UNIVERSITI TEKNOLOGI MARA
College of Built Environment

Poster Book

IIIDBEEX 2023

20 JANUARY 2023

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Motorbike Madness : Embracing Sustainable Two-Wheeled Mobility

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PROJECT INTRODUCTION

MOTORBIKE MADNESS IN HANOI

The phenomenal motorbike dominance seen in Hanoi today developed after Vietnam embarked on the market reforms known as doi moi in 1986. The two-wheelers are seemingly everywhere, either parked or in motion, and the humming and honking of millions of motorbikes is the soundtrack of contemporary Hanoi (Arve Hansen, 2016).

Congestion, unhealthy air quality noise pollution, limited parking spaces that encroach into pedestrian walks are among major issues created by the motorbike dominance.

This research addressed Hanoi's struggles in balancing between traffic and liveability through adaptation of mechanical parking system using the theory of E-velomobility and parasite parking. A site visit to Hanoi strengthen the innovation to be grounded and catered to the local urban culture.

PROBLEM STATEMENT

ILLEGAL PARKING CULTURE

lack of parking area for motorbike cause encroachment of the pedestrian walkway as parking space.

PEDESTRIAN BECOME MOTORWAYS

Irresponsible use of pedestrian walkway as motorbike lane during high peak traffic that may lead to accidents.

INFLUX OF CARBON EMISSION

over 95% of personal motorized vehicle still use gasoline-based engine which increase CO^2 Emission, exhaust fumes.

KEYWORD

Motorbike madness, Sustainable, Parasite Parking, E-velomobity

PROJECT NOVELTY

to provide solution for the limited parking space that address the motorbike madness culture within Hanoi District.

PRECEDENT STUDY & THEORY

MECHANICAL PARKING SYSTEM #1

STACKED PARK SYSTEM

SPS provides two parking levels in the space of one that can be constructed as dependent or independent systems, depending its location either above ground or in a pit. SPS also use simple mechanism to operate with small amount of energy.

ROTARY SYSTEM

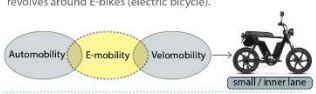
Rotary parking has a wide rangeof applications for various typesof vehicle. It can beintegrated into the buildingand could be relocatedor re-installed at another place.

CIRCULAR PARK SYSTEM

Circular parking system (CPS) is designed to minimize the area and/or volume required for parking vehicle through vertical stacking such as multistory parking garage that maximize parking spaces while minimizing land usage.

THEORY : E-VELOMOBILITY #2

Velomobility (often spelled 'vélomobility') relates to mobilities research around cycling or mobility that happens by bicycle. The term E-velomobility is a useful means to investigate mobilities research into E-cycling that includes practices, systems and technologies of E-cycling which revolves around E-bikes (electric bicycle).



THEORY : PARASITE PARKING #3

...is an intervention in the public space that uses a multifunctional platform camouflaged as a parking space. The platform can adapt to its paved environment or easily transform to create space for various uses: as a livingspace, a stage, a café or simply into a conventional parking space...

Jacob Wirth, 2020

PROJECT OBJECTIVE

PROJECT QUESTION	Why did the culture of motorbike madness occurs in Hanoi ?	What are the issues produced by motorbike madness	how to solve the motorbike madness issues in Hanoi?
PROJECT OBJECTIVE	to study the history and two-wheel culture of Vietnam in Hanoi District	to understand issues that occurs from the motorbike madness in Hanoi	to inititate and develop new solution by using architectural techtonic framework

PROJECT METHOLOGY

STAGE ONE

SITE VISIT

the Old Quarter in Hanoi District waschosen where four road was identified as the most busiest street inOld Quater zone, namely Hang Ma,Hang Bo, Hang Gai and Hang Luoc streets.

STAGE TWO

PRECEDENT STUDY

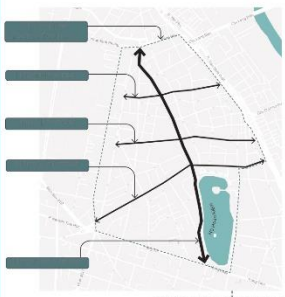
Idea generation adapted from precedent study and literature review on the theory of sustainable transportation facilities and existing advanced new parking system for the mobility in urban area.

