

**UNIVERSITI TEKNOLOGI
MARA**

**DESIGN, ANALYSIS AND
FABRICATE OF PORTABLE
GRILL MACHINE WITH
WATER TURBINE**

**MUHAMMAD HARITH BIN ZAINUL
ASRI**

Dissertation submitted in partial
fulfillment of the requirements for
the degree of **Diploma**
(Mechanical Engineering)

College of Mechanical Engineering

February 2022

ABSTRACT

The portable electric grills for picnics nowadays are powered by TNB (Tenaga Nasional Berhad) electricity, which is derived from coal, a non-renewable energy source that powers the device. Charcoal is very important for the heating element to ensure that the food has a grilled taste that comes from the charcoal. Charcoal is also cheaper than other portable electric grills since most of them use gas grills. After these observations, a portable grill with a water turbine was developed. In addition, this product is beneficial for nature lovers who enjoy picnicking by the river or waterfall, as there is no need to search for a power source to turn on the rotational stick of the portable grill while connecting with nature. This design maximizes the waterpower as the main power source for the portable grill with water turbine, giving the food an incredible taste.

ACKNOWLEDGEMENT

First and foremost, I want to express my gratitude to Allah SWT for providing me with the chance to pursue my diploma and for completing this long and difficult journey. My appreciation goes to my supervisor, Madam Nur Kamarliah Kamardin.

Finally, I dedicate this dissertation to my parents, who had the foresight and desire to educate me. This triumphant piece is dedicated to you both.

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CHAPTER ONE

INTRODUCTION

1.0 Background of Study

Renewable energy includes a variety of energy forms such as wind, water, and solar. This chapter will focus more on water energy to design or manufacture a portable grill that uses water energy as the main power source by using a water turbine.

According to the statement from Prof. S. U Patel [1], the demand for electricity and fresh water is increasing due to population growth and comfort level of people. Micro-hydropower is one of the best available solutions as it offers economic, social, and environmental benefits and has great potential worldwide. The most important device for generating hydropower is a water turbine. For this reason, this project was created to improve the use of green energy such as hydropower.

Picnic activities often involve grilling, using a portable grill to prepare the food. With this portable grill with water turbine, griller is easier for the user. This is because the portable grill only uses electricity as the main source to automatically move the rotational stick during the grilling process. The electricity is taken from river or waterfall with the help of the water turbine to power the portable grill.