

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Palestine Polytechnic University



College of Engineering and Technology
Mechanical Engineering Department

Graduation Project
Waste Plastic To Energy “WPTE”
Using Pyrolysis Technology

Project Team

Jameel Hmoud

Moneer Abu Saiba'a

Musa'b Qasiyyah

Project Supervisor

Eng. Zuhier Wazwaz

Hebron-Palestine

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According to the project supervisor and according to the agreement of the Testing Committee Members, this project is submitted to the Department of Mechanical Engineering at College of Engineering and Technology in partial fulfillments of the requirements of the bachelor’s degree.

Supervisor Signature

.....

Examine Community Signature

.....

Department Head Signature

.....

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Dedication

To our wonderful parents

Who have raised us to be the persons we are today...

To our teachers for their advices...

To all students, and our friends...

To any person working hard, and

Looking for the new

In this world...

To our country Palestine...

Acknowledgement

First, thanks and praise to god, for patronizing us to work on this project .And we would like to thank Palestine polytechnic university for the effort they had done in order to facilitate our work.

We would like to thank our supervisor Eng. Zuhier Wazwaz for this help and continuous encouragement to the team work ,and everyone who helped us.

Thanks for our wonderful parents, who have raised us to be the persons we are today. You have been with us every step of the way, through good times and bad. Thank you for all the unconditional love, guidance, and support that you have always given us, helping us to succeed and instilling in us the confidence that we are capable of doing anything we put our mind to. Thank you for everything. Thank for our families for their continued support, encouragement and patience from the first step until the end, and their best wishes to us. To our teachers for their advices and to our friends.

Abstract

The project address is to resolve the one of dangerous pollutants on the environment, which are the waste plastic like waste ABS plastic and waste oil(used engine oil).This project primarily depend on two phases, which are design and build a pyrolysis system in order to convert waste plastic into useful energy, where the pyrolysis process is done in several stages: The first stage , is heating pyrolysis furnace into a temperature ranging between (400-600) ° C by burning “used motor oil” by oil burner ,which designed to work on the waste oil(used engine oil). In the second stage the plastic will be heated, which is located in a special tank called “plastic boiling tank”, which located inside the furnace, these temperatures melt the plastic, and turns it to a liquid state with a high viscosity .Then, begins turns into flammable gas, this gas passes directly through gas condenser , in order to condense this gas into a liquid. The sample that had been taken in this project is an ABS plastic and the resulting from it is a : liquid fuel, and also output flammable gas can be used as a source of energy to run generator, for example.

Table of Contents

Cover Page.....	I
Project title and signature	II
Dedication.....	III
Acknowledgment	IV
Abstract	V
List of Figures.....	IX
List of Tables.....	XI

CHAPTER 1: Introduction

1.1 Overview	2
1.2 Project idea.....	2
1.3 Recognition of the need	2
1.4 Risk managements	3
1.5 Time Plan.....	4

CHAPTER 2: Plastics and Pyrolysis system

2.1 Introduction to Plastic.....	7
2.1.1 Definition Of Plastic.....	7
2.1.2 Types of plastic and their uses.....	7
2.2 Acrylonitrile Butadiene Styrene (ABS).....	8
2.2.1Chemical composition of (ABC)	8
2.2.2(ABC) properties.....	9

2.2.3(ABS) Products.....	9
2.3 Problems with Disposal of Plastic Wastes.....	11
2.3.1Landfill.....	11
2.3.2Recycling.....	12
2.3.3Disposal of plastic in Palestine.....	13
2.4 Definition of Pyrolysis.....	13
2.5 Previous studies.....	13
2.5.1 Preamble	13
2.5.2 factors affect the pyrolysis process.....	14
2.5.3 Some of (ABS) pyrolysis products	21
2.6 Pyrolysis pollution.....	22

CHAPTER 3: (WPTE) System

3.1 (WPTE) Systems	24
3.2 WPTE System working principle	25

Chapter 4: System components

4.1 System components	28
4.1.1 Tanks	28
4.1.2 Oil filter	29
4.1.3 Oil burner.....	30
4.1.4 Fuel injection.....	31
4.1.5 A fuel oil pump.....	32
4.1.6 Electromagnetic valves.....	32
4.1.7 Fan.....	32

4.1.8 Ignitors.....	32
4.1.9 Photocell.....	32
4.1.10 Capacitor start motor.....	33
4.2 Condencer.....	34
4.3 Temperature sensor.....	34
4.4 Pressure sensor.....	35
Chapter 5: System Design	
5.2 Introduction.....	37
5.2 Parts of System.....	38
5.2.1Plastic Boiling Tank.....	39
5.2.2Furnace design.....	41
5.2.3Pipe design.....	43
5.2.4Oil tank.....	44
5.2.5Fuel tank.....	46
Chapter 6: Software Design	
6.1 Introduction	49
6.2 Pin mapping.....	50
6.3 16×2 LCD Display	51
6.4 Temperature Sensor	52
6.5 Pressure Sensor.....	53

Chapter 7: Results and Recommendation

5. Results	56
7.1.1 WPTE Hardware System.....	57
7.1.2 The targeted plastic.....	57
7.1.3 Startup and get tangible results.....	57
7.1.4 Final results.....	59
5.2 Recommendation	61
Reference	62

List of Figures

Figure 2.1 ABS Products.	10
Figure 2.2 ABS pipe.....	10
Figure 2.3 ABC front car bumper	10
Figure 2.4 Influence of temperature on product distribution	16
Figure 2.5 Effect of pressure on the distribution of PE pyrolysis products	19
Figure 2.6 Effect of pressure on the yield of gas at different temperature	20
Figure 3.1 WPTE system	24
Figure 3.2 3D model of WPTE system.	22
Figure 4.1 Tanks	26
Figure 4.2 Oil filter.	29
Figure 4.3 Oil burner.....	29
Figure 4.4 Nozzle.....	30
Figure 4.5 Pump	31
Figure 4.6 LDR	33
Figure 4.7 General Capacitor start motor.....	33
Figure 4.8 condenser	34
Figure 4.9 k-type sensor	34
Figure 4.10 Pressure sensor	35
Figure 5.1 Scheme of the WPTE system	37
Figure 5.2 system parts	38
Figure 5.3 upper part of Plastic Boiling tan.....	39
Figure 5.4 Diminution of the upper part of Plastic Boiling tank.....	40
Figure 5.5 Plastic Boiling tank	40
Figure 5.6 Plastic Boiling Tank inside the Furnace.....	41
Figure 5.7 Furnace design	42
Figure 5.8 Dimensions Furnace design	43

Figure 5.9 Pipes heating system	44
Figure 5.10 Pipe site.....	45
Figure 5.11 fuel tank and condenser	46
Figure 5.12 dimensions of fuel tank and condenser	47
Figure 6.1 Inputs and outputs of the system	49
Figure 6.2 Pin mapping Input and outputs of the system.....	51
Figure 6.3 LCD Pin function	51
Figure 6.4 K-type sensor.....	52
Figure 6.5 datasheet K-type sensor	53
Figure 6.6 HPT907 series Pressure sensor.....	53
Figure 6.7 datasheet HPT907 series Pressure sensor.....	54
Figure 7.1 The WPTE Pyrolysis system.....	56
Figure 7.2 plastic front car bumper.....	57
Figure 7.3 Cutting plastic inside Plastic Boiling Tank.....	58
Figure 6.4 Flammable gas.....	59
Figure 6.5 Produced fuel.....	60
Figure 6.6 Plastic char.....	60

List of Tables

Table 1.1 The time planning for the project	4
Table 2.2 Selection of Plastic	21
Table 6.1 LCD pins connections with Microcontroller pins	37
Table 7.1 Pyrolysis processes and target products	57