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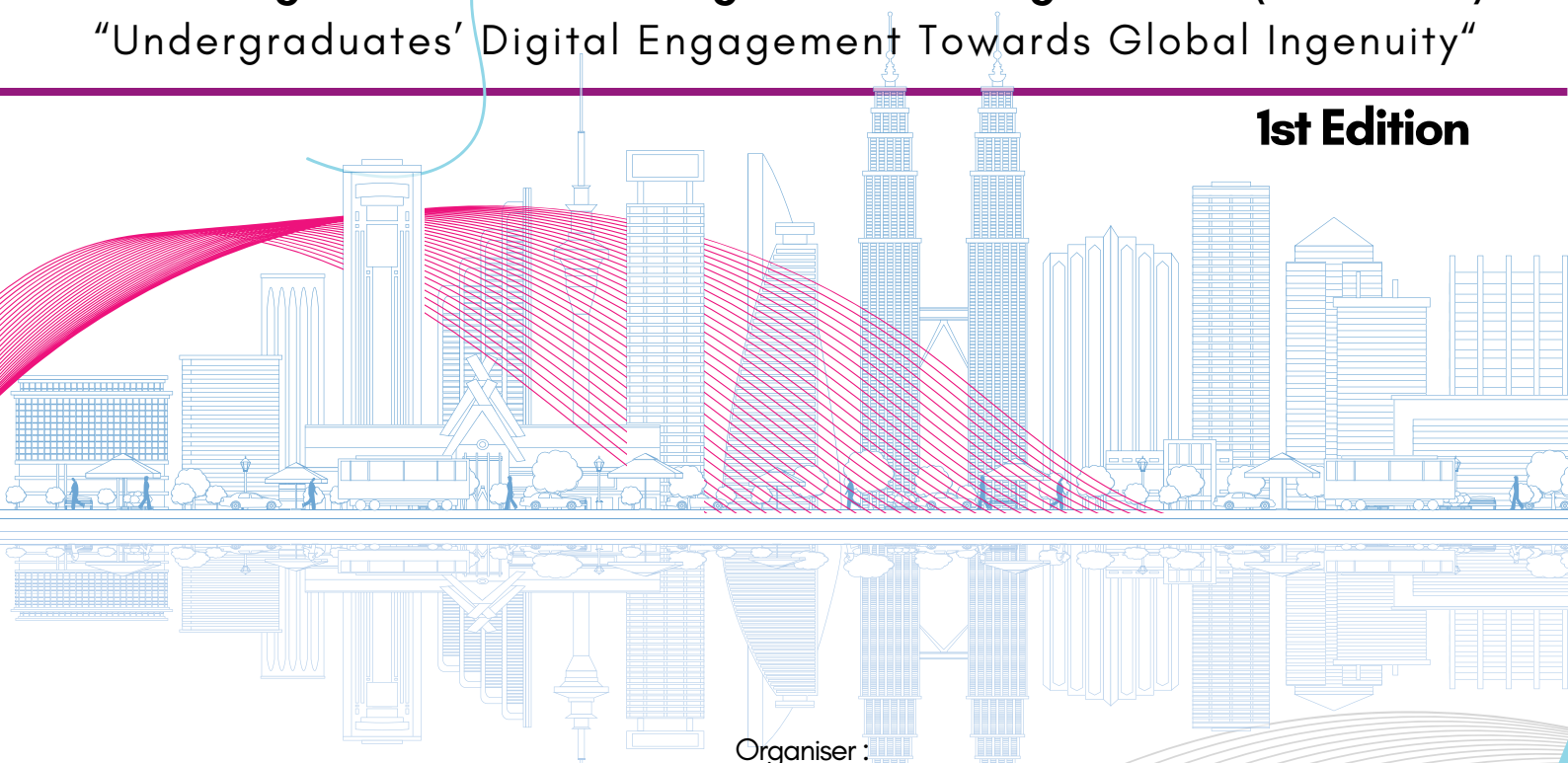
"Undergraduates' Digital Engagement Towards Global Ingenuity"

1st Edition



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ThreePenta Flow Design Project

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ABSTRACT
Mostly constructed of timber and concrete, ThreePenta Flow is an open pavilion ideal for leisure, relaxation, and idea generation. We have seating areas indoors and outdoors for a group of people especially students to have discussions, work, or hang out. We target our UiTM students and staff, also open to the public. There are benches indoors and outdoors of the pavilion beside the pavilion. ThreePenta Flow is designed based on sustainability and eco-friendly concepts we combine this concept with hydroponic planting to make it more unique and can give benefits to others and the environment. There is a mini garden inside the center of the pavilion where plants and trees are planted. Students and staff also can go sightseeing besides the pavilion which we added a mini water pond and some plants.

