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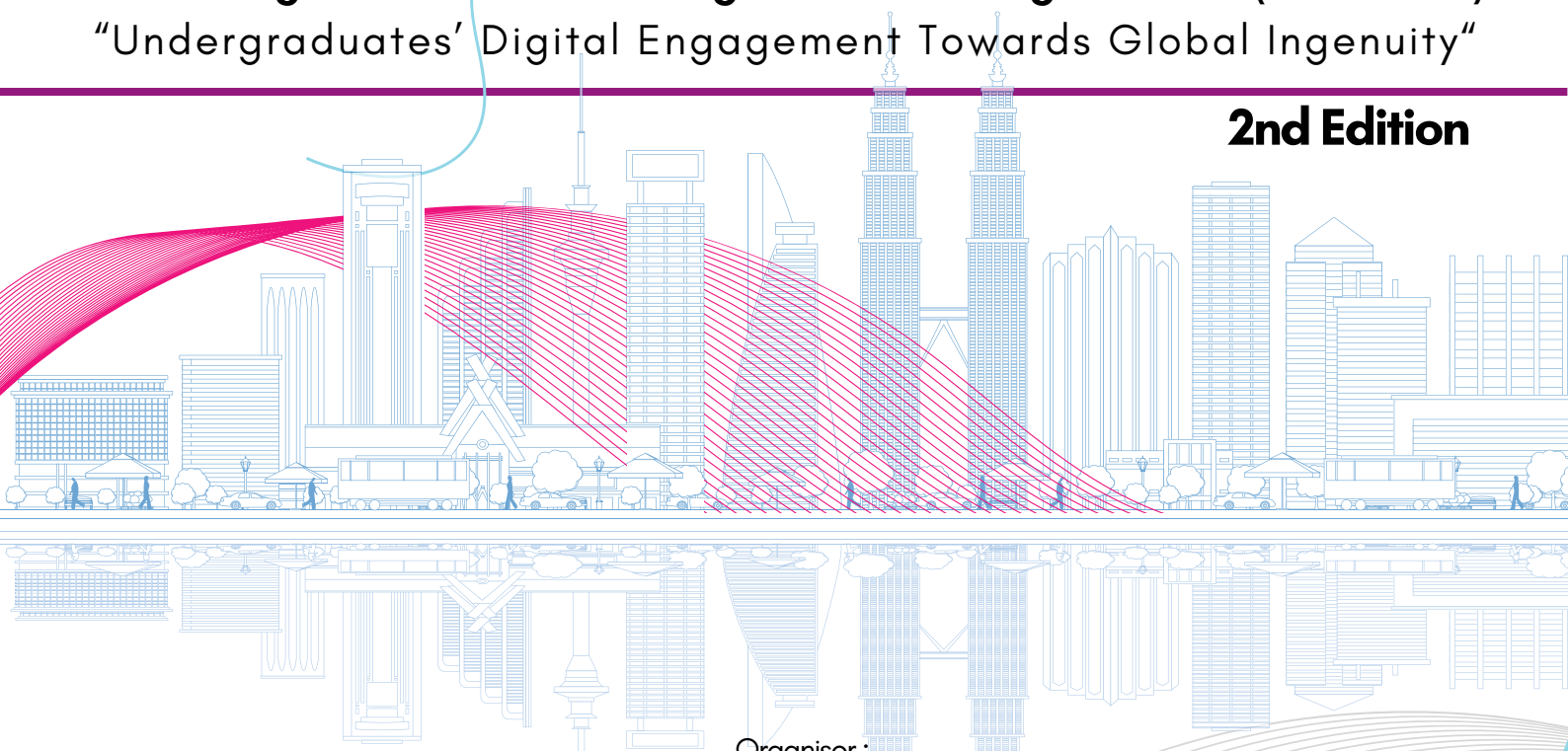
Proceeding for International Undergraduates Get Together 2024 (IUGeT 2024)

"Undergraduates' Digital Engagement Towards Global Ingenuity"

2nd Edition



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Co-organiser :

