



اَوْنِيُوْرَسِيْتِي تِيكْنُوْلُوْجِي مَارَا
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MEC 299

**DESIGN AND FABRICATION OF LEMANG ROTATING
MACHINE**

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ABSTRACT

Lemang rotating machine is a tool that function to hold and rotate the lemang which aims to still maintain the original and traditional way in the process of making lemang . An existing cooking process still employs manual procedures, particularly for rotating the bamboo, which is hazardous to the hand. So, the level of safety will be increase when cooking the lemang. Basically, the time taken to make sure lemang are cooking perfectly is 6 – 8 hours and need a higher skill for the production. The main material for this machine is mild steel because it is lightweight and have a high temperature resistance that have high melting point. Besides that, lemang did not have a specific tool to manage when cooking lemang. Next, we discovered that the seller's hands felt the heat of the flames and might have caused harm even while wearing gloves. Our objectives due to this machine is to produce tools that can hold and rotate the lemang. A few concepts have been applied to make this machine completely function. The concept is a holder cup that function to hold the hold the bamboo when rotate. The combination of gear, chain and motor will be the main thing for rotating function . For the result , by employing this rotating machine, we do not have to rotate bamboo while the cooking process is taking place, allowing the process to run safely.

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CHAPTER 1

INTRODUCTION

1.0 Introduction

The goal of this final year project (FYP) is to design and fabricate a lemang rotating machine . In Malaysia, lemang is such a popular dish. Each location has a unique variant, purpose, and presentation of lemang, but all use the same cooking procedure. Locals prepare lemang over an open fire in the traditional way. The goal of the project is to create a machine that can rotate the lemang. This project will cut cooking time for users to eat lemang. The first stage in designing lemang rotating machine is to choose an appropriate material. As a result, the primary goal is to create a machine that environmentally sustainable design.

1.1 Background of Study

For the process of cooking lemang, it has been so many creations and innovations that have been made by others. Each various of the design have their own advantages to make sure the problem that they may have faced when they are using the traditional way to cook and burning the lemang can be solve. Every design of the innovations has its own characteristics and size, but the main source of the combustion is still using the firewood to make sure and maintain the traditional way and the taste when cooking lemang. Despite that, there are also use the LPG (liquefied petroleum gas) as the source of combustion.

Next, another studies that have been found on the website is lemang cooking optimizer. We know that there a few steps to making the lemang and the first step is a little bit complicated because they need to find the correct bamboo stem which is the size and the thickness of the wall. If the wall is too thin, it will cause overcooking. This also will affect the duration of the cooking time . The project was developed for environmentally friendly because the smoke from cooking the lemang can be reduce as they use steel cylinders to replace bamboo stems. They use the heating element that can control and optimize the cooking operations such as temperature and cooking time.

Besides that, it found that is lemang cooking device. In terms of design and usefulness, this utility differs. The machine that they designed are to reduce and avoid the risk of hand burning when handle it and also to reduce the overcook bottom part of lemang. In this project, they still using open fire for the cooking method, which is use the fuel such as firewood, coconut shells and many more. So, the continuous rotating system by using a motor and combined with the tilt angle stage when put the lemang in the holder. The cooking device also will be the initiative for the person that cooking the lemang and not worried about the lemang overcooked on one side only.

During the interval, the project that want to come out is a machine that rotate and hold the lemang at the suitable angle. The main material to build this machine is mild steel because there are a few characteristics that need to be obtained such as good in heat resistance and lightweight. Some of advantages in this project is to saves a long time for the person who operate to cook lemang and it is suitable for small or large scale trades that sell lemang.

1.2 Problem Statement

To cook the lemang, a lot of work needed from find and select the bamboo stem that need to be qualify and then prepare the rice and banana leaves. So, we can see that a lot of manpower have been used before start to cook and burn the lemang. It also took a lot of time to make sure lemang cook perfectly.

In the traditional way of cooking lemang , the operator needs to turn the lemang at a frequent rate to avoid overcooking. Gloves need to wear to prevent from getting injured due to high temperature of the bamboo. Indirectly it can reduce the injuries of burning hand while operating it.

If lemang business want to make a lot a lemang at the same time, this machine will be so helpful because many bamboos stem can be arrange at the holder and no need a lot of workers rather, only to ensure firewood is always sufficient. By using this machine, lemang can be sell anywhere because it can be carried in the van instead of traditional method that use brick wall to stand the lemang.