KEYWORDS: Students, sustainability, eco-friendly, hydroponic, garden

DESIGN DESCRIPTION
Inspired by wind turbine shapes, this design project has three entrances, which it's occupants are free to enter through any entrances. It also looks like a three-point tunnel that has a pentagon shape that is more stable and performs better than other shapes against aerodynamic forces. Using timber as the main material for this project is more sustainable and has less environmental effect. Also, using concrete in some parts can be appreciated as an aesthetic contribution, not just as a physical one. The design of the concrete part incorporates hydroponic planting techniques. There are tanks located on the concrete part of this building that can store rainwater and use it for the growth of the hydroponics plant. Other than that, the site's orientation will help the hydroponics plants grow because they receive direct sunlight exposure throughout the day because of the wide area of the site.

NOVELTY AND UNIQUENESS
Have been designed based on the hydroponic plants we built from a panel pavilion in a pentagon shape. The energy produced is used for powering the cooling systems, as well as water harvesting and recycling. The rainwater will collect in the pavilion's tank at the pavilion, then it will flow down through the pipe to the plant. Also, we provide no electricity in our pavilion because pavilion buildings that operate without electricity align with principles of sustainable living by minimizing resource consumption and environmental impact. They demonstrate alternative approaches to modern living that prioritize simplicity, self-sufficiency, and harmony with nature.

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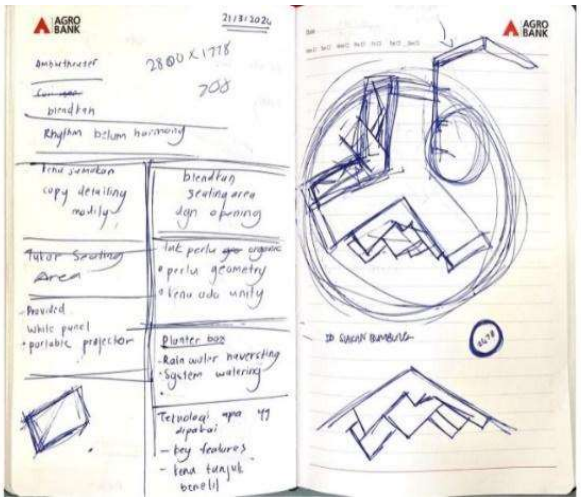

Figure 1: Image of the progress of ideas design

Figure 2: View from layout plan inspired by wind turbine shape

Figure 3: View of ThreePenta Flow project from multiple angles

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BENEFITS TO MANKIND

A sustainable pavilion offers numerous benefits to mankind, ranging from environmental to social and economic advantages. There are many benefits we can get from a sustainable pavilion such as our pavilion hallways may provide an area for relaxation and creation. People can sit, rest, or enjoy leisure activities in these spaces. Offering a respite from the hustle and bustle of daily life and promoting relaxation and stress relief. Then, our pavilion can contribute to the aesthetic appeal of public spaces, enhancing the overall environment and creating pleasant surroundings for people to enjoy. This can foster a sense of pride in the community and encourage people to spend time outdoors.Besides, it can improve air and water quality. Sustainable pavilions may include features like natural ventilation systems, low-emission materials, and water-efficient fixtures. Rainwater storage we use for hydroponic plants can serve various purposes, such as improving the aesthetics, biodiversity, and air quality of the environment, reducing the heat island effect and energy consumption, and providing food and education for the occupants and the community.

COMMERCIAL POTENTIAL

The design of the pavilion will provide market demand to determine the target audience and assess whether there is sufficient demand for a pavilion, this could include potential customers such as event organizers, corporate clients, government agencies, or individuals seeking unique event spaces. The pavilion can attract tourism and visitors. This is because a sustainable pavilion with unique harvested water and educational exhibits can attract tourists and visitors. Revenue can be generated through ticket sales, guided tourism, merchandise sales, and onsite amenities such as cafes or souvenir shops. Then, the pavilion can evaluate existing event venues, pavilions, and outdoor event spaces in the area to understand the level of competition. Determine how the pavilion can differentiate itself and attract customers in a crowded market. Also, develop a business model that outlines how the pavilion will generate income. This might include rental fees for the building, revenue from sponsorships or partnerships, and ticket sales for public events hosted at the pavilion.

CONCLUSION

A sustainable pavilion utilizing a pentagon-shaped hallway offers unique benefits. This design promotes efficient space utilization and airflow, enhancing natural ventilation and reducing energy consumption. By incorporating sustainable materials which is timber and renewable energy sources, such pavilions minimize environmental impact. Additionally, the pentagon shape provides a visually striking and functional space for exhibitions and events, fostering community engagement and education on sustainability. Overall, this innovative design combines environmental responsibility with aesthetic appeal, creating a dynamic and sustainable venue for various activities.

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