/DC supply in vehicle synchronised with-
- Light bar rhombic-shaped double layered structure with integrated PA system.
- 6 high intensity flashers on sides and rear of vehicle.
- Internal lighting consisting of 4 LED-type tube lights,
- 3 spotlights and one examination light.
-fans.
- Two 230 V AC 3-pin sockets & an external charge port.
-Portable steel dustbins with spring-loaded lids, for waste disposal. (1015 mm x 725 mm)
- Hat-rack with sliding glass side doors for additional storage space.
-Footstep for easy entry and exit.
-Grab rail with IV hooks.
-Oxygen delivery system with integrated piping and 3 concealed outlets on side walls, besides pressure regulators and humidifiers.

4. QUALITY POLICY

***VEHICLE** - Vehicle fully fabricated as an Mobile Medical Clinic, fitted with GPS.*

***MANPOWER** - 1 Doctor who is MBBS qualified and MCI Registered, 1 Pharmacist who is DPharm/Bpharm qualified, 1 Driver who possess Heavy Motor Vehicle License without any police complaints.*

***PROCESSES** - Each vehicle will follow the ADCR formula, A-Awareness, D-Diagnosis, C-Cure, R-Referal.*

***AUDIT** - Daily reporting through attendance app, whatsapp live location tracking, Geo-fencing in GPS system, fortnightly visits by team managers to each MMU, weekly calls to village Sar-panch/head.*

***BENEFICIARIES** 1 Van = 25,000 Patients / year*
Cost per patient = Rs. 140 (Below NRHM standard of Rs. 150 per patient)

DESIGN BRIEF (Summary)

To design a primary healthcare vehicle, capable of going to the rural & remote areas of India whichshould be capable of providing :
- Basic medical treatment in case of non life threatening diseases and injuries.
- Prelonged care during recovery after treatments or surgeries.
- Medical emergency services & first aid, and
- Assitance during outbreak of sesonal & pendemic diseases.

Packaging :

• Adequate space for Doctors & patients to move in the vehicle.
• It should have independent storage space to keep medicines and machines.
• Provision of sleeping area for 2 Adults.
• Seats should have leg space and seating height adjustability to accomodate 95th male and 5th female.
• Interior should accomodate atleast for 1 patient for emergency treatment.
• Should have adequate walking space between doctor's chamber and Testing Lab.
• Entrance should be easy for kids and elders.
• Provision of independent space for each activity. (Checkup, Testing, Treatment)
• Projector screen provision for awareness campaigns.
• external sound system for announcements.
• storage space for pamplets & deliverables.
• hazard lights.
• Advertisement space on outerside of vehicle.
• LED panel for basic info circulation.
. Wahroom with western WC & Washbasin.

Specification:

• Improved chassis (Ladder Frame)
• Front wheel drive reduce noise, vibration, hrshness levels.
• Uprated suspension leads to improced ride quality.
• A bespoke skid plate to protect the underside of the vehicle
• Semi offoroad 195 R15 LT radial tyres for better ground clearance.

Aesthetics:

• The vehicle should look strong, swift & agile.
• The interior should give a secure, warm, homely feel.

Technical Consideration:

WIDTH	*1965 mm*
HEIGHT	*2050 mm*
LENGTH	*5548 mm*
ANGLE OF APPROACH & DEPARTURE	*28' & 36'*
INTERNAL LENGTH	*4520 mm*
INTERNAL WIDTH	*1930 mm*
GROUND CLEARANCE	*430 mm*
WHEEL BASE	*3540 mm*
WHEEL TRACK FRONT	*1560 mm*
ANGLE OF APPROACH & DEPARTURE	*28' & 36'*

FABRICATION

1. Sandwich Panel box or body building in interior – Full Interior body- Interior fabrication work will be done in FRP – Fiber reinforced Plastic.

2.Gel Coat finish in internal walls and interior of Medical Unit Separate Driver Cabin & diagnostic cum X Ray cabin.

3. Side windows fabrication as per requirement of the customer.

4. Overhead Racks for storage in Doctor cabin depending upon space availability.

5. Homogeneous non static, mark resistant, Anti-Skid Vinyl flooring material with water proof, fire retardant material in complete patient cabin and X ray Cabin.

6. Grab rail 2 No on entry door for easy access.

7. Foldable staircase for easy entry/exit of the patient/staff or foot step to enter into the Van.

8. 2 revolving stools / Patient Couch with low back depending upon requirement.

9. 1 Adjustable high back, reclining chair for Doctor for OPD Stainless Steel Wash basin with foot operated motorized tap.

10. Water storage tank for wash basin.

11. Stainless Steel waste bin, tissue and soap dispenser, Towel Holder and wall clock Digital.

12. Heavy duty reinforcement for provision of Mounting Medical Equipment .

13. Hot and cold water dispenser. Make Voltas , Mini Magic Pure Model – 20 Ltr. water capacity.

14. 1 no empty 20 Liter water bottle will also be provided, make Bisleri Sliding door/Pull door for entry to Patient cabin having x ray machine with lock.

15. Non-transparent curtain for Examination couch.
Supply & installation of LED" TV. (approx. 32/38 inch LED TV, Make Samsung).

16. Extra additional speakers 2 no's, make Philips with remote for TV output for camps etc.

ELECTRICALS

1, Internal lights (LED), 6 No's make Havells.

2. 220V AC 5 Amp Socket- for all medical /electrical equipment. Make – Havells.

3. Inverter of 1100 VA capacity with additional backup battery. Luminous S/W Invertor 1100 VA Inverter, Code 8404 with Luminous make Battery Tubular TST 1618.

4. Charging socket for Inverter from 220 V AC with 15 meters of charging lead.

5. LED Emergency light bar mounted on the front top of driver cabin.

6. Make – GrandSiren and public address system. Make Grand Fans DC 8" -2 No's in patient cabin and 1 in driver cabin.

7. Electric Protection Circuit with heavy duty 12 V DC Cut off switch located near driver seat for easy accessibility.

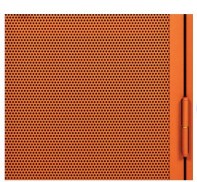
8. Charging Provision for Navigation System in driver cabin. Wire/Cables/Electrical components – make – Havells Switch, outlets, terminals – Make Grab tree.

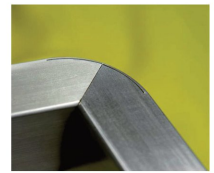
OXYGEN THERAPY

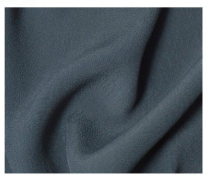
1. Provision to mount one 'B' Type Oxygen Cylinder, hidden under couch area, only mount for Oxygen cylinder.

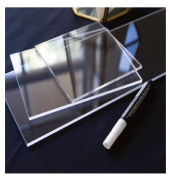
2. Provision to hold and store regulators, cannulas, masks and other devices related to Oxygen therapy

MOOD BOARD (CMF)









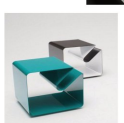
PANTONE 566 C | PANTONE 5523 C | PANTONE Cool Gray 3 C | PANTONE Warm Gray 1 C

Primary

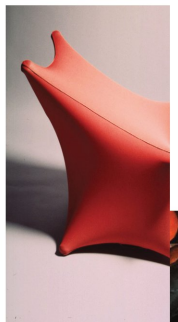
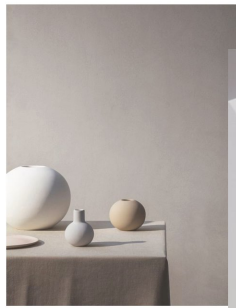
PANTONE 100 C | PANTONE Pink C | PANTONE Dark Blue C

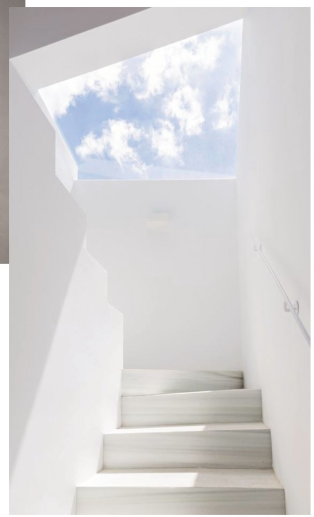
Accent



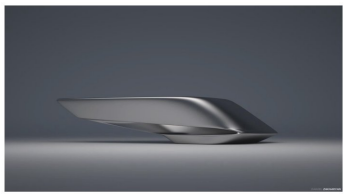
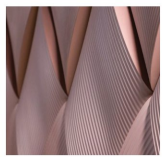



MOOD BOARD (Interior)

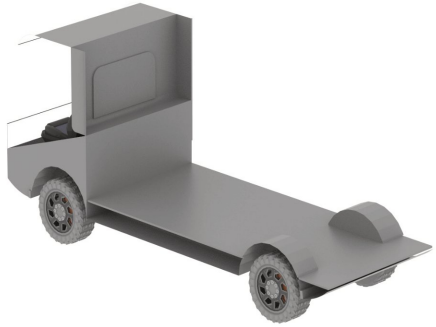




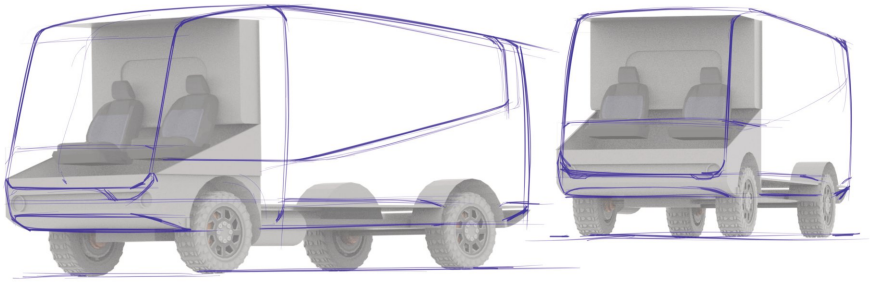


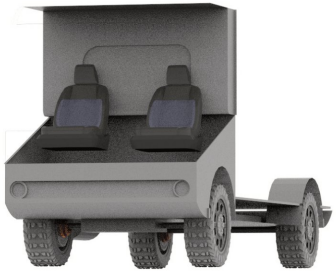
MOOD BOARD (Exterior)

