



AUTO GRILL WITH SMOKE FILTER

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**DEPARTMENT OF MECHANICAL ENGINEERING
POLITEKNIK MUKAH**

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**AUTO GRILL WITH SMOKE FILTER AT POLITEKNIK MUKAH
SARAWAK**

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This report is submitted to the Department of Mechanical Engineering in partial fulfilment of the requirements for graduation Diploma in Mechanical Engineering

PERPUSTAKAAN POLITEKNIK MUKAH

PROJECT REPORT VERIFICATION

This report entitled "Auto Grill Satay" has been submitted and reviewed as to meet the conditions and requirements of project writing.

Reviewed by:

Supervisor

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"We declare that this report is our own work except each piece that we have explain the source"

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Thank you,

ABSTRACT

The "Auto Grill with Smoke Filter" is designed to be able to grill satay automatically. Not limited to Satay, this grill can also be used to grill various types of barbecued skewers. In addition, the grill is equipped with smoke filter for the smoke coming that was released due to combustion when grilling. Smoke filter for the grill has 5 parts filter consists of 3 parts that have water and 2 parts again have dry filter. By using water as a filter, all the dirt on the burnt smoke will be left in the air filter, right after the smoke will go through a dry filter and trap impurities that still left in the smoke even after it goes through the first filters. Through the data collected, it is proven that the dirt on the grilling smoke is indeed able to be cut down with its impurities. This grill also comes with a hose to suck all the smoke entrapped inside the cover and is channelled into the filter system. The smoke resulting from the grilling is guided in to the hose and through the smoke filter. In addition, the project "Auto Grill with Smoke Filter" also used a motor to automatically grill the skewers. This grill, measuring by 1.4m x 2.04m x 0.54m, is portable because it has the perfect size and the grill is also equipped with wheels move this grill anywhere easily. This grill will be using charcoal for its source of fire and can accommodate as many as 40 skewers to be roasted at the same time, the skewers will be held by a hole each is designed to suit every size of the food to be grilled fully depending on the user's requirement. In conclusion, the project "Auto Grill with Smoke Filter", is equipped with filters to reduce the emission of smoke into the air that one factor of air pollution and also reduced the energy wasted by the manpower as it is powered fully by motor.

ABSTRAK

Projek “Auto Grill Satay with Smoke Filter” ini direka khas untuk memanggang satay kerana alat pemanggang ini dapat memusingkan lidi pencucuk yang digunakan untuk satay secara automatic. Namun, alat pemanggang ini juga dapat digunakan untuk memanggang pelbagai jenis makanan bebeku yang menggunakan lidi pencucuk. Selain itu, alat pemanggang ini dilengkapi penapis asap yang keluar daripada hasil pembakaran ketika memanggang. Penapis asap bagi alat pemanggang ini mempunyai 5 bahagian penapis yang terdiri daripada 3 bahagian yang mempunyai air dan 2 bahagian lagi mempunyai penapis kering. Dengan menggunakan air sebagai penapis, semua kotoran yang ada pada asap pembakaran akan tertinggal pada penapis air tersebut setelah itu asap tersebut akan melalui penapis kering dan memerangkapkan kotoran yang masih ada pada asap tersebut. Melalui data yang diambil, kotoran pada asap pemanggang dapat dikurang setelah asap tersebut melalui penapis asap. Alat pemanggang ini juga dilengkapi hos untuk menyedut asap dan disalurkan kedalam penapis asap. Oleh yang demikian, asap yang terhasil daripada pemanggang dapat dikawal melