DEVELOPMENT OF A SOLAR POWERED GRASS CUTTER

Undergraduate Design Project
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Major in Electrical Technology

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ABSTRACT

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Nowadays pollution is a major issue for the whole world. Pollution is manmade and can be seen in our own houses. In the case of a gas powered grass cutter, the emission of gases emitted by it is responsible for pollution. Also the cost of fuel is increasing hence it is not efficient. Some gardener use hand scissors to cut and maintain grass regularly which also takes more time, so the solar powered grass cutters are introduced.

The study was conducted from September 2016 to March 2017 at Brgy. Agus-os Indang, Cavite and at Department of Industrial Engineering and Technology Building, Cavite State University, Indang, Cavite. The main objective of the study is to develop a solar powered grass cutter. Specifically, this study aimed to: 1. design construct develop a solar powered grass cutter; 2. that is economic and environmental friendly; 3. test and evaluate the developed solar powered grass cutter for acceptability, functionality; and 4. conduct cost analysis.

After construction and installation the project was evaluated beside the Department of Industrial Engineering and Technology (DIET) building, CvSU, Indang, Cavite. It was composed of solar panel that serve as an energy source, battery as an energy storage, switch as a control for the system and dc motor that was connected in battery to perform grass cutting. Technology takes 6.2 hours to charge completely from drained battery, but it depends when sunlight is clear and good. The technology can run and operate for 5 hours. The prepared cart fabrication has a length of 81cm including the handle, width

of 69cm including two wheels in front and a height of 105cm including 4 wheels up to handle. The social acceptability of the designed project was evaluated in accordance to its functionality, workability, durability and safety. The total mean of the entire criteria was 4.79, which is interpreted as "Outstanding". The total cost of the study amounted to P16,380.

TABLE OF CONTENTS

	Page
APPROVAL SHEET	ii
BIOGRAPHICAL DATA	iii
ACKNOWLEDGEMENT	v
ABSTRACT	vii
LIST OF TABLES	xi
LIST OF FIGURES	xii
LIST OF APPENDICES	xiii
LIST OF APPENDIX FIGURES	xiv
INTRODUCTION	1
Statement of the Problem	2
Objectives of the Study	2
Significance of the Study	3
Time and Place of the Study	3
Scope and Limitation of the Study	3
Definition of Terms	4
REVIEW OF RELATED LITERATURE	7
METHODOLOGY	16
Materials	16
Methods	17
Design and system sizing	17
Construction and fabrication of the design project	17

Components of the system 21

Evaluation of the grass cutter 24

RESULTS AND DISCUSSION 26

Structure of the design project 26

Components of the project 26

Diagram of a solar powered grass cutter 27

Testing 28

SUMMARY, CONCLUSION, AND RECOMMENDATIONS 34

Summary 34

Conclusion 35

Recommendations 35

REFERENCES 36

APPENDICES 37