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PROCEEDINGS OF JOHOR INTERNATIONAL INNOVATION INVENTION COMPETITION AND SYMPOSIUM 2024 (JIICaS 2024)



*“Flourish and Nurturing Sustainable
Innovation for a Prosperous Nation”*

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Preface

In the name of Allah, the Almighty who gives us the enlightenment, the truth, the knowledge and with regards to Prophet Muhammad (peace be upon him) for guiding us to the straight path. We thank to Allah for giving us guidance and strength to write this e-book.

This e-book compiles the extended abstracts that submitted to Johor International Innovation Invention Competition and Symposium 2024 (JIIICaS2024), where JIIICaS2024 is a virtual platform for all creative minds to share and present their invention and innovation. Each abstract gives a brief background on the innovation or project.

We hope that this e-book will help the readers to get to know the innovation done by the students and get some ideas to develop future innovation products.



Foreword Rector



Assalamualaikum warahmatullahi Wabarakatuh,
Salam Sejahtera, Salam Malaysia MADANI and
Salam UiTM Dihatiku.

In the name of Allah, the Most Gracious, the Most
Merciful.

It is a great honor to welcome you to the Johor
International Innovation, Invention, Competition, and
Symposium 2024 (JIIICaS 2024). This event

connects various disciplines, focusing on education and engaging educators,
students, researchers, and innovators from all walks of life.

Innovation is not just about ideas; it demands perseverance, creativity, and
determination to turn those ideas into reality. The remarkable projects
showcased today highlight the dedication and spirit of all participants.
Initiatives like this not only explore new technologies but also cultivate skills
and leadership among our youth. At Universiti Teknologi MARA (UiTM) Johor
Branch, we are fully committed to fostering a dynamic culture of innovation,
promoting the commercialization of new products, and encouraging
meaningful collaborations with industry and society.

As we celebrate this event, I would like to extend my heartfelt gratitude to all
sponsors, judges, the College of Computing, Informatics and Mathematics,
UiTM Pasir Gudang Campus as the event organizer, as well as to the
researchers and participants for their hard work in making this event a
success. Let us continue striving for innovation and excellence. May the
ideas presented today inspire us and lay the groundwork for future
achievements.

Thank you.

Associate Professor Dr. Saunah Zainon
Rector
Universiti Teknologi MARA (UiTM)
Johor Branch

(A-ST045) SOLAR STRIDE CRUISER

MUHAMMAD IDLAN BIN ZULKIFLI, MOHAMAD AIMAN HAKIMI BIN HISHAM
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ABSTRACT

The invention of the solar-powered walking bicycle, like the Lopifit bike, is a revolutionary way to combine exercise and transportation. This one-of-a-kind car is powered by electricity and has solar panels built in to make energy. It is an eco-friendly and healthy way to get around cities. Basically, it blends the ease of walking with the efficiency of cycling, making it a great solution to modern mobility problems. Lower carbon pollution and less reliance on fossil fuels are some of the environmental benefits of this technology that show how it can help make societies cleaner and healthier. Additionally, the addition of solar panels emphasises its commitment to sustainability, marketing it as an innovative solution in the search for more environmentally friendly modes of transportation. With an emphasis on being eco-friendly, the solar-powered walking bicycle changes the way we live in cities in a basic way. It could make a big difference in both people's health and the health of the world.

Keywords: Electric Scooter, Walking Bike, Healthy Body, Economical, Environment Friendly

1.0 INTRODUCTION

The solar-powered electric walking bike or scooter is a huge step forward in getting around cities and exploring for fun. Imagine a sleek, high-tech car that is decorated with solar panels that collect sunlight all the time to power your trip. With its electric motor, this gadget helps you move more smoothly, so you can make your way through busy cities without hurting the environment. The bicycle's structure is both light and strong, making it easy to move around in cities. Its foldable design also makes it easy to store and transport. Built-in LED lights make sure you can see during rides at night, and the ability to connect your phone wirelessly makes tracking easier. (Franklin & Pollette, 2021)

The technical details: The solar panels turn sunlight into electricity very effectively by using the power of photons to make a steady flow of electricity. The power is stored in a battery on the car, which you can use as a backup on your trips. The energy saved in the electric motor moves you forward with each step you take when it is turned on, whether you are going up steep hills or just getting around town (*Cycle Life - wiki.openmod-initiative.org*, n.d.). While this is going on, the solar panels keep working,

making sure that you always have energy to power your car or charge the battery for later use.

However, how does it show up in real life? The solar screen is not just a pretty addition; it is a completely new idea. Even though it might not be able to give you all the energy you need for your whole trip, it is a reliable friend that increases your energy needs and increases the distance you can travel with each beam of sunlight. In addition, its foldable design makes it easy to fit into your daily life, making it convenient while also being environmentally friendly (Moses & Moses, 2024)

. The solar-powered electric walking bike or scooter is a cutting-edge way to get around cities that is also environmentally friendly and useful. It makes being eco-friendly and normal life easy.

2.0 OBJECTIVE

The target market for the Lipofit Electric Walking Bike is people who want a cutting-edge way to get around and stay fit. To do this, it will be important to stress its innovative features, such as its ability to run on solar power and the health benefits of walking. The idea is to change the way people move around in cities and encourage them to make environmentally friendly choices. The goal of this effort is to get more people to use Lopifit to create a culture that puts health and community involvement first. In this way, it hopes to help reach the bigger goal of making societies healthy and stronger to deal with the problems that come with living in the digital age.

3.0 METHODOLOGY

A solar-powered electric walking bike or scooter is poised to transform urban mobility and leisurely exploration. Picture this: sleek solar panels adorn its body, constantly soaking up sunlight for on-the-go charging. Coupled with an electric motor, effortlessly aiding your movement, it promises an eco-conscious journey through the bustling city streets. This marvel boasts a lightweight, robust frame, effortlessly manoeuvring through urban landscapes, while its foldable design ensures easy storage and transport. Safety is not forgotten either, with built-in LED lights illuminating your path during nighttime rides, all while your smartphone guides the way with seamless connectivity.

Now, let us dive into the mechanics. The solar panels ingeniously convert sunlight into electricity, a dance of photons exciting electrons to create a steady current. This energy finds its home in the onboard battery, a reservoir ready to power your adventures. As you activate the electric motor, whether for a boost during a steep incline or a swift ride through the city, this stored energy springs to life, propelling you forward with each stride. Even as you cruise, the solar panels diligently continue their work, ensuring a continuous flow of energy to either power your ride directly or replenish the battery for later use. (How Does Solar Work?, n.d.)

But how does it all come together practically? The solar panel is not just a flashy addition; it is a game-changer. While it may not single-handedly power your journey, it acts as a steadfast companion, supplementing your energy needs and extending your range with each beam of sunlight. Plus, its foldable design ensures your urban

companion easily tucks away when not in use, fitting seamlessly into your daily routine. With this innovative blend of sustainability, functionality, and practicality, the solar-powered electric walking bike or scooter emerges as the ultimate solution for urban exploration, seamlessly merging eco-consciousness with everyday convenience.



Figure 1: This illustration depicts the sleek design and innovative features of the solar-powered walking bicycle, showcasing its solar panels folded under the belly, detachable seat, and integrated LED lights. Through adherence to international publishing standards and the adoption of a clear and concise writing style, this research seeks to advance sustainable urban transportation and promote healthier lifestyles globally by disseminating the knowledge and insights gained from the development and analysis of the solar-powered walking bicycle.

4.0 RESULTS

The results from our study indicate that solar-powered electric walking bikes or scooters offer numerous advantages that can positively impact communities. Solar cars, by utilizing solar energy to charge their batteries, significantly reduce reliance on fossil fuels, thus minimizing greenhouse gas emissions and promoting sustainability. These vehicles provide a convenient and eco-friendly means of transportation, aiding in errands and trips with their electric motor assistance and foldable design for easy storage and portability. Their usage can contribute to positive changes in urban transportation, reducing traffic congestion and encouraging physical activity during commutes. Moreover, solar panels integrated into these vehicles serve as built-in chargers, continuously replenishing the battery during travel and reducing reliance on traditional electricity grids. Factors influencing their effectiveness include sunlight exposure, solar panel efficiency, battery capacity, and electric motor optimization. Overall, this methodology advocates for environmental responsibility, user convenience, and healthier lifestyles, making solar-powered electric walking bikes or scooters a sustainable and practical option for urban commuting and leisure travel, further enhanced by their incorporation of solar panels.

5.0 CONCLUSION

In summary, the Solar powered walking bicycle which is Lopifit bike, offers a unique blend of transportation and exercise. By using electricity for propulsion and solar panels to generate electricity, it is environmentally friendly and promotes physical activity through a combination of walking and pushing. These bikes contribute to less pollution and healthier lifestyles (McLaughlin, 2021). Incorporating solar panels adds to their sustainability. Such innovations reflect a positive shift towards greener and healthier transportation options, aligning with modern trends and the potential for economic growth driven by technology.

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