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RC SOLAR POWER HOVERCRAFT

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Abstract
The RC Solar Power Hovercraft is a teaching aid model designed for teaching Physics and can be used in the classroom during lessons. It uses the concepts of Physics which are the Principle of Momentum Eternity and Newton's Second Law of Motion. This innovation is designed to improve the shortcomings of the first design. The first design, which used a battery to move the hovercraft, caused a huge waste because the battery could not last longer. To overcome this problem, we have come up with a new hovercraft design that uses solar energy. The objectives of this study are to develop an innovative product that can be used as a teaching aid model, helps improve students' understanding, and can be marketed as a STEM project kit. We were able to create this model at a cost of only RM 71.40. distributed the survey form to 25 respondents, who are students of Sultan Ahmad Shah Vocational College. The analysis revealed the following results: 100% of the respondents agreed that this innovative product can be used as a teaching aid model; 100% agreed that the product helps to improve students' understanding; and 92% agreed that this innovative product could be marketed as a STEM project kit. In conclusion, the RC Solar Power Hovercraft meets the objectives of the study, as it serves effectively as a teaching aid during lessons, enhances students' understanding, and has the potential for marketing as a STEM project kit model.

Keywords: *Solar Power Hovercraft; solar energy; teaching aid; STEM project*

1. INTRODUCTION

The RC Solar Power Hovercraft is a teaching aid model for Physics that can be used in the classroom during the learning process. It utilizes the principles of Physics, specifically the Principle of Momentum Conservation and Newton's Second Law of Motion.

2. PROBLEM STATEMENT

This innovation is designed to improve the shortcomings of the first design. The first design, which used a battery to move the hovercraft, caused a huge waste because the battery could not last longer. To overcome this problem, we have come up with a new hovercraft design that uses solar energy. The second problem of our innovation project is enough energy is needed from the solar energy to move the hovercraft. To address this problem, we used a Solar Panel Lithium-Ion Battery Charger Controller, which recharges the battery when it is weak by utilizing solar energy. This can increase the efficiency of our innovation, and it is easy to use either in or out of class. Figure 1 shows the RC Solar Power Hovercraft.

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Figure 1.RC Solar Power Hovercraft

3. MATERIALS AND METHODS

This innovation is called the RC Solar Power Hovercraft. It is designed to assist teachers in teaching Physics. The product has a mass of 300 grams and dimensions of 10 cm in height, 16 cm in width, and 31 cm in length. The cost of this innovation is RM 71.40. The product specifications are detailed more fully in Table 1.

Table 1 Product Specification

Item	Number Of Units	Material
Straw Board	1	Polyplast flute
Solar Panel	1	Electronic component
Lithium Ion Battery Charger	1	Electronic component
Solar panel Lithium Ion Battery Charger Controller	1	Electronic component
Plastic fan and motor	2	Electronic component
RC Remote Control	1	Electronic component

The prices of product innovation are shown in Table 2:

Table 2 Cost of Product Innovation

Item	Number Of Unit	Cost (Rm)	Total (Rm)
Straw Board	1	4.00	4.00
Solar Panel	1	10.00	10.00
Lithium Ion Battery Charger	1	14.90	14.90
Solar panel Lithium Ion Battery Charger Controller	1	27.50	27.50
Plastic fan and motor	2	3.50	7.00
RC Remote Control	1	8.00	8.00
Total			71.40

Figure 2 shows the steps to produce the innovative product

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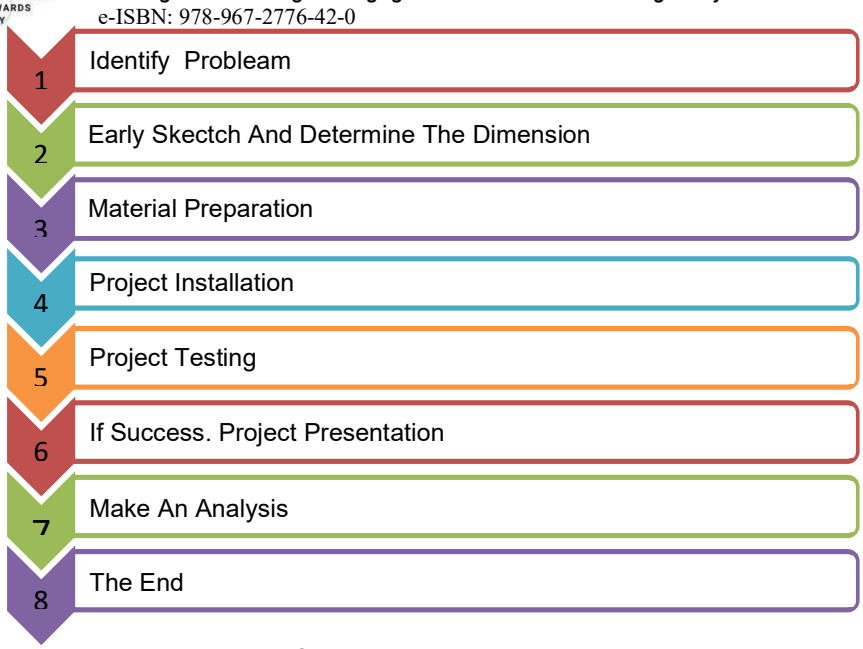