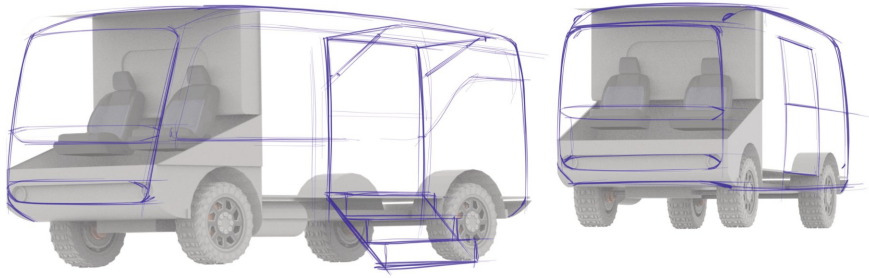




Schematic Package

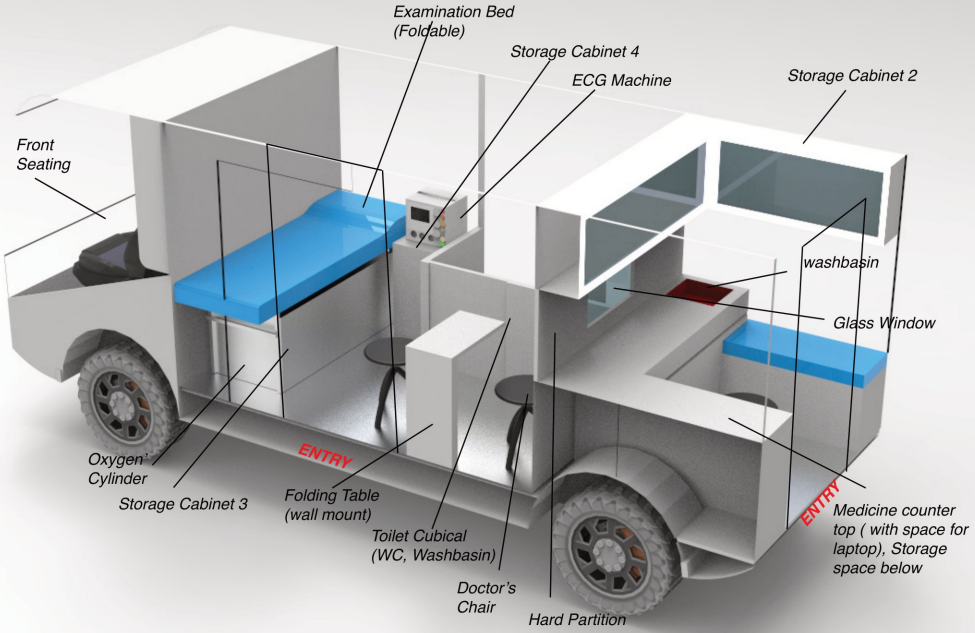


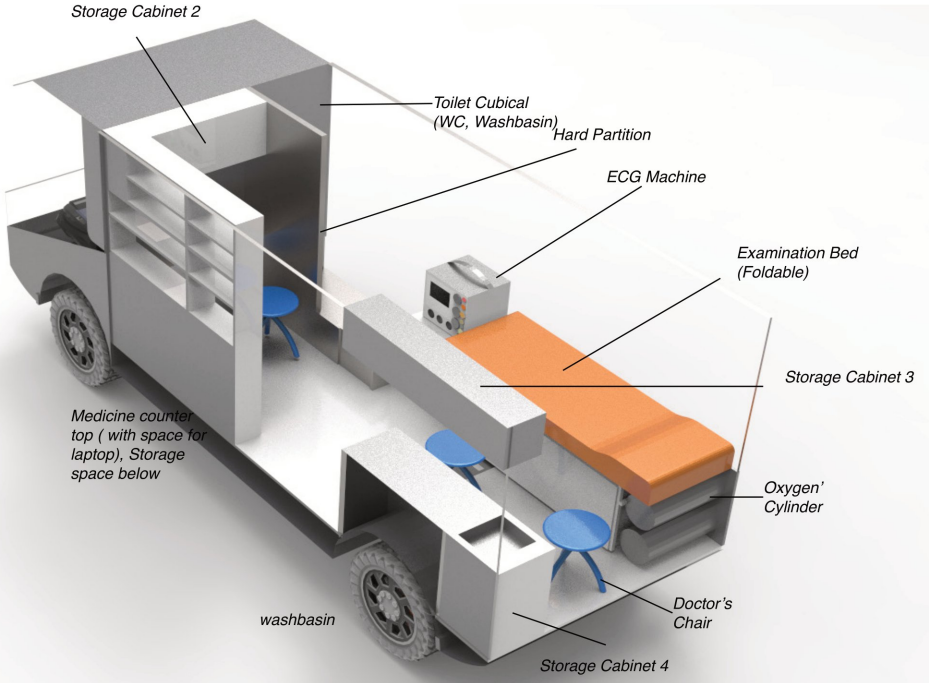


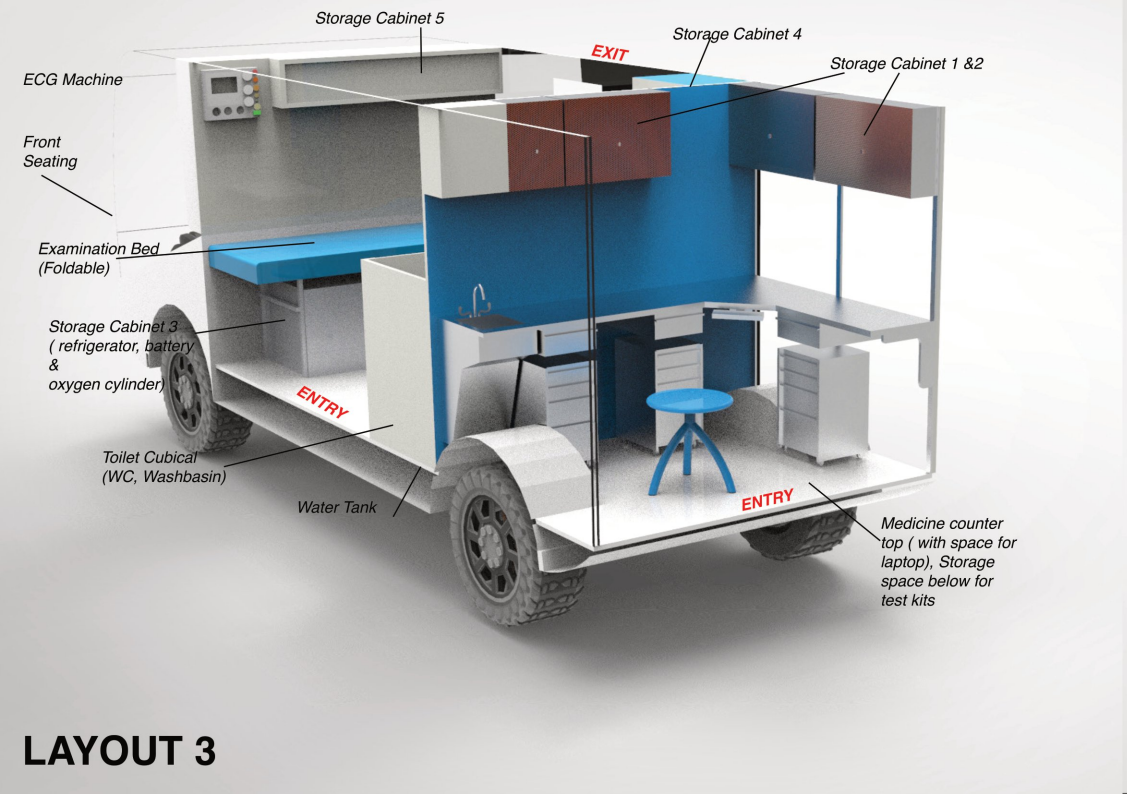




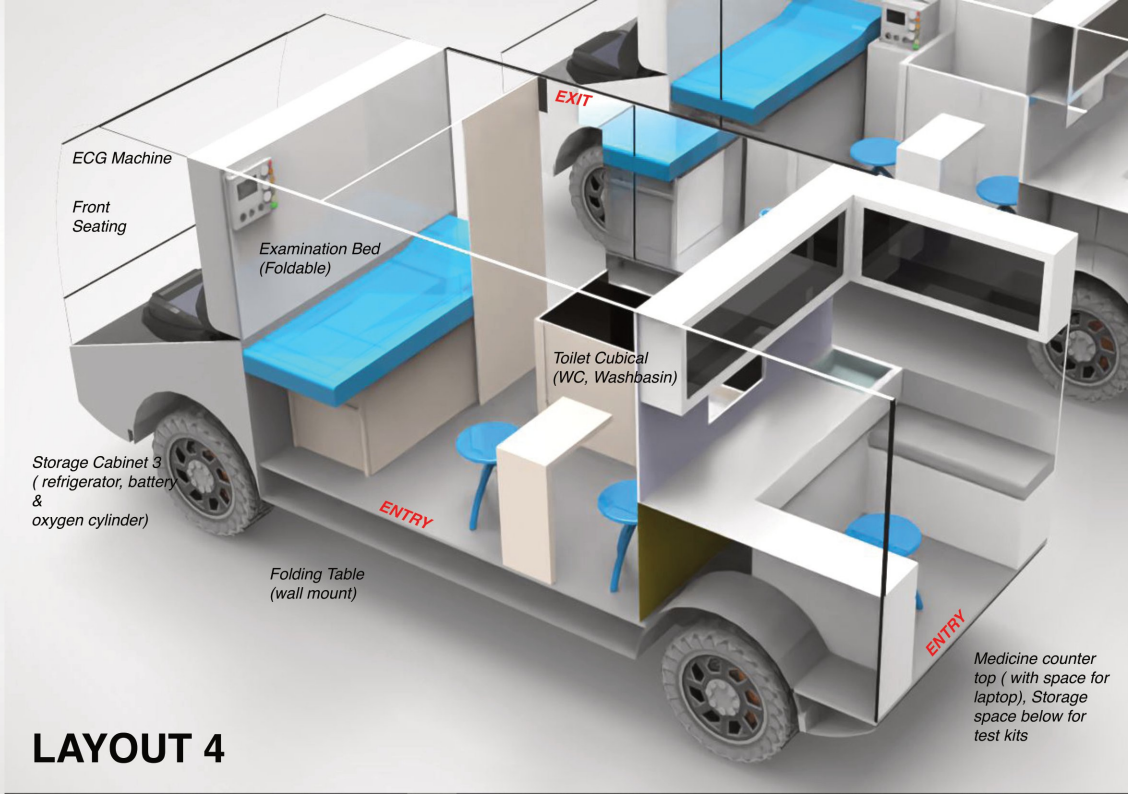
LAYOUT 1


Examination Bed
(Foldable)
Storage Cabinet 4
ECG Machine
Storage Cabinet 2
Front
Seating
washbasin
Glass Window
Oxygen'
Cylinder
Storage Cabinet 3
ENTRY
Folding Table
(wall mount)
Toilet Cubical
(WC, Washbasin)
Doctor's
Chair
Hard Partition
ENTRY
Medicine counter
top (with space for
laptop), Storage
space below

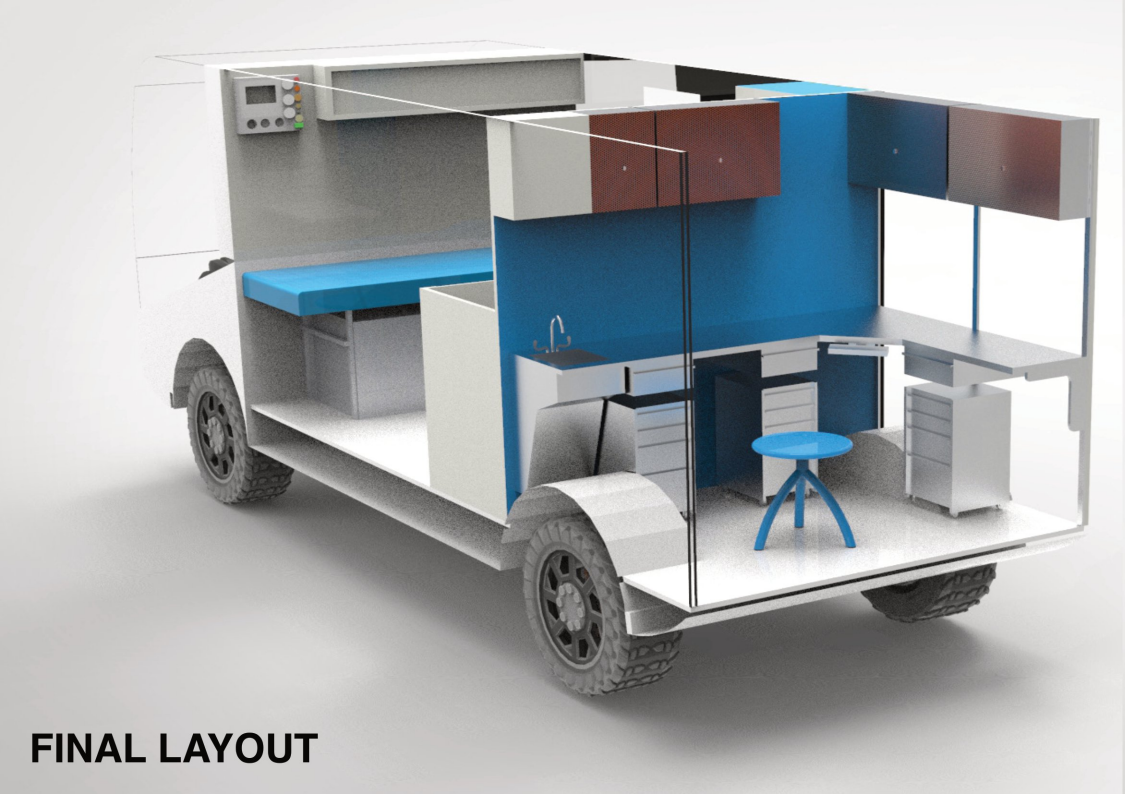

Storage Cabinet 2
Toilet Cubical
(WC, Washbasin)
Hard Partition
ECG Machine
Examination Bed
(Foldable)
Storage Cabinet 3
Medicine counter
top (with space for
laptop), Storage
space below
Oxygen'
Cylinder
Doctor's
Chair
washbasin
Storage Cabinet 4

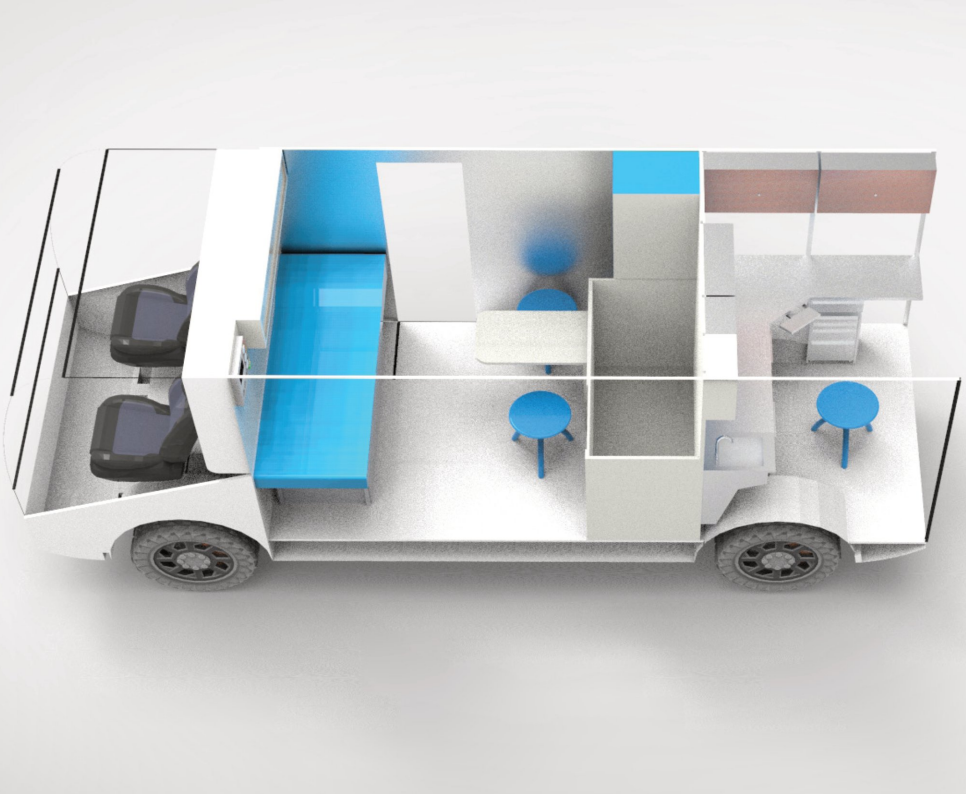


LAYOUT 3

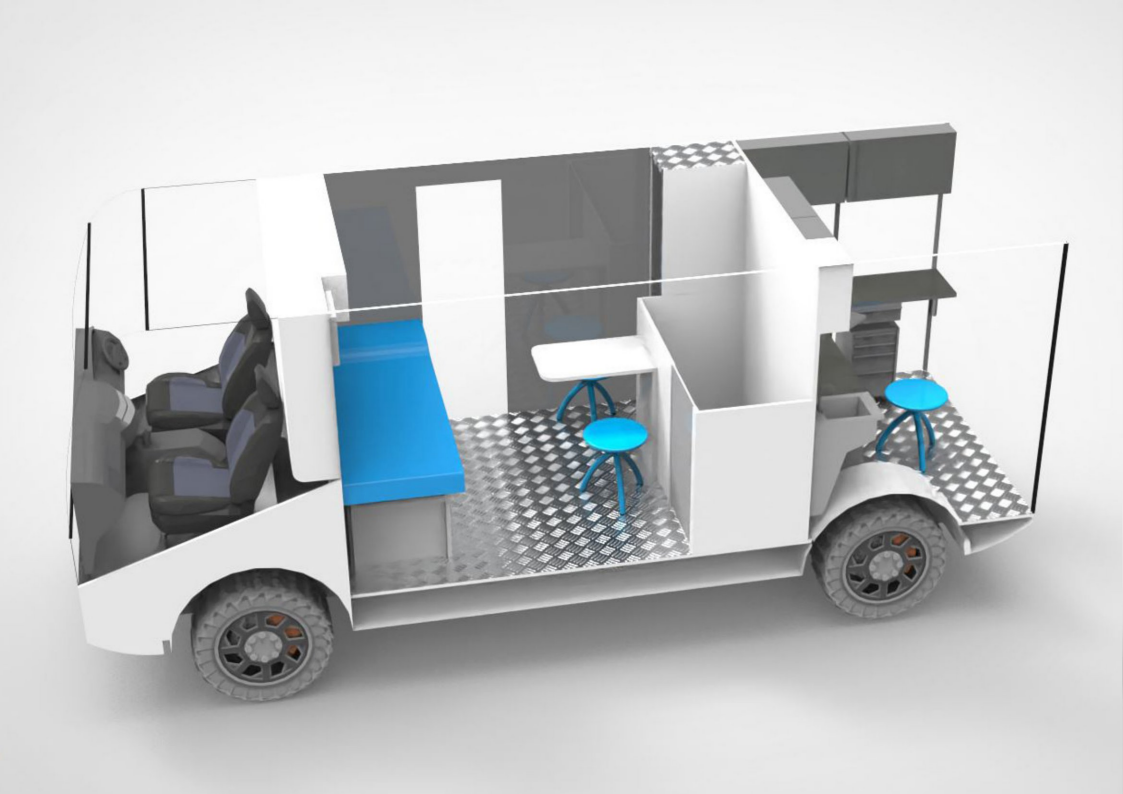


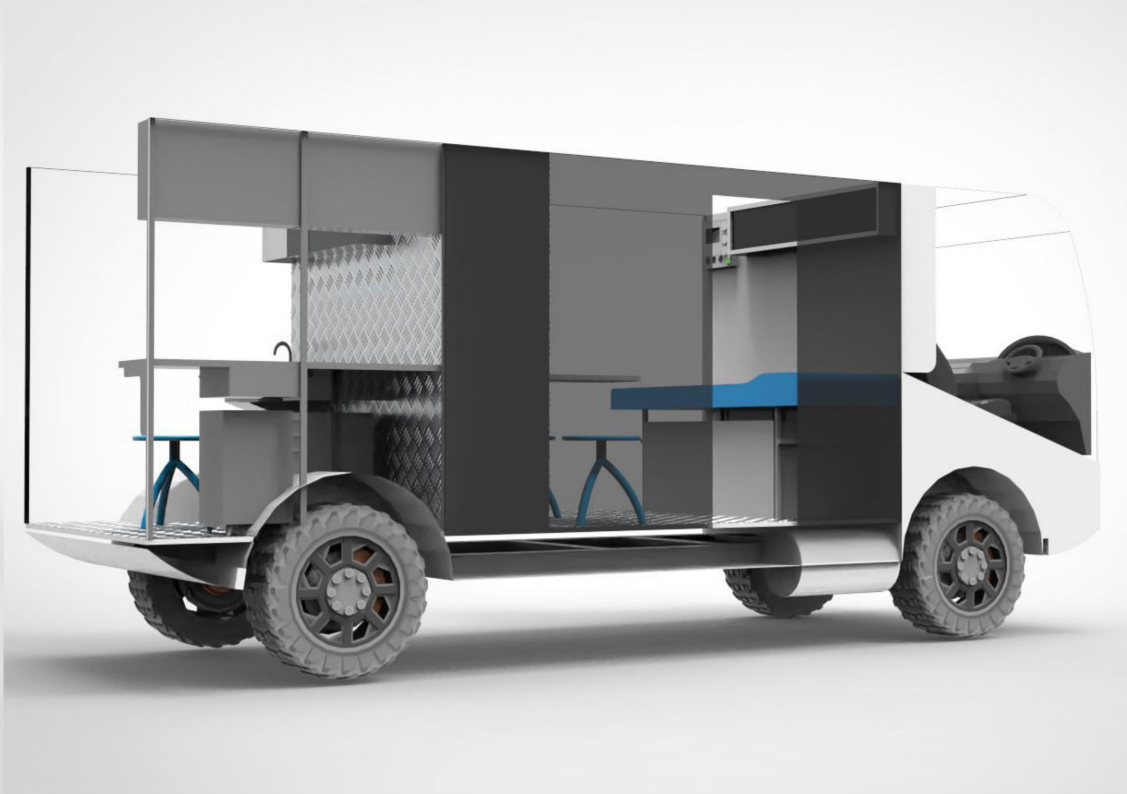
LAYOUT 4

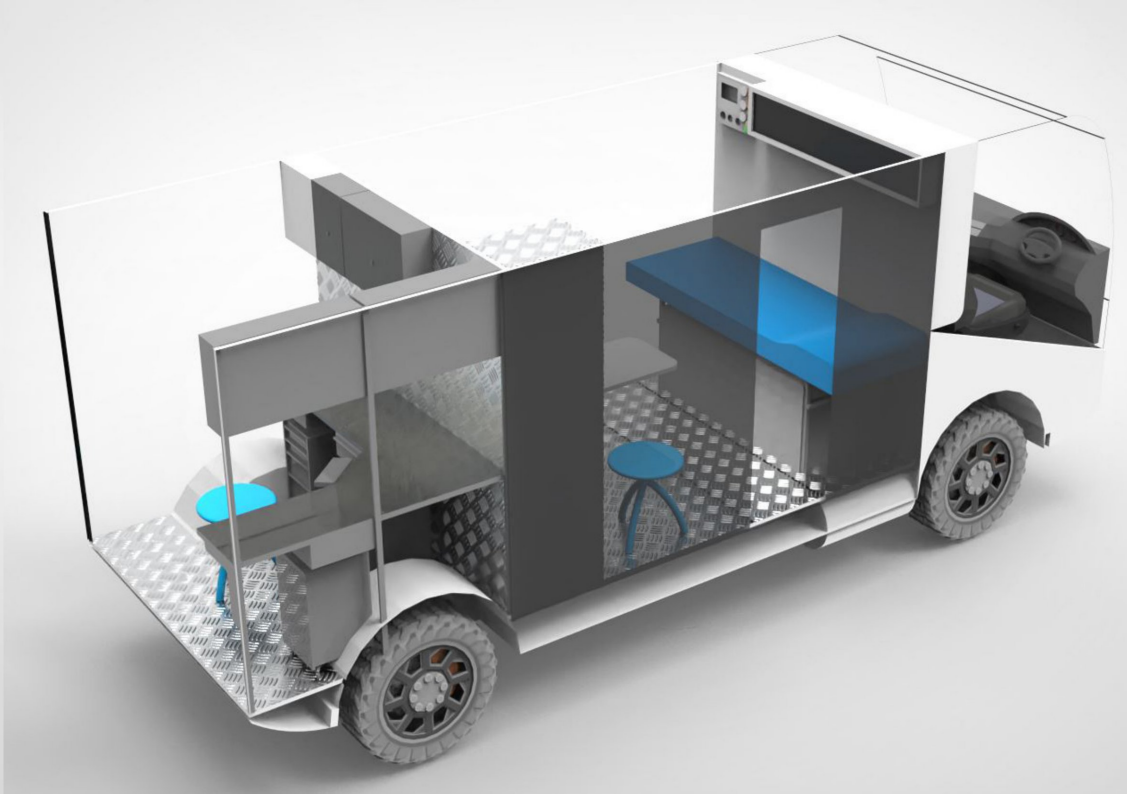


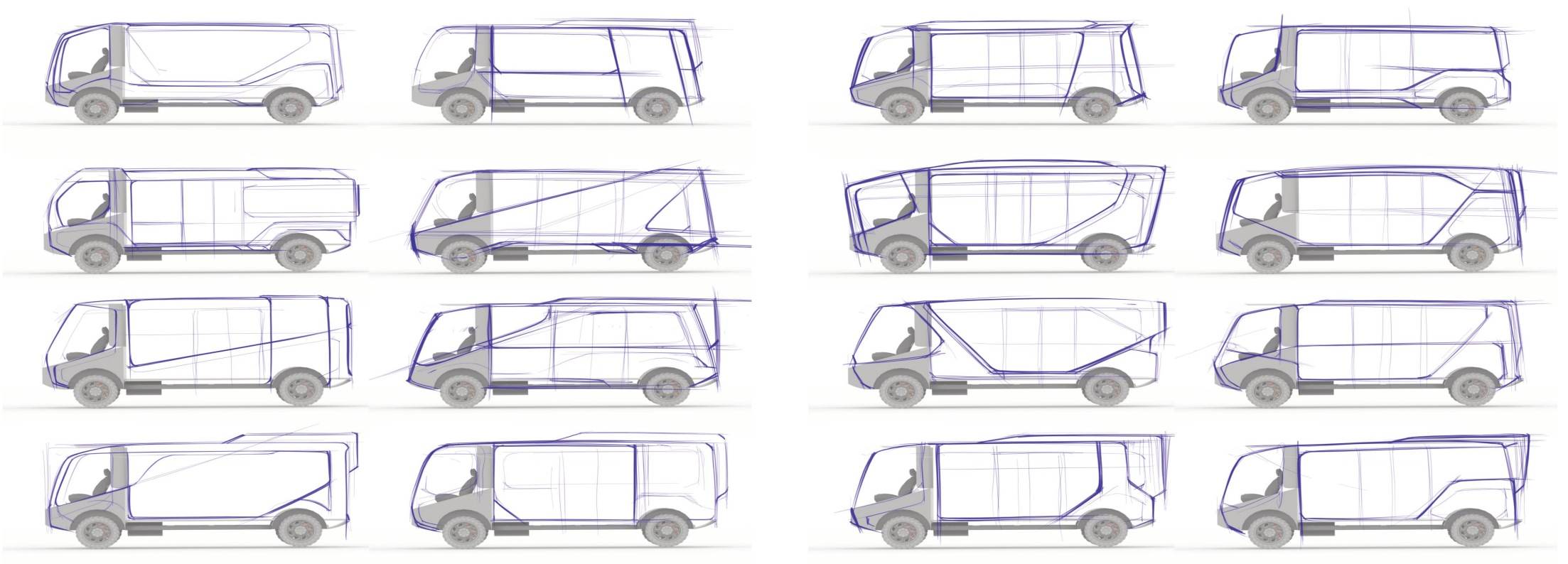


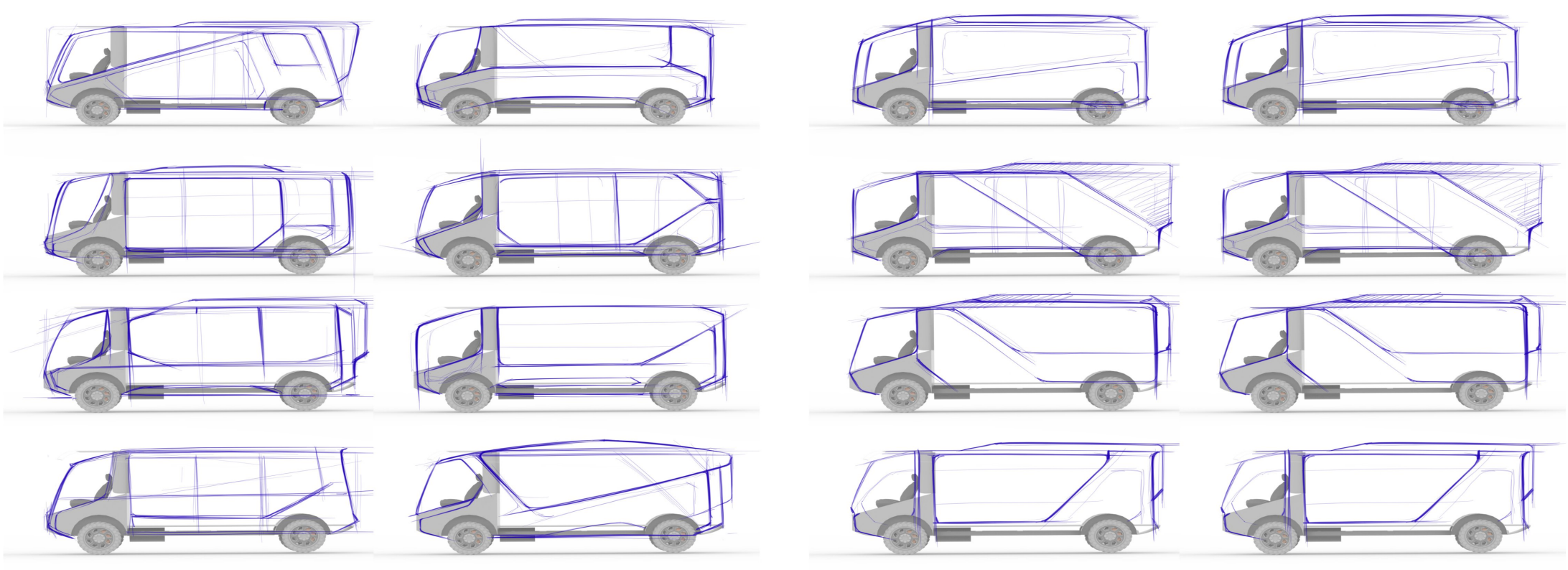
FINAL LAYOUT

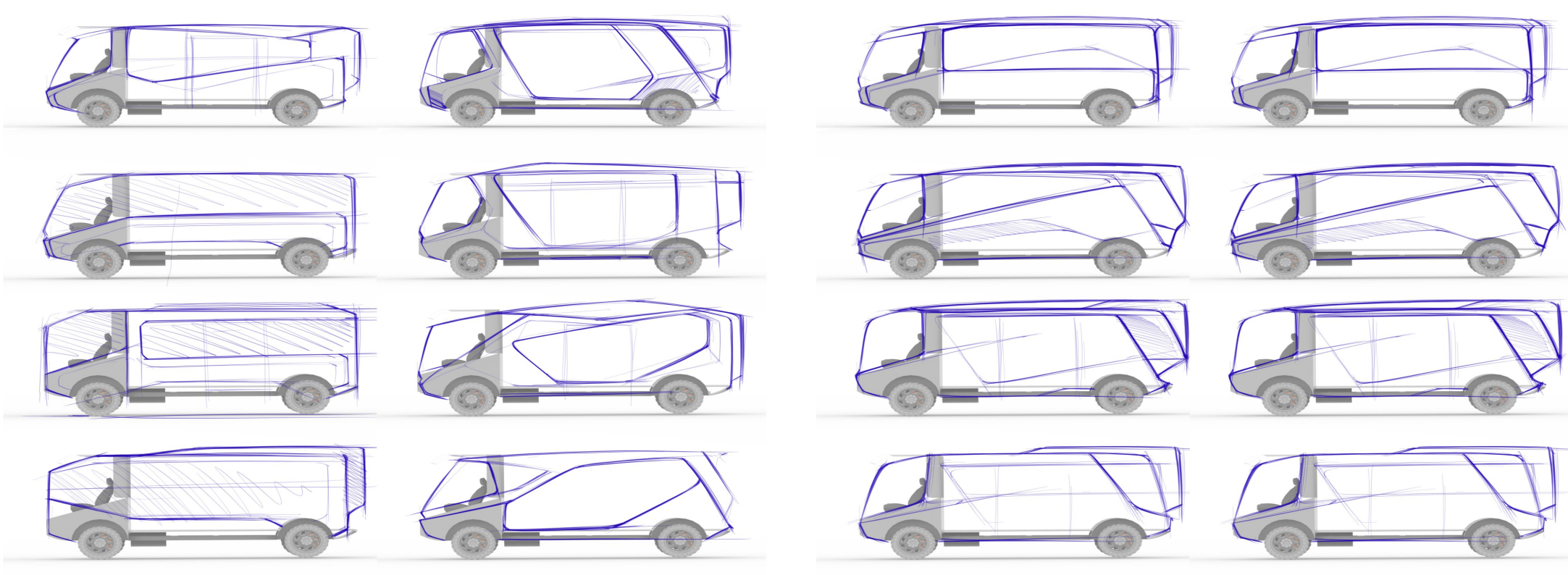


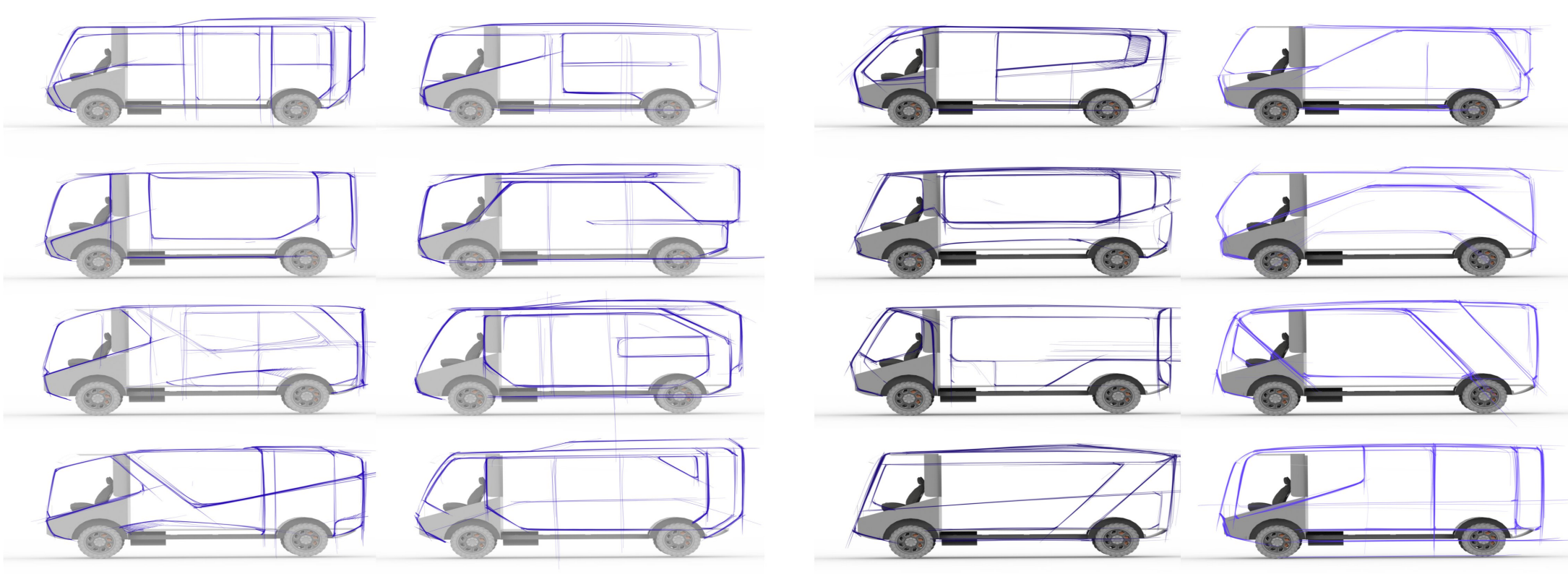


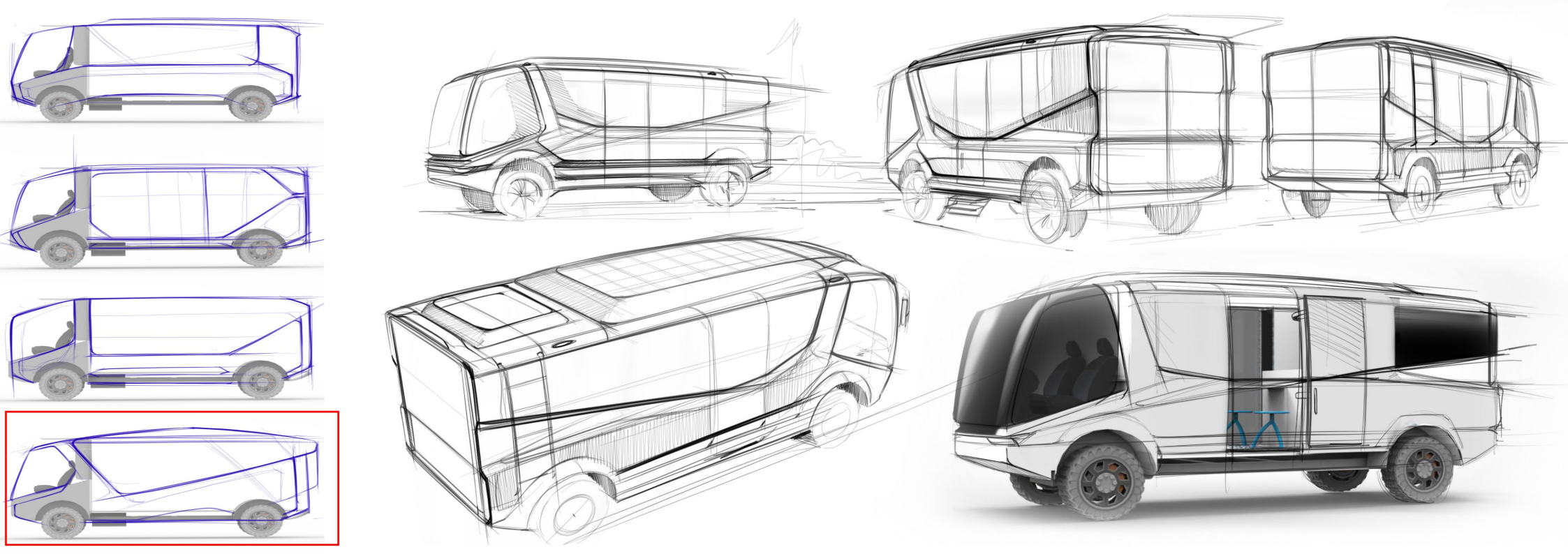


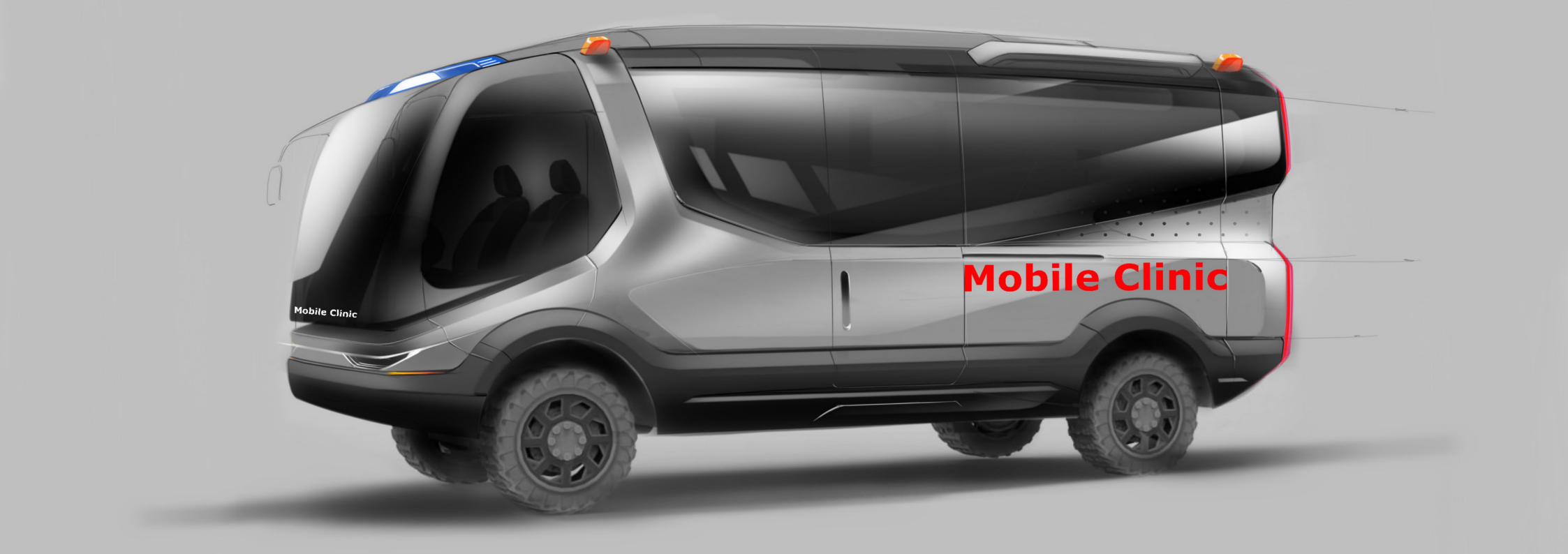


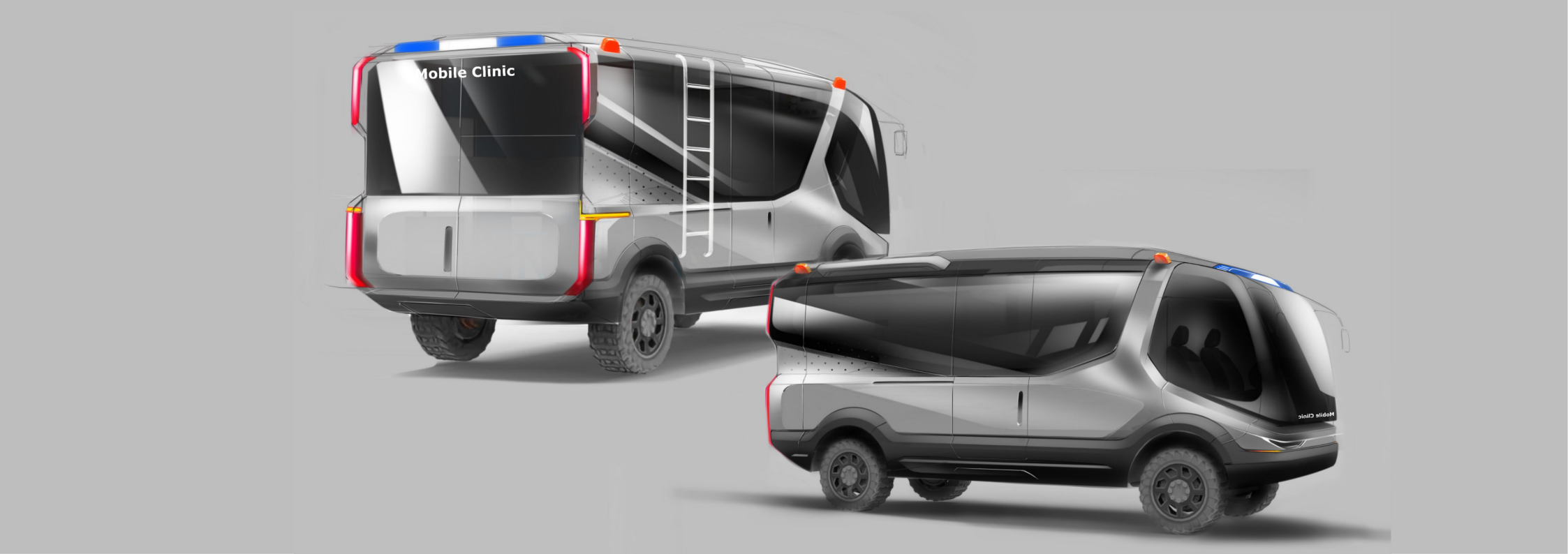









Mobile Clinic
Mobile Clinic


Mobile Clinic


Mobile Clinic
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Mobile Clinic
Mobile Clinic
Mobile Clinic