STAGE THREE

TECHTONIC FRAMEWORK

Grounding the initiatives of sustainable motorbike city from the idea generation to the architectural tectonic solutions that are responsive to the studied site that leads to two main proposal, namely smart parasite parking system and e-velomobility subscription hub.

PROJECT FINDING

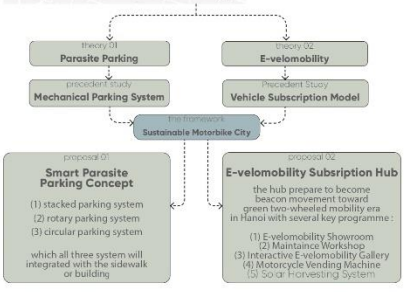


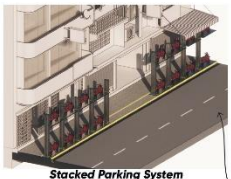
Sustainable Motorbike City

The framework below explains the solutions suggested to solve the motorbike madness phenomena in Hanoi clearly for the targeted main spine in the Old Quarters. Two theories were referred, that are the Parasite Parking Theory and the Electric Velomobility. The proposals addressed specific issues such as:

1. Smart Parasite Parking Concept which focus on illegal parking behaviour to give back the sidewalk to the pedestrian.

2. E-velomobility Subscription Hub to reduce the carbon emission and noise pollution, to restore healthy enviroment.



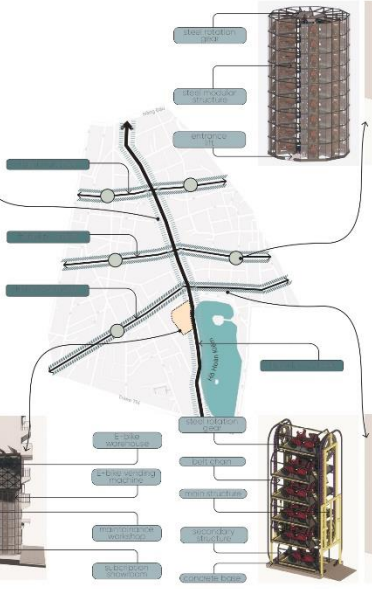


Stacked Parking System

Vertical SPS located within the pedestrian area occupying 25% which usessimple construction integrated at the building facade vertically and horizontally along Hang Luoc street.

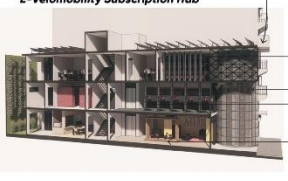
Circular Parking System

CPS can be store a huge amount of motorcycles vertically estimated around200-300 nos. CPS uses modularconstruction system that combine steel and glass material.



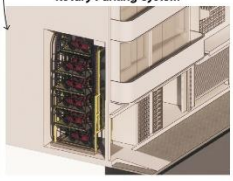
Located in front of Hoan Kiem Lake, EVSH which promotes E-mobility trend for Old Quarter residents has addedcommercial value where the E-bike vending machine is the main feature. EVSH has other supported programme suchas warehouse and showroom that are powered by photolvataic panels.

E-Velomobility Subscription Hub



RPS can be integrated as part of the building structure and can supply medium amount of motorcycle parking ranging 6-12 in number. RPS could be located in Hang Ma, Hang Bo,and Hang Gai street.

Rotary Parking System



CONCLUSION

TWO-WHEEL MOBILITY CULTURE

the issues that arisefrom motorbike madness affects the traditional two wheeled culture of Hanoi that has long been an important choice of mobility for the people.

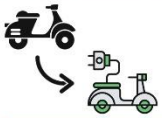
HAZARDS

Unpredictable level of motorbike usage can lead to unsafe enviroment for the urban resident such as the encroaching of pedestrian walkway and hazardous level of carbon emission.

ARCHITECTURAL TECHTONIC SOLUTIONS

The project show how the techtonic framework from architectural views can help to improve the quality of Hanoi's motorbike culture by applying Smart Parasite Parking and Evelomobility Subscription Hub

COMMERCIALIZATION



NEW ERA OF MOTORBIKE FACILTIES

The framework can be applied in any urban area especially cities in Southeast Asia which has motorbike madness issues.

PUBLICATION

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