Figure 2. Step to produce innovative product

4. RESULTS AND DISCUSSION

To test the effectiveness of the innovative teaching aids, one method was implemented by using a questionnaire. The questionnaire was distributed to 25 respondents who are students of Sultan Ahmad Shah Vocational College. The questionnaire consists of 10 questions. Question number 5, 9 and 10 were selected to be analyzed because the question supported the objectives of the study. Graph 1 shows the analysis for question number 5 (Do you agree that the innovation product can be used as a teaching aid model in the learning process?) Graph 2 shows the results of the analysis for question number 9 (Does this innovation help improve the students' understanding?) Graph 3 shows the analysis the question number 10 (Do you agree that the innovation could be marketed as a STEM project kit model?) Based on the analysis, 100% of the respondents agreed that this innovative product can be used as a teaching aid model, 100% of the respondents agreed that the innovative product helps to improve the student's understanding and 92% of the respondents agreed that this innovative product could be marketed as a STEM project kit model.

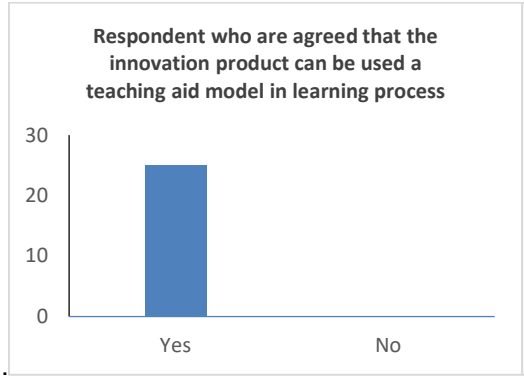

Figure 3. Respondents who agreed that the innovation product can be used as a teaching aid model in the learning process

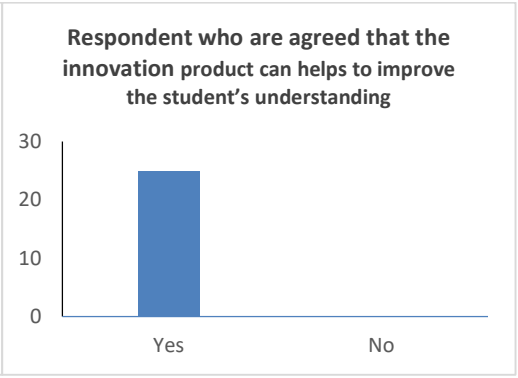

Figure 4. Respondents who agreed that the innovative product can help to improve the student's understanding

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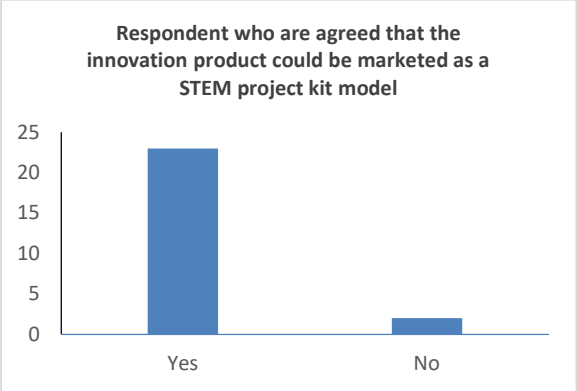

Figure 5. Respondents who agreed that the innovation product could be marketed as a STEM project kit model

5. CONCLUSION

In conclusion, the RC Solar Power Hovercraft meets the objectives of the study, as it serves as an effective teaching aid during lessons, enhances students' understanding, and has the potential for marketing as a STEM project kit model.

6. ACKNOWLEDGMENT

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7. REFERENCES

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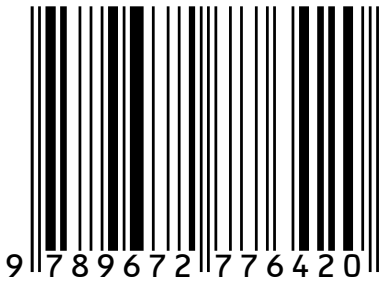

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