PROJECT 2

CALIBRATED LANDSCAPES: A POP UP MATHEMATICAL CARNIVAL

August 2019 - November 2019

EXPERIENTIAL LEARNING | PLUG N PLAY | REDESIGN AND INNOVATION

Fostering new learning landscapes through spatial design to curate a playful Mathematical learning experience.
To create a change in the existing learning opportunities and methods of teaching, to ‘redesign’ education.

PROJECT OVERVIEW

Mathematical parks or rather landscapes as we want to see them, are conceptualised to demonstrate that the world of Mathematics is not confined only in schools and specialised laboratories but rather the fundamental concepts of Mathematics are all around for us to see, play, experience and learn in the process. They are envisaged to bring math down to Earth through **hands-on learning techniques** and effectively convey, simplify the fundamental concepts of Mathematics to spark curiosity and build confidence across a wider audience, especially children.

Creative and playful models of outdoor classrooms and experiments can offer a unique setting for a child to learn because it can introduce a **multiple sensory experience** into the otherwise uni-sensory textbook or a blackboard transacted by the teacher. It can make abstract concepts more concrete and real from the child's perspective. Dimensions, textures, shapes, angles and movement can be used to communicate some basic concepts of **Mathematics in multiple fields and everyday life,** to make learning a truly enjoyable and memorable experience for children.

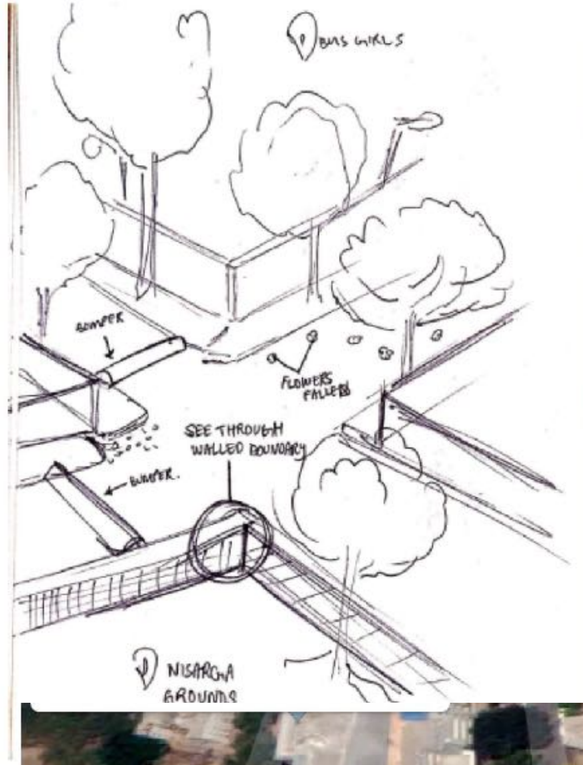
This way children have not only heard the Math concepts in a lecture, or read it in a book - **they have seen them, touched them, played with them and have learnt and reflected over themselves!**

DESIGN BRIEF

To design a portable educational ‘plug n play’ experience for children. To create a public space that is temporary and can be adaptable to any requirement. This experience works around bringing learning opportunities beyond the four walls of a classroom to children and to incorporate the element of ‘play’ within the usual textbook concepts that children learn in their days spent at school.

The entire concept focuses on temporary spaces and the efficiency of pop up spaces. It looks at introducing a spatial concept that becomes both storage and the actual running space as well. The space by itself is portable and is an outcome of multiple permutations and combinations.

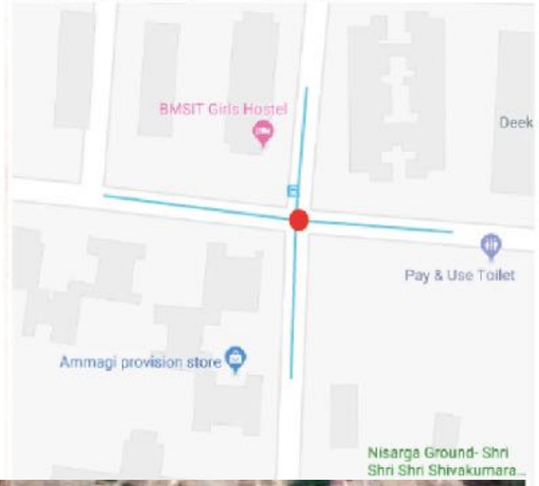
This entire design concept is translated through the working and overall design of a bus. It works around redesigning a bus to form such a spatial experience for children and since it runs the same way as a regular bus does, it becomes a portable experience too.



Node 2: BMSIT Girls Hostel Bus Stop

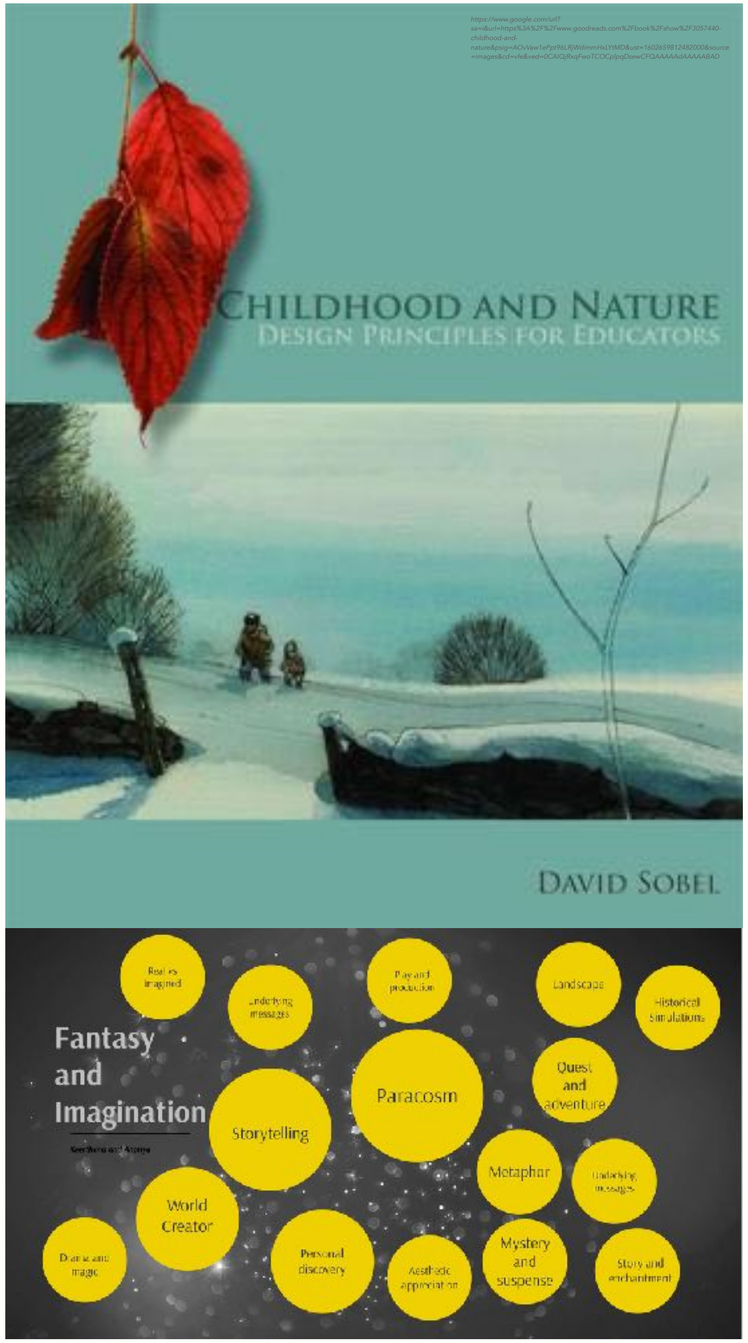
Quiter node
Flowered trees
Two speed brakers
Grilled boundary
Footpath in good condition

Hostel building provides light when streetlamps do not have electricity.
Residential buildings on 2 sides.
Public ground lights up for various local events.



RESEARCH ACTIVITY 1

The initial research was supported by 'The Image of the City' written by Kevin A Lynch. With the help of the content of this book, the different nodes in my immediate public environment was studied. The importance of these nodes being used as Public Spaces and the kind of activity hubs they form. This helped set grounds for the kind of site I wanted to use for my Public Space concept and the types of activity hubs I needed to target.



RESEARCH ACTIVITY 2

To understand the Childs' mind better, I used David Sobels' 'Childhood and Nature - Design Principles for Educators'. This aided the understanding of elements that intrigue children, elements that go unnoticed by them and guidelines for design principles that shape such elements. My takeaway from the book was 'Fantasy and Imagination', elements that captivated my when I was a child too. This was further used in the creation of my concept.

RESEARCH ACTIVITY 3

I visited a Mathematical Park created for the Agastya International Foundation, an Indian education trust and non-profit organisation, whose mission is to spark curiosity, nurture and build confidence among economically disadvantaged children and teachers in India. This trip gave a path to visualise how Mathematics can come to life, how it can be made playful and an activity based learning for children. Being someone who was intimidated by th subject myself, this experience and learning opened a lot of doorways for me.

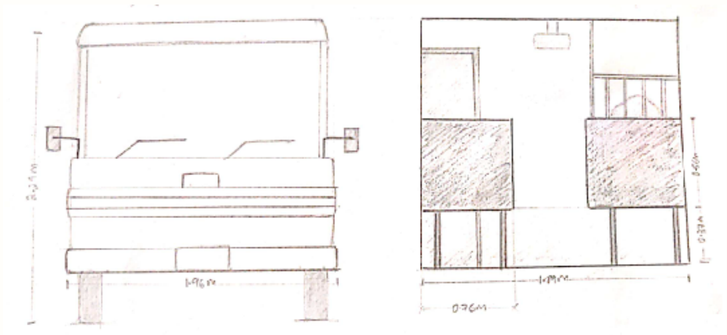
PROJECT INSPIRATION

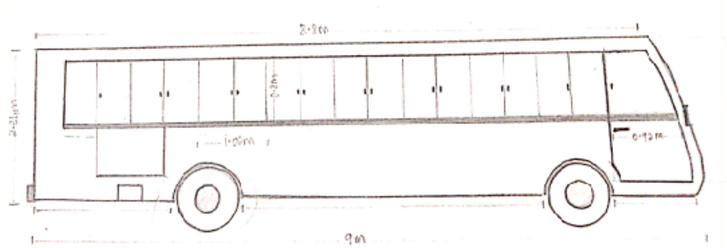
"The Magic School Bus is an American edutainment media franchise that includes a book series, a TV series, and video games. Each of the stories within the franchise centres on the antics of a fictional elementary school teacher, Ms. Frizzle, and her class, who board a "magic school bus", which takes them on field trips to unusual times and locations, such as the Cretaceous Period, outer space, and the interior of the human body. Characters from The Magic School Bus are popular Halloween costumes, especially Ms. Frizzle is often put on by teachers."

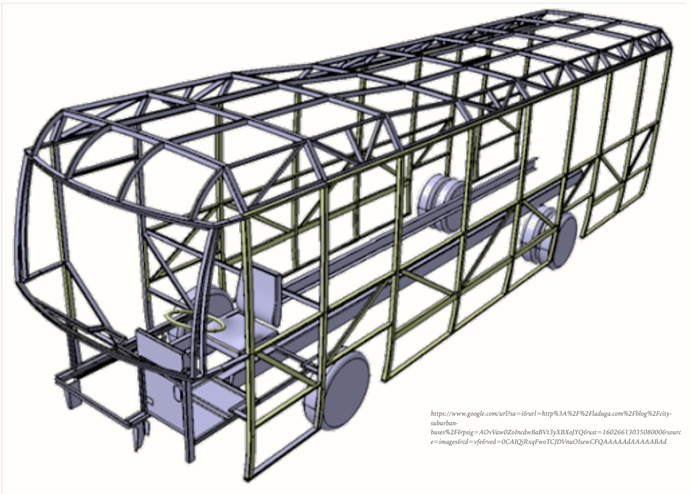
https://www.fox13news.com/news/magic-school-bus-show-from-the-90s-will-be-transformed-into-a-live-action-movie

STUDYING THE STRUCTURE OF A BUS

To create the kind of pop up/plug and play experience I wanted to create for my Spatial Mathematical concept, I had to study the structure of the bus and how the framework of the bus can be tweaked to convert it into a space of its own.







COLOUR PSYCHOLOGY

To study the kind of colour palette to go with for the exterior and interior off the bus, I explored the psychology of colour, and picked out three colours to use extensively in my designs.

MARKET RESEARCH

"Mumbai: Lend A Hand India (LAHI), a Pune-based NGO recently undertook a Skill Yatra from Pune to Ladakh.

The NGO attempted to bring attention to skill education in schools from Pune to Ladakh through "Skills on Wheels" – a customised bus retrofitted with all the necessary tools and equipment to deliver the multi skill vocational education in secondary schools." - Deccan Chronicle, July 21st 2017

"Lend A Hand India recently launched a new project – the Skills on Wheels bus – which is a mobile classroom that will take everything required to teach a vocational education class on the road. The Skills on Wheels bus went on a 24 day journey to Leh, Ladakh for its inaugural journey, a "Skill Yatra" that aimed to spread awareness about skill education all the way to the famous Druk White Lotus School in Leh, shown in the movie 3 Idiots" - Lend a Hand Blog

MARKET RESEARCH

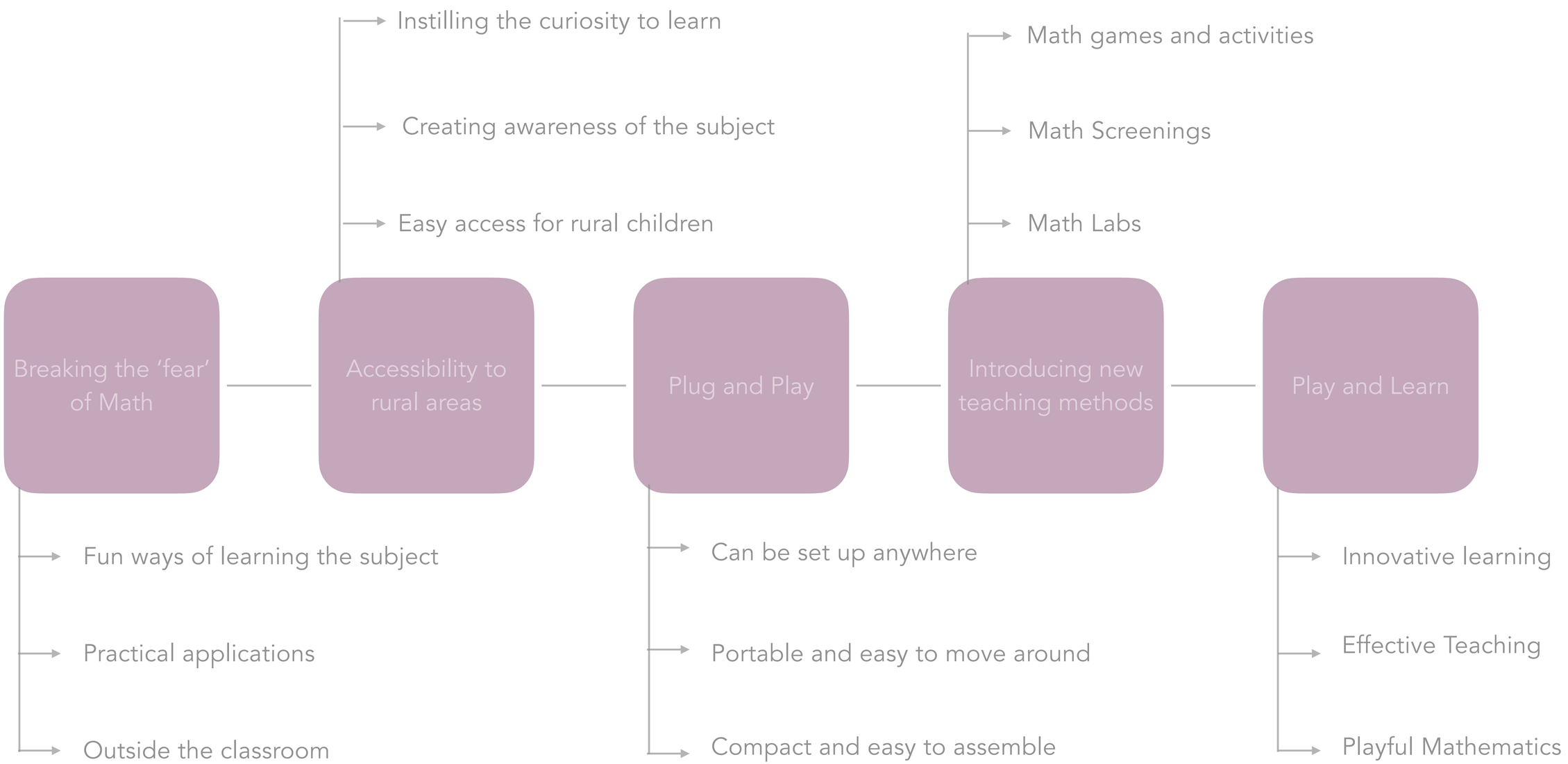
"The solution seems obvious now, and elegantly simple: if the children can't get to Agastya, Agastya will go to them. This is precisely the role of the mobile labs, crisscrossing thousands of kilometres of road each day, ribboning the landscape of rural India. Each mobile lab is loaded with science models and low-cost experiments, bringing them to under-resourced schools. Two knowledgeable, enthusiastic Agastya teachers accompany each van to show how the models work and explain the science behind them." - agastya.org

"Agastya's Lab-on-a-Bike represents an innovative initiative that combines the compactness, portability, and modularity of the Lab in a Box (LIB) with the mobility of a motorbike, driven by one of Agastya's teachers. The concept extends Agastya's reach into areas where the mobile labs cannot go. It also removes the hierarchy between instructor and driver in the minds of the villagers." - agastya.org

INSIGHTS FROM RESEARCH

- To create a spatial concept that is the storage device, the usable space and the form of transport; all in one
- Children relate better to things they recognise and know of
- To create a design based on fantasy and imagination
- Allow for spatial exploration and self discovery
- Plug n Play spaces have a larger opportunity and target base

OPPORTUNITY MAP



This project is driven by the concept of temporary spaces in today's world. Temporary spaces are an efficient and cost effective way to create experiences for a city's people. The concept is all about creating an experiential Mathematical experience that can travel to multiple realms of a city. It is about revamping a classroom experience for children and introducing new, fun and innovative ways to learn a subject as intimidating as Math is for most children at school. It is a new take on a School bus, a magical school bus that doesn't take you to school but brings a fun, exciting and innovative school based experience to you. This project provides the opportunity ti incorporate Mathematical concepts in an everyday life scenario. Even the furniture for the space can be built by its users, a learning experience of its own.

By redesigning a regular school bus into one that can be adapted to any spatial requirements, by being able to attach to one another creating multiple possibilities of spatial layouts, makes this design flexible and user friendly. The final outcome of this project is a single bus design that can be used as a storage device while transporting to various sites, a design that can be used for multiple purposes such as a Math Lab, a Screening area, an Exhibition area, etc and a design that revolves around the Plug n Play concept and hence is a pop space that can be set up just as easily as it can be dismantled and moved to a new site.

The opportunity for this design stretched to large extent, but the most important one is being able to reach far off rural areas where this design allows the children belonging here to experience school in its right sense. This design creates the possibility of bringing school to these children rather than taking them to the school itself.

This project is all about curating an experience that instills curiosity and the enthusiasm in children, to learn and explore the world that surrounds them. It makes a subject as scary as Math fun and exciting, resulting in it being more relatable to children and better understood by them.

HYPOTHETICAL CLIENT PITCH

Client: Agastya Foundation

Project: Math fest at CV Raman Panchavati, Malleshwaram

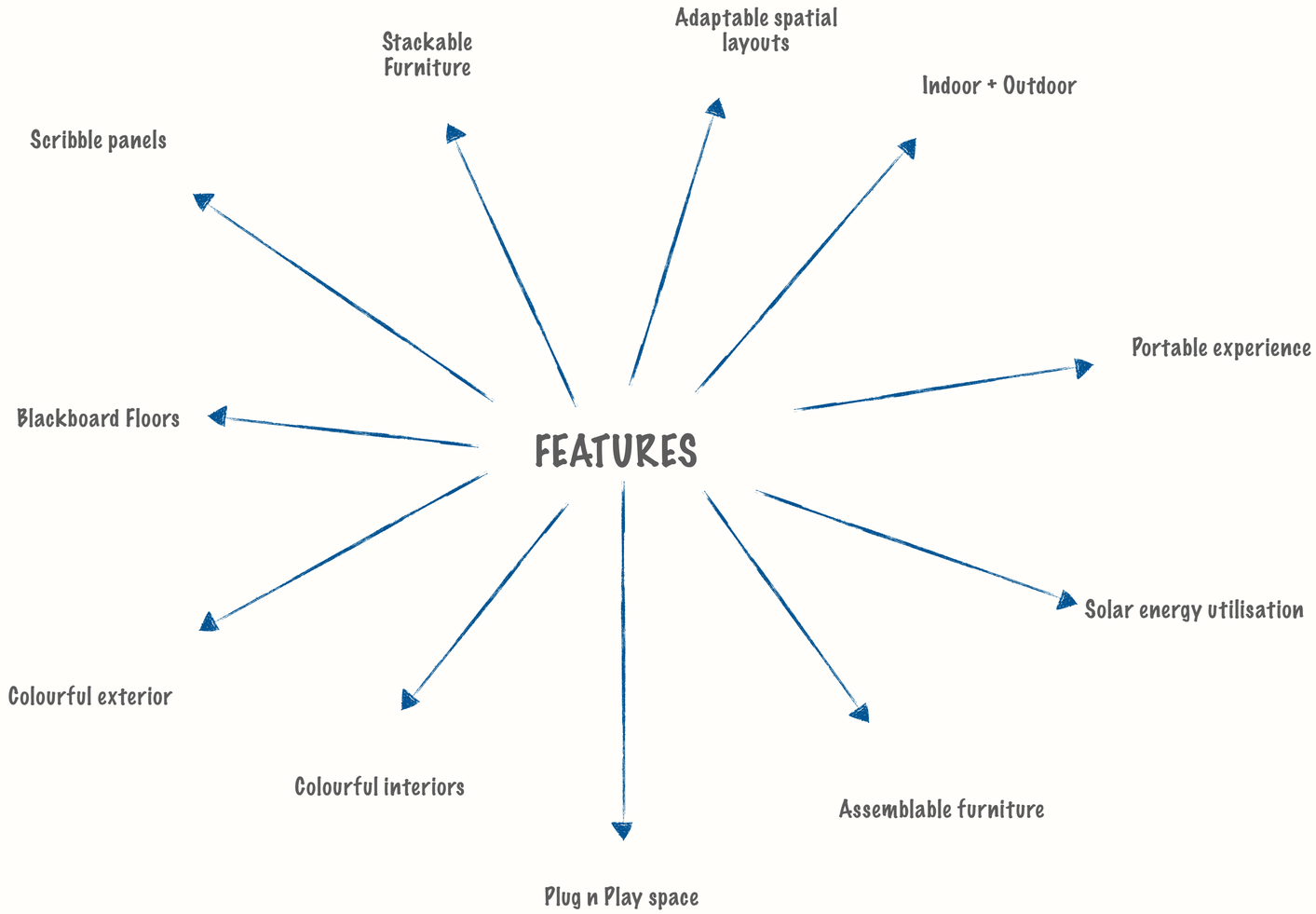
Dates: 24th - 28th December, 2019

Timings of the event: 10:30am - 5:30pm

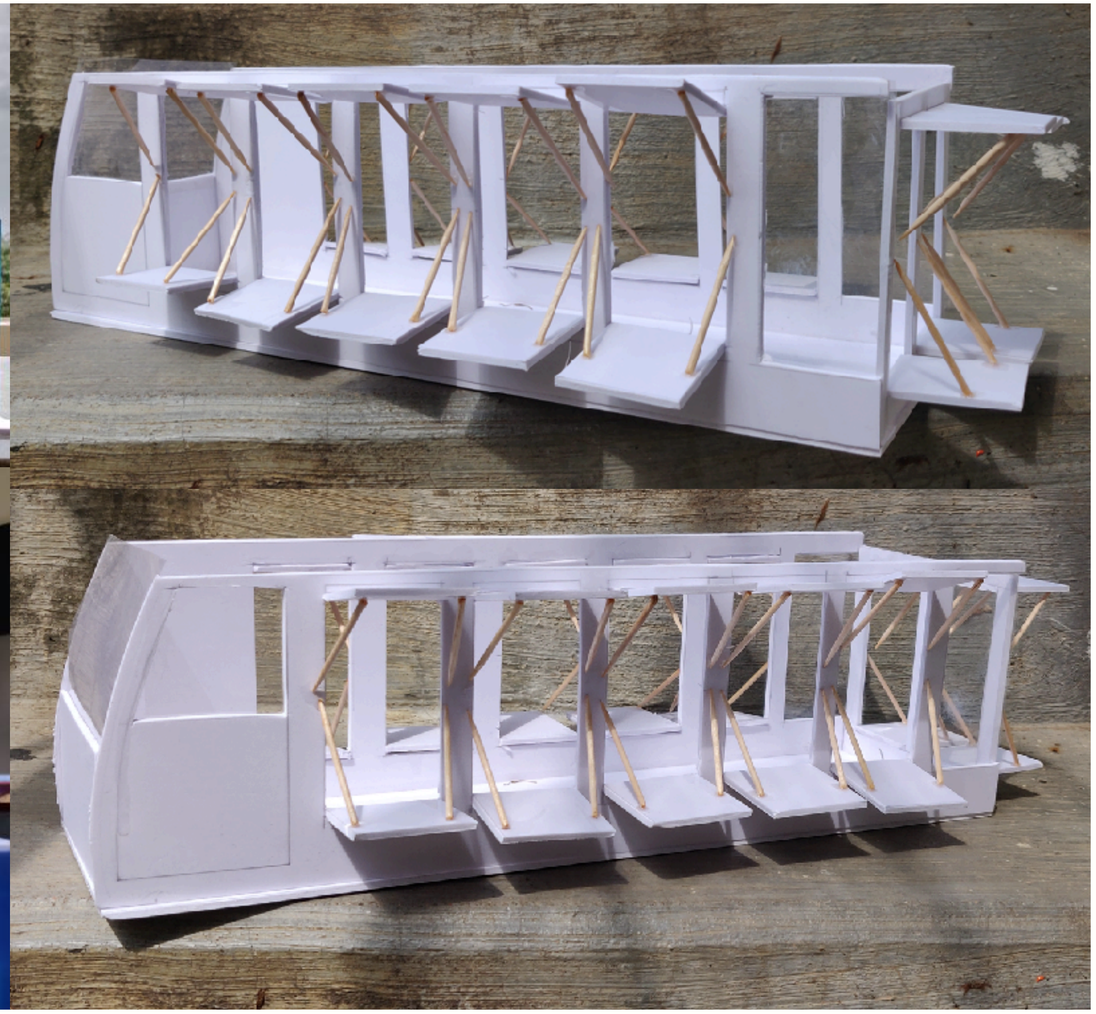
Project Brief: To create a multi sensory outdoor and indoor Mathematical experience for Children between the age groups 4 - 12. The entire space needs to impart the feel of a fest and needs to reflect the seasonal time of December.

Requirements: 1. A Math Lab space, 2. An exhibition space, 3. A screening area, 4. Outdoor and Indoor activities for children, 5. Furniture for the spaces required, 5. Outdoor seating

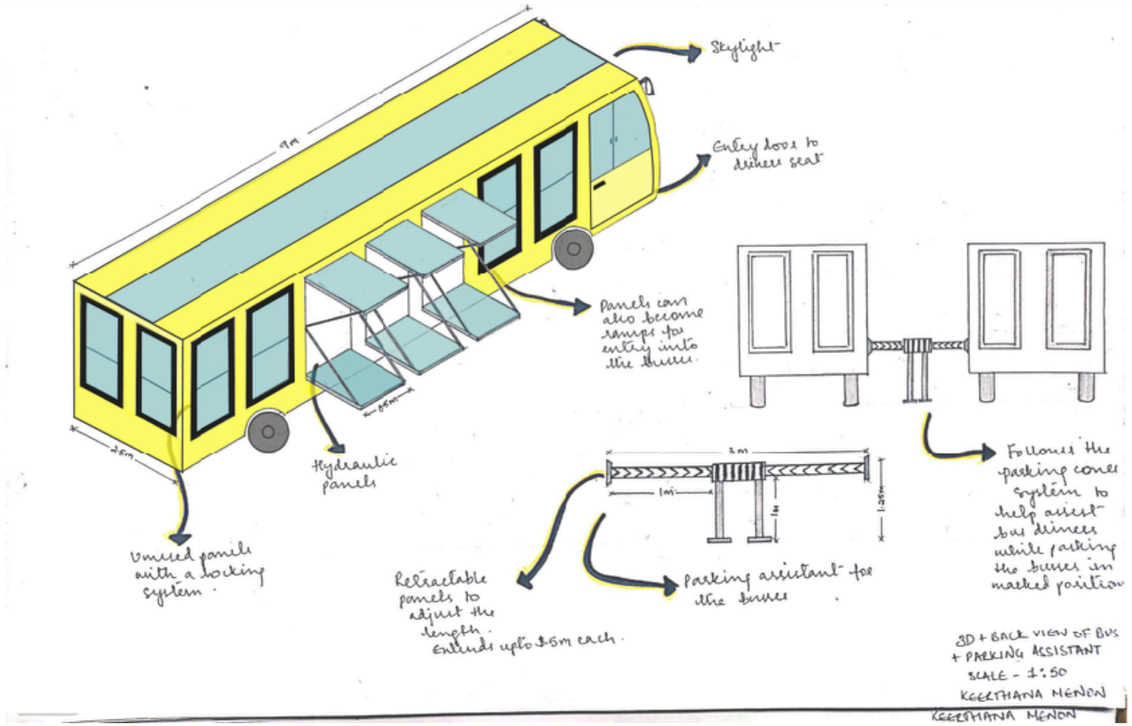
Target Audience: Invite based as well open to the Public (Floating crowd)

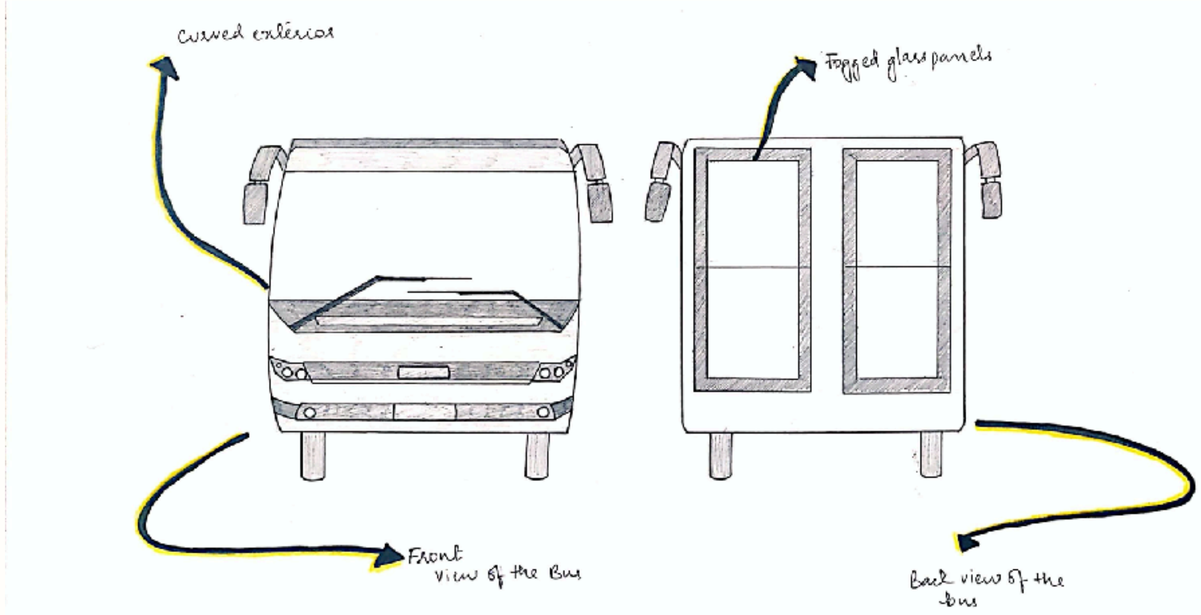


PROTOTYPE

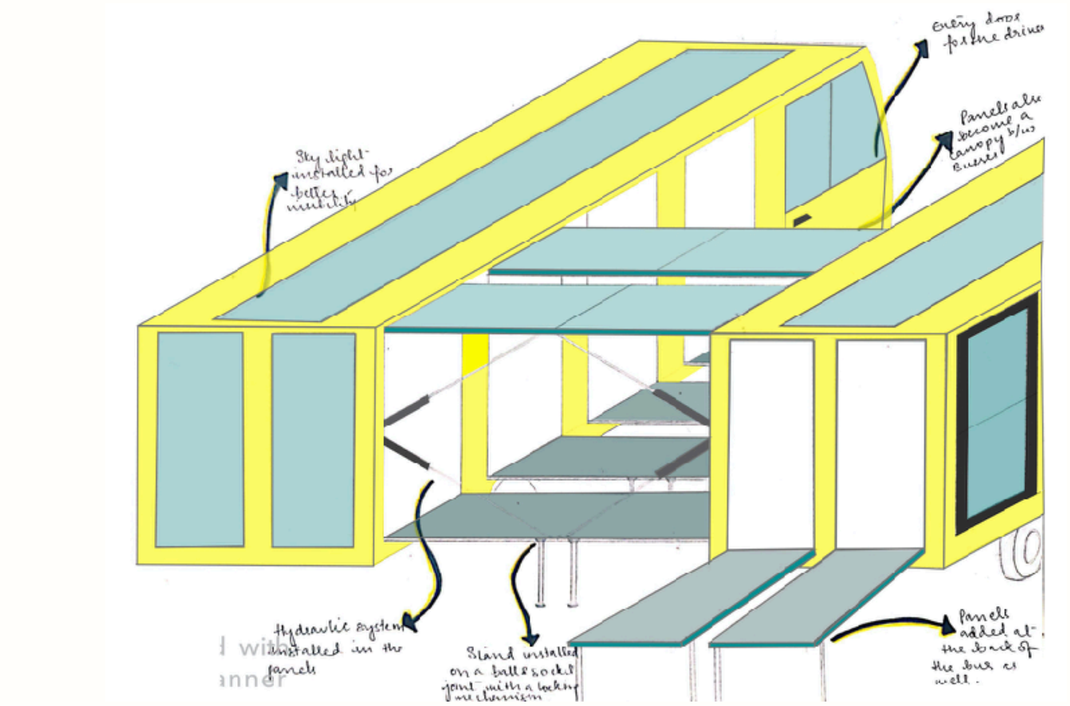


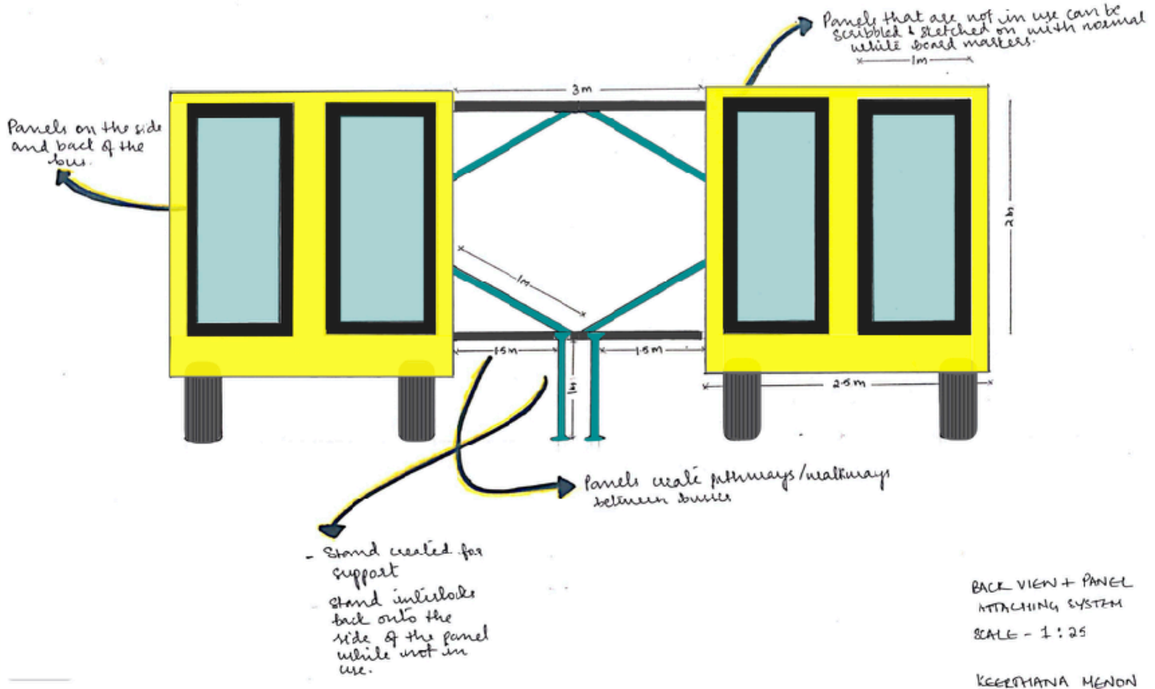
HAND DRAFTS OF THE BUS DESIGN



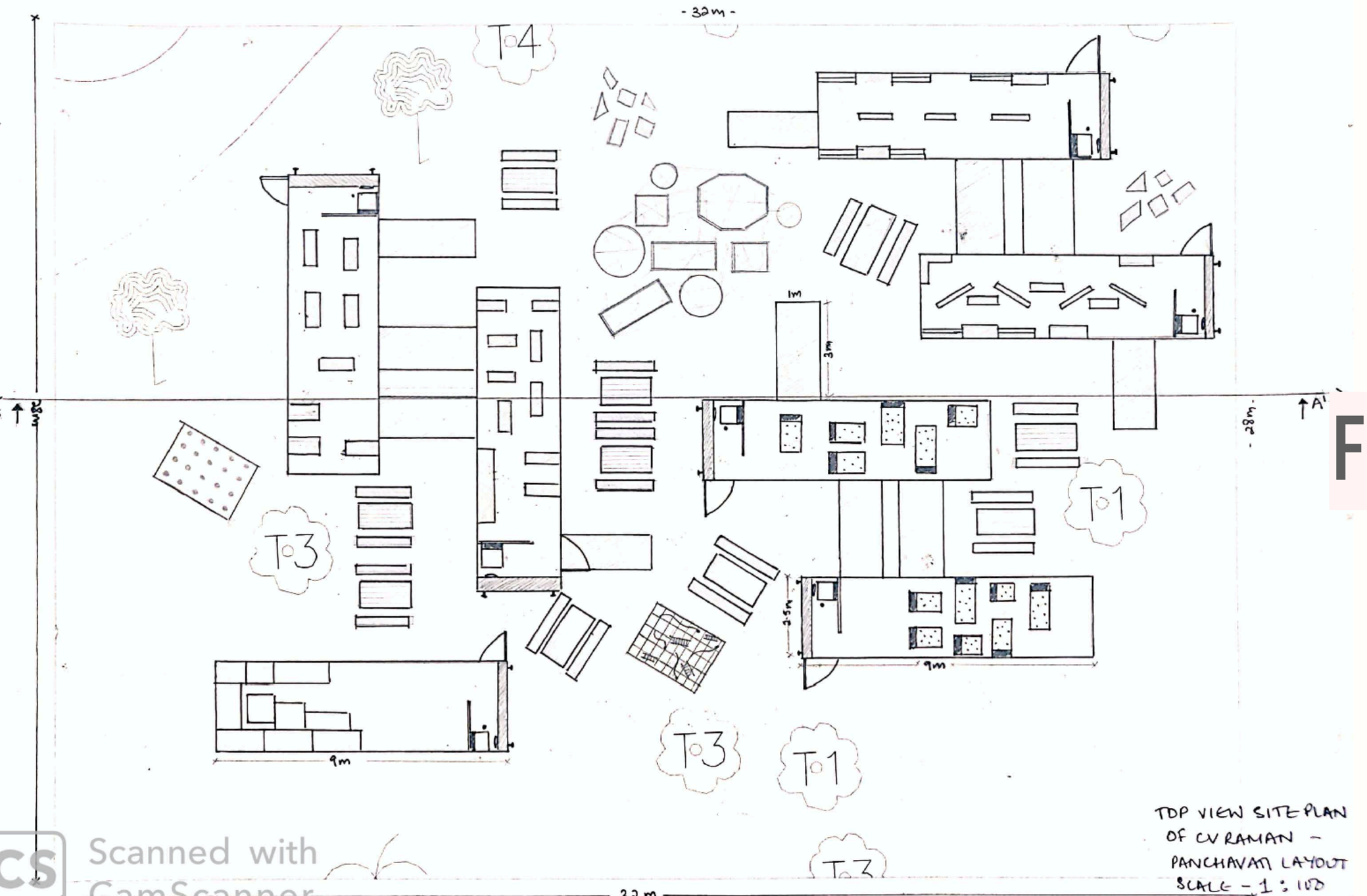


OVERALL DESIGN





WINDOW - PANEL MECHANISM

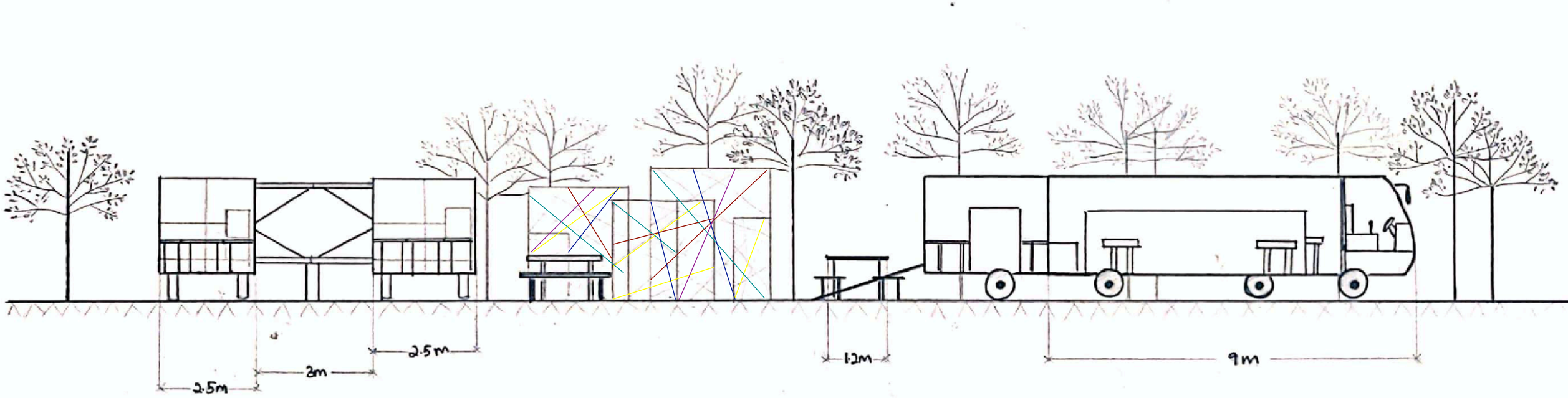


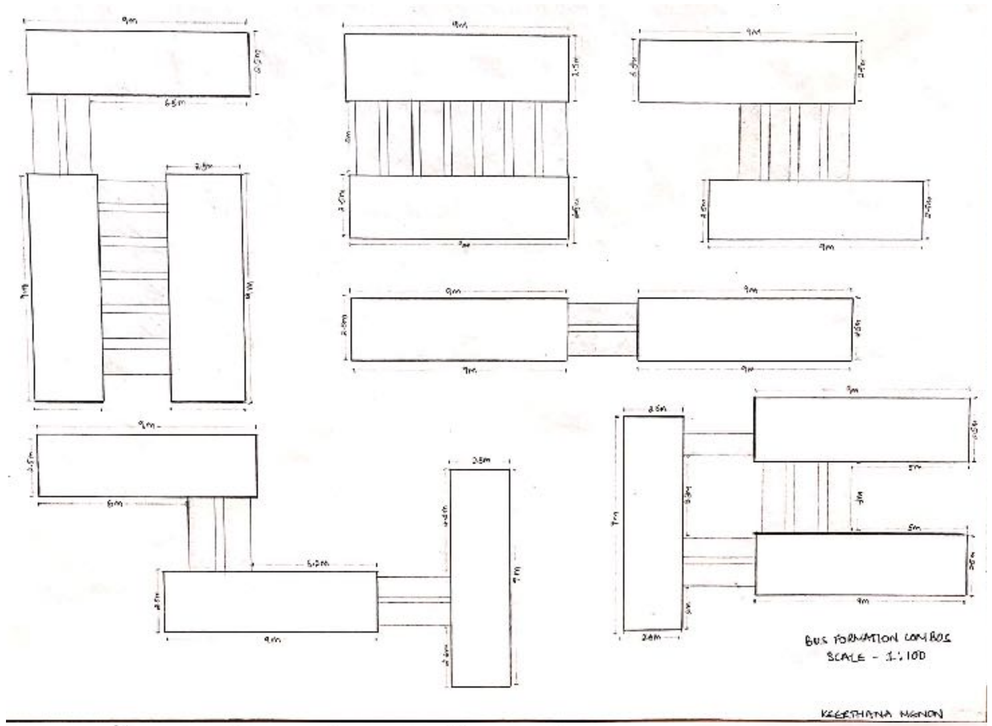
TOP VIEW SITE PLAN OF CV RAMAN – PANCHAVATI LAYOUT SCALE – 1 : 100

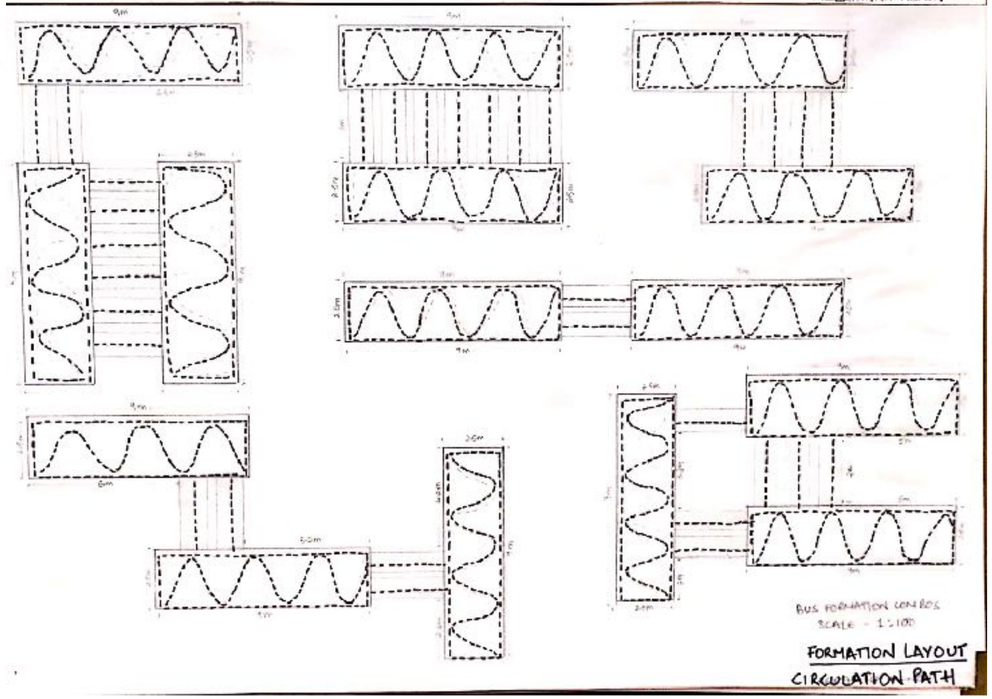
KEERTHANA MENON

FLOOR PLAN

SECTION VIEW OF FLOOR PLAN



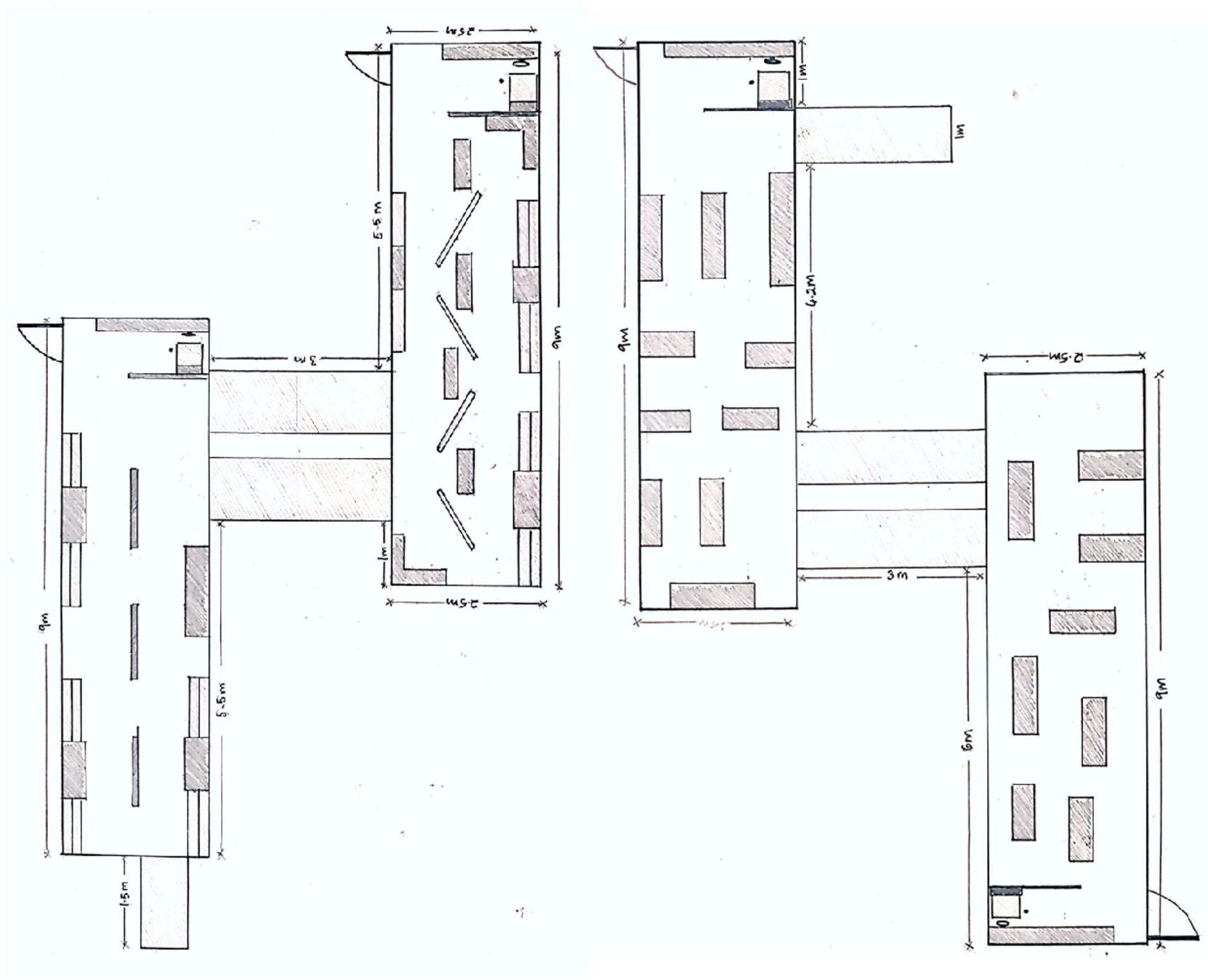




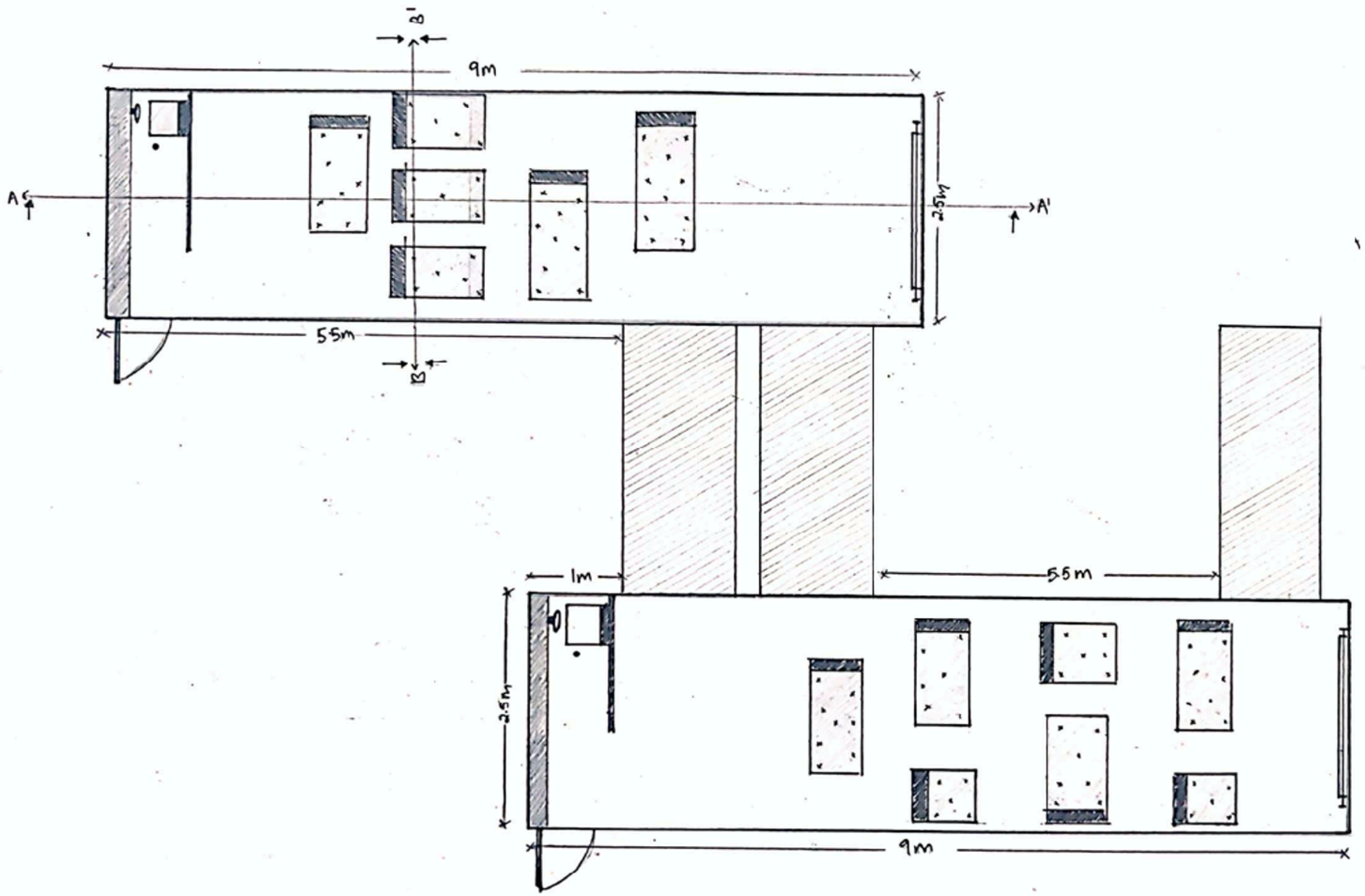
VARIOUS BUS FORMATIONS

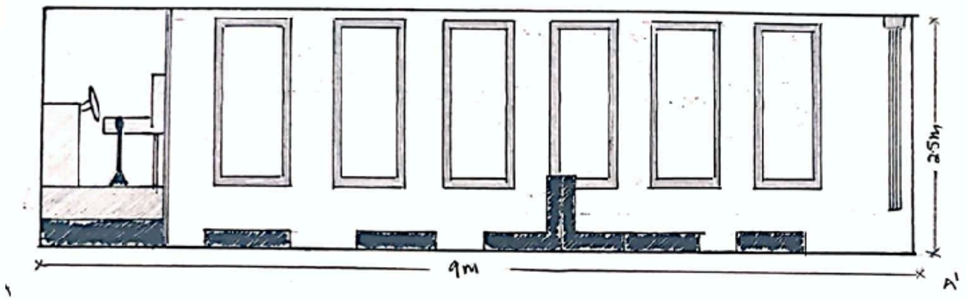
CIRCULATION PATHS IN THE BUS

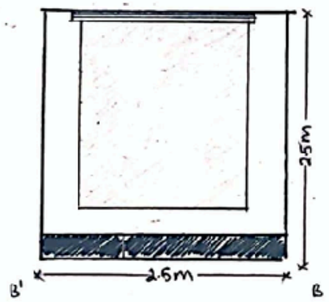
FLOOR PLAN OF BUS AS A WORKSHOP

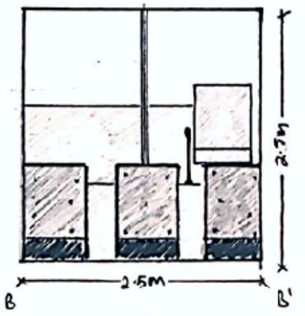


FLOOR PLAN OF BUS AS A SCREENING ROOM

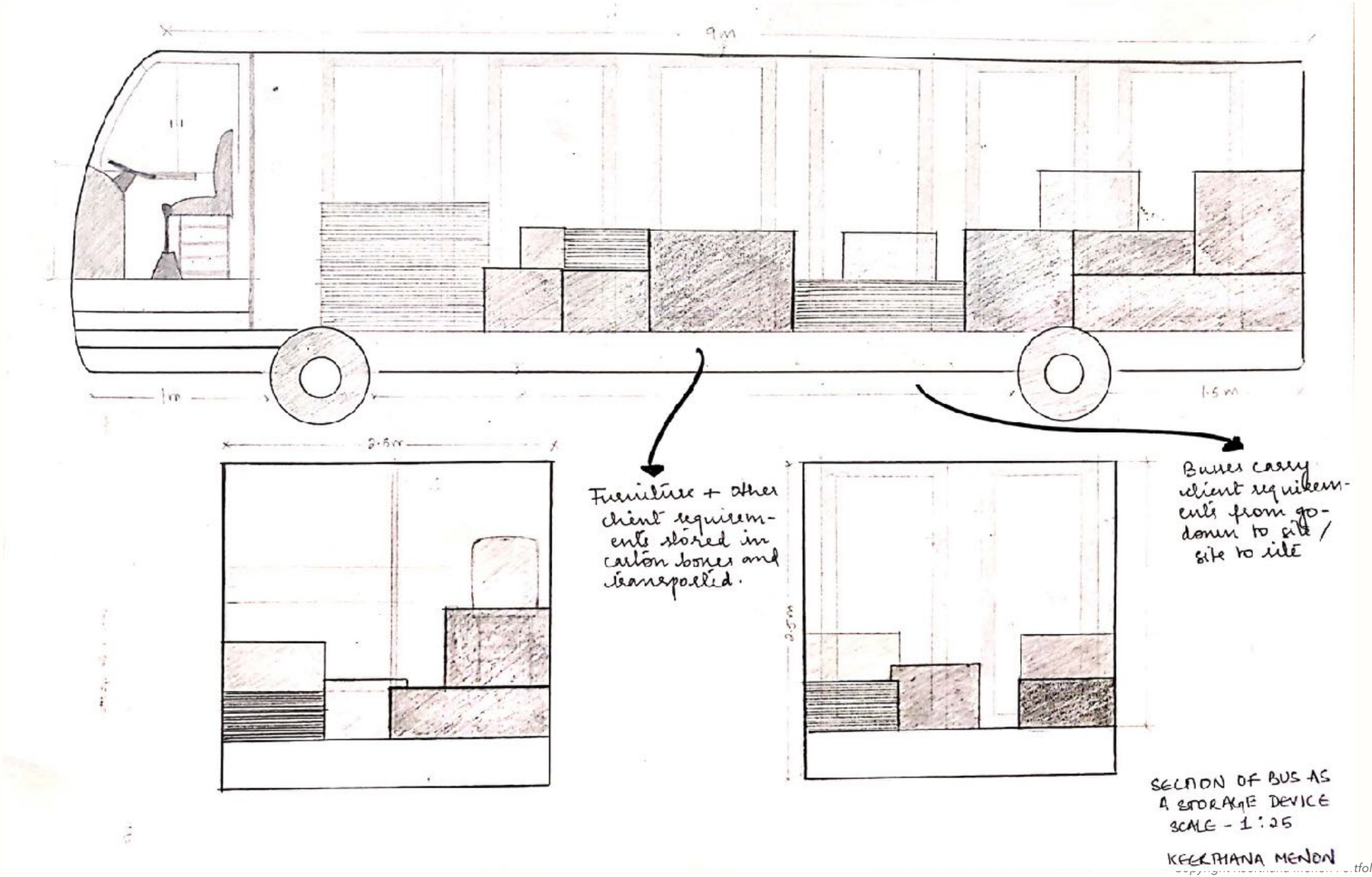






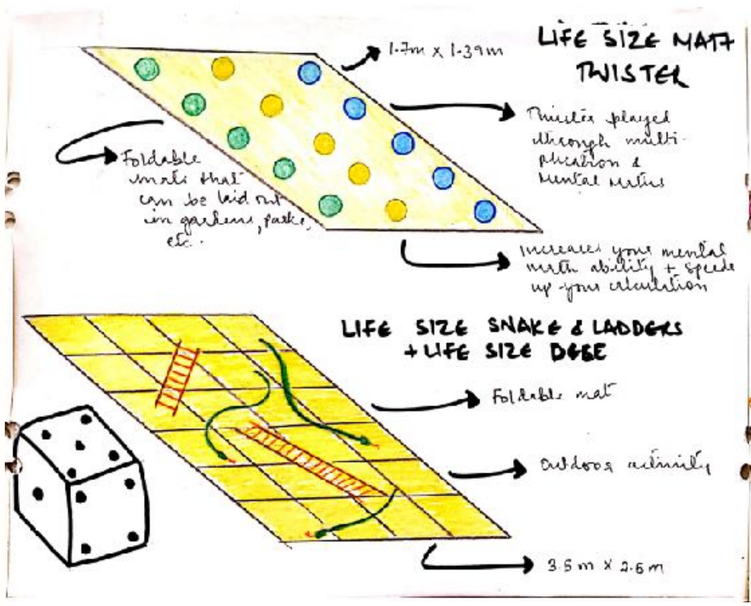


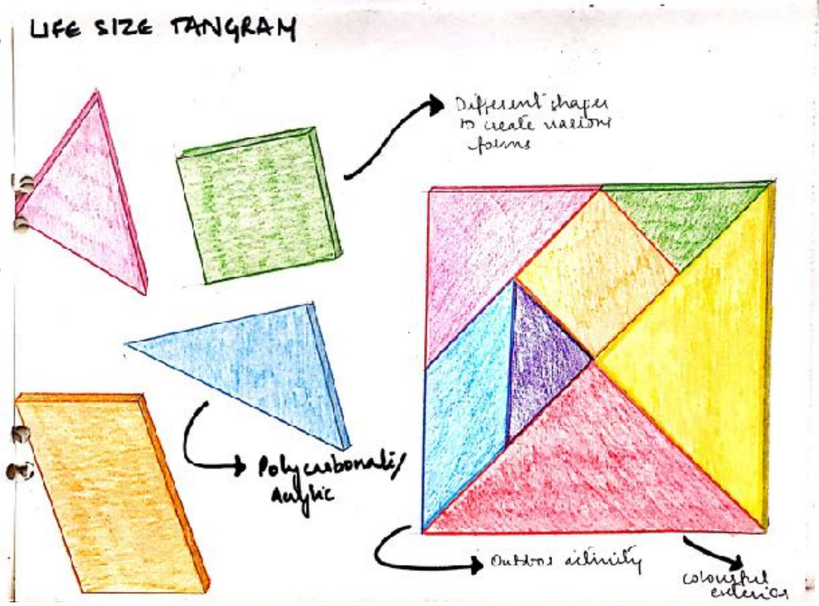
BUS AS A STORAGE UNITE

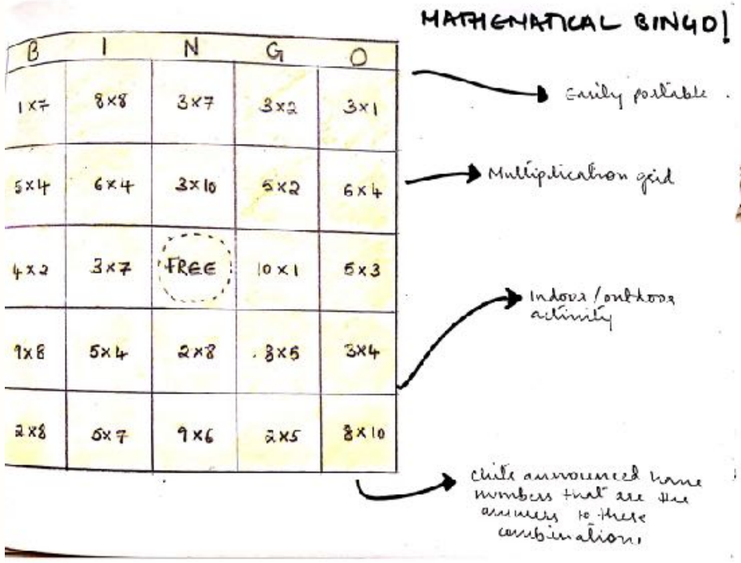


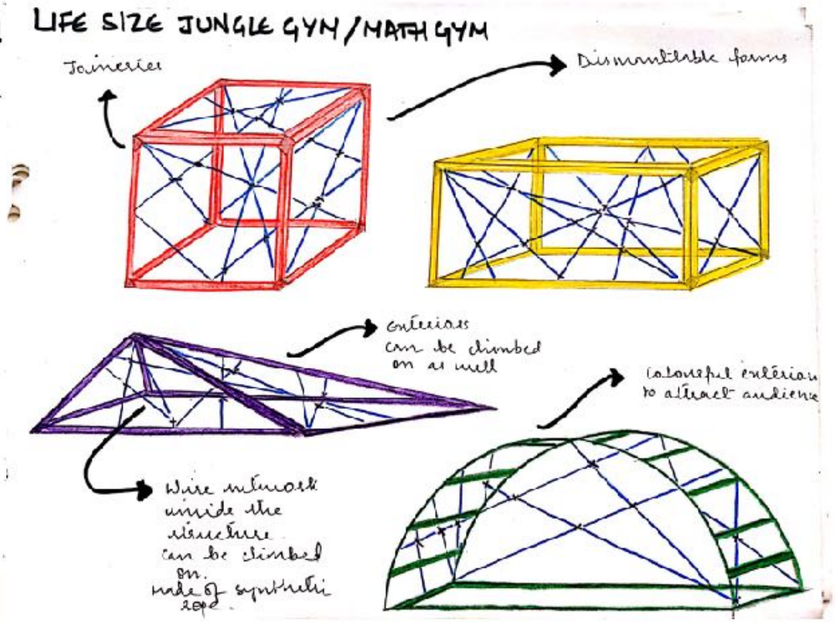
3D RENDERS OF THE SITE

MATH CATALOGUE

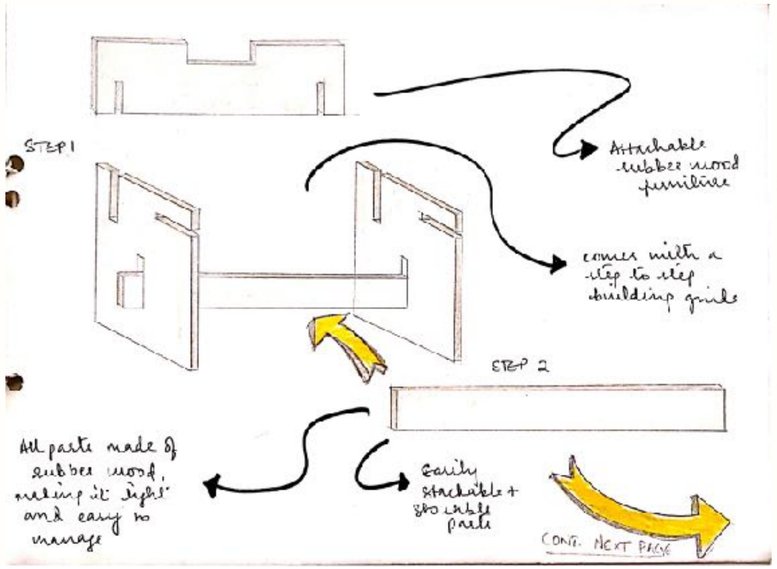


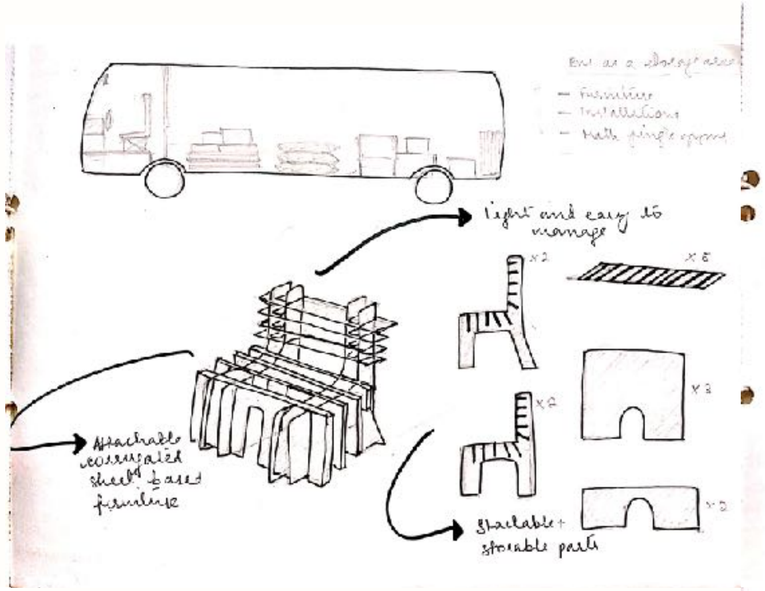


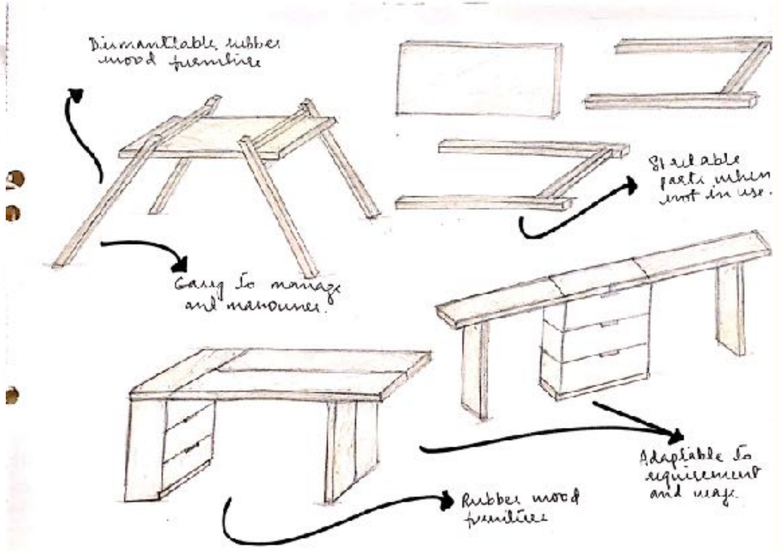


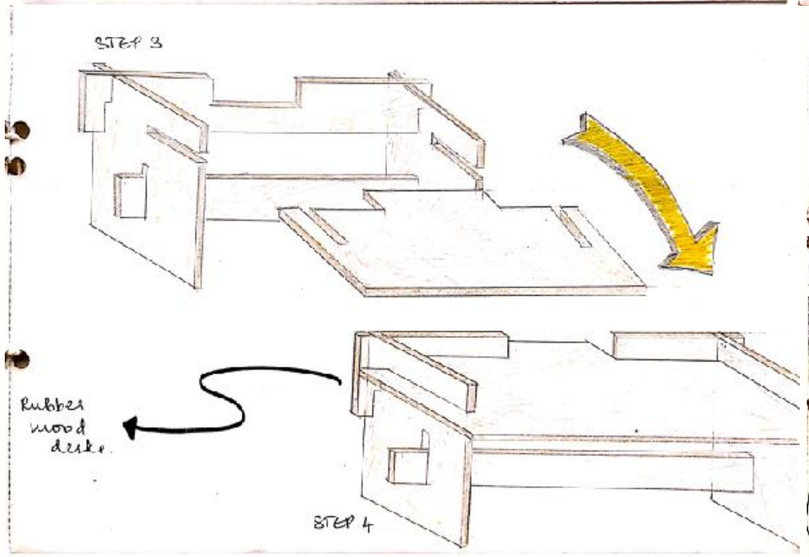


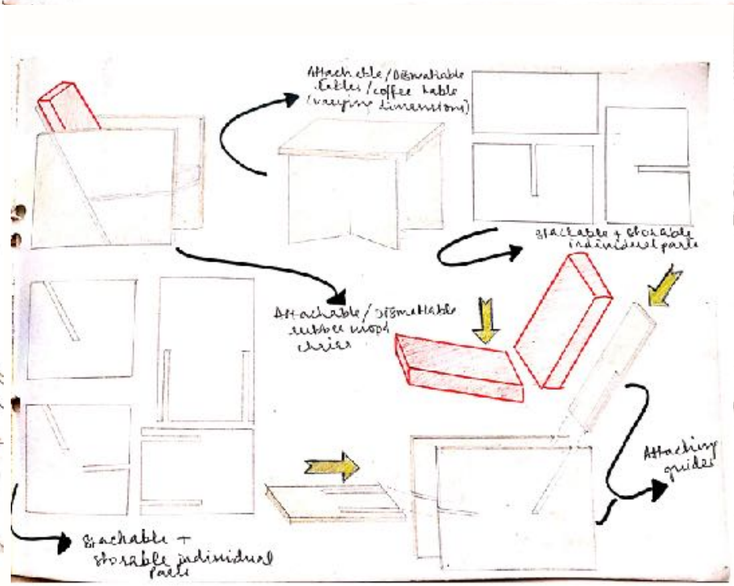
NOMADIC FURNITURE CATALOGUE

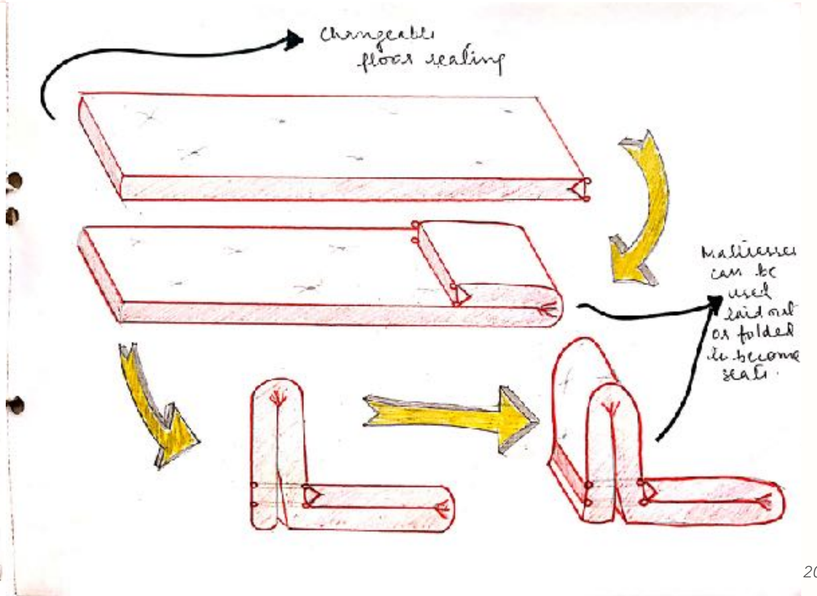












FUTURE SCOPE

Can be used as a pop up space concept for any type of event/exhibition. Is a flexible design with multiple spatial configurations. Extremely adaptable and easily portable

Is a sustainable and economical option that opens up opportunities for children belonging to financially unstable and rural backgrounds, to learn and experience the marvel of education. A portable school concept.

Tourism in a new form. A tour bus that becomes a usable space in itself at tourist attractions/spots in the city. Giving tourists a feel of the city and memorable experiences of a holiday they would cherish forever.