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**JOHOR  
INNOVATION  
INVENTION  
COMPETITION  
AND  
SYMPOSIUM  
2023**



"Innovation Inspires a Society  
to be Critical and Creative"



# JOHOR INNOVATION INVENTION COMPETITION AND SYMPOSIUM 2023

"Innovation Inspires a Society to be  
Critical and Creative"

**Editors-in-Chief**

**AHMAD KHUDZAIRI KHALID  
NUR INTAN SYAFINAZ AHMAD**



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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 Innovation Invention Competition and Symposium 2023 (JIICaS2023), where JIICaS2023 is a virtual platform for all creative minds to share and present their invention and innovation. The extended abstracts are divided into two categories, which are Category A (Higher Educational Student/ Any Recognized Institutional Students in Malaysia) and Category B (Primary/ Secondary School Students / Special Education School Students in Johor). 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 from both categories and get some ideas to develop future innovation products.**



## WIRELESS ELECTRICITY POLE

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### ABSTRACT

The use of electricity has become an important necessity for all mankind on this earth. The high demand for electricity among the people makes it necessary to spread it throughout the area, so that everyone can use it. The use of wires and cables is important because it is a medium that can conduct electric current. The wires and cables are supported by electric poles which is supposed to be in a high and safe place. However, loosely hanging, scattered and overhead electrical wires and cables are common sight in cities, and this possess a great threat to human and animal's lives and property. Therefore, the Wireless Electricity Pole idea is proposed to combat the issue. The Wireless Electricity Pole utilizes the concept of electromagnetic induction whereby electric current flows from different poles through induction reaction and the use of expensive electrical wires and cables can be reduced. The proposed Wireless Electricity Pole idea could help to achieve the 9<sup>th</sup> and 11<sup>th</sup> sustainable development goals namely industry, innovation and infrastructure and sustainable cities and communities. In addition, by implementing the idea of Wireless Electricity Pole, it can provide a safer environment for humans and animals and at the same time improve our country's image for providing a more sustainable and safer infrastructure for its citizens.

**Keywords:** wireless electrical poles, electromagnetic induction, sustainable and safe infrastructure

### 1.0 INTRODUCTION

The use of wires and cables are important because it is a medium that can conduct electric current and with the help of electric poles, it supports and ensures that it is in a high and safe place. However, without us realizing nowadays most countries are facing the problem of messy wires attached to electric poles. This may cause negative impact on humans and animals, especially in countries with rapid population like in Asia. Messy, tangled or loosely hanging wires and cables face dangers associated with thunderstorms and things touching it. In extreme cases a pole can even collapse under the load of excess cable. In the tropical climate in many of Asia's most populous nations, these messy electrical poles become a real threat. Therefore, the wireless electric pole idea is proposed to solve the issue of messy wires and cables. This proposed innovation uses the concept of electric induction to ensure that electric current flows efficiently.

### 2.0 OBJECTIVE

The objectives of proposing the Wireless Electricity Pole are to solve the problem of messy wires and cables attached to electricity poles. In addition, this innovative idea proposal could

help prevent animals from climbing the electric poles and reduce the risk of electrocution hazards among humans and animals.

### 3.0 DESCRIPTION OF INNOVATION/METHODOLOGY

The Wireless Electricity Pole idea prototype is developed and proposed using recycle materials. The Wireless Electricity Pole uses the concept of electromagnetic induction where the use of wires can be reduced but the flow of electric current still flows efficiently. The following are the special features of the proposed Wireless Electricity Pole:

