



De La Salle University - Dasmariñas

# **DOUBLE-ACTING ALUMINUM CAN AND PLASTIC BOTTLE COMPACTOR FOR VOLUME REDUCTION**

A Project Study presented to the Faculty of the  
**MECHANICAL ENGINEERING DEPARTMENT**  
College of Engineering, Architecture and Technology  
De La Salle University – Dasmariñas

In Partial Fulfillment  
Of the Requirements for the Degree  
Bachelor of Science in Mechanical Engineering

By:

**Alayon, Christopher Gene**

**Arambulo, Rodel Aldrin**

**Barbiran, Din Arvin**

**Galleta, Jayson Carlo**

**Igtiben, Piere Christopher**

October 2011



## ABSTRACT

Double acting aluminum can and plastic bottle compactor for volume reduction was designed and created to provide 1/5 of the original volume of the compacted can and bottle. Compressed aluminum can and plastic bottle save space for the trash bin, provide additional weight for aluminum can and plastic bottles for recycling purposes, and lessen man power effort in compacting. Economical research and design research were used and considered in the methodology to make the study possible. By this study, the researchers emphasize proper segregation and waste disposal by means of the machine prototype designed and created.



**TABLE OF CONTENTS**

I.	Title Page	
II.	Abstract	i
III.	Approval Sheet	ii
IV.	Acknowledgement	iii
V.	Table of Contents	v
VI.	Chapter I – Introduction	1
	a. Background of the Study	1
	b. Problem Statement	3
	c. Objectives	3
	d. Significance of the Study	4
	e. Scope and Limitations	5
VII.	Chapter II – Review of Related Literatures	6
	a. Theoretical Framework	12
	b. Schematic Diagram of the Machine	15
	c. Dimensions of the Machine	17
	d. Components of the Machine	19
	e. Definition of Terms	20
VIII.	Chapter III – Methodology	22
	a. Economical Research	23
	b. Design Research	26



c.	Machine Planning and Design	27
d.	Assembly of Electrical and Machine Components	28
e.	Assembly of Prototype	29
f.	Cross – Checking Machine	29
g.	Performance Specifications	31
h.	Technical Specification	32
IX.	Chapter IV – Presentation of Data, Results and Analysis	33
X.	Chapter V – Conclusions and Recommendations	40
XI.	Appendix I	42
a.	Components Specifications	42
b.	Bill of Materials	46
c.	Operating Procedure	46
d.	Autocad of the Machine	47
e.	Block Diagram	50
f.	Wiring Diagram	51
XII.	Appendix II – List of Photos	52
XIII.	Volume Comparison	56
XIV.	References	59
xv.	Curriculum Vitae	60