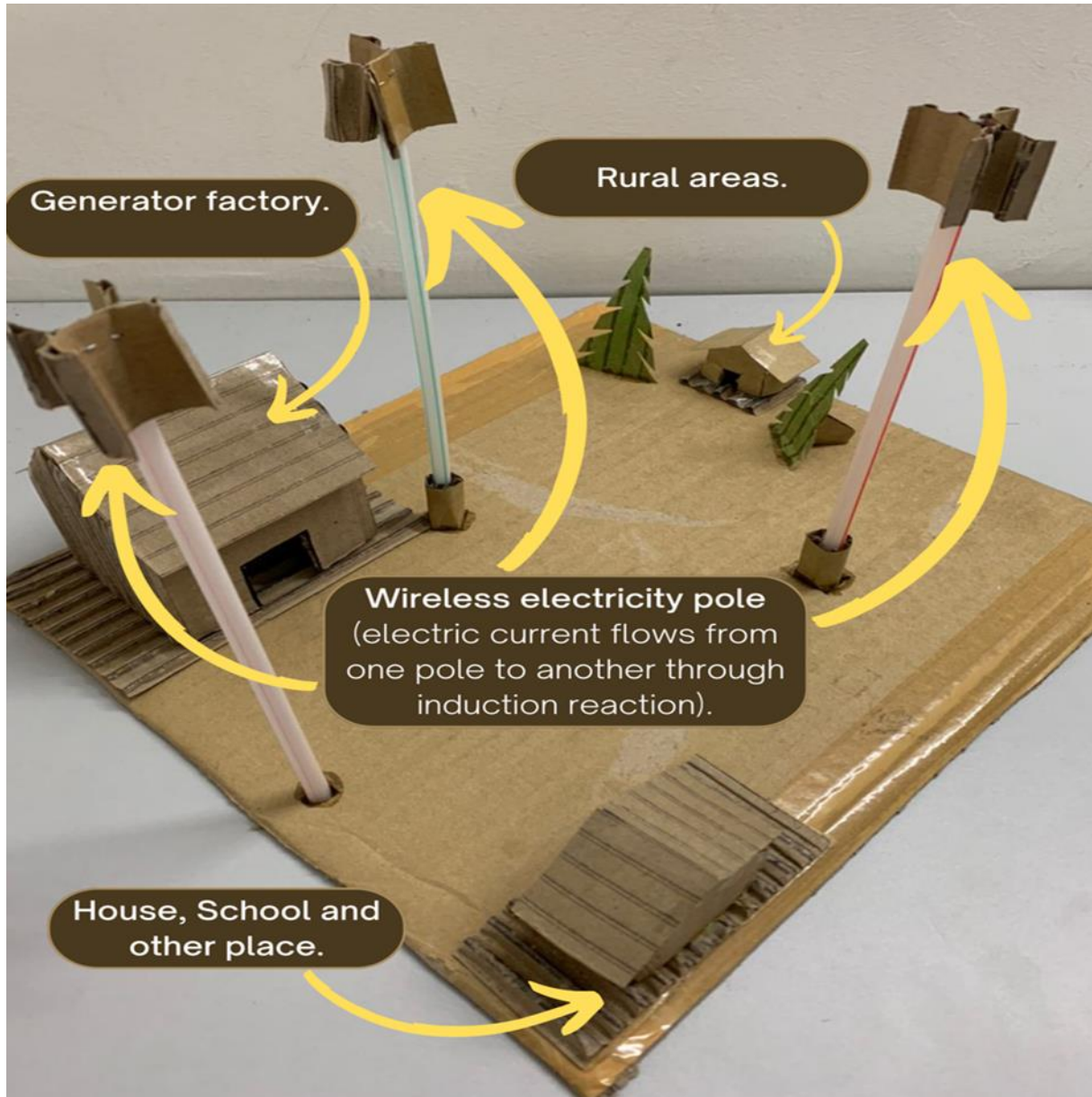


Figure 1: The proposed Wireless Electricity Pole prototype

#### **4.0 ADVANTAGE/IMPACT/RESULTS/NOVELTY**

The proposed Wireless Electricity Pole idea offers numerous advantages. The following are the advantages:

- Reduces the use of electric poles and wires.
- Saves space and maintenance cost.
- Environmentally friendly than electric pole with wire.
- Reduces the risk of electrocution hazards on humans and animals.
- Prevents animals from climbing the poles and electric wires.
- Electricity flows by using the concept of electromagnetic induction while common electric poles use conductor wire.
- Could be proposed for rural areas lacking electricity source.

#### **5.0 CONCLUSION**

In conclusion, our Wireless Electricity Pole prototype is able to achieve the 9<sup>th</sup> and 11<sup>th</sup> sustainable development goals namely, industry, innovation and infrastructure, and sustainable cities and communities. In addition, the Wireless Electricity Pole provide a positive impact to humans, animals and the environment in terms of safety, comfort and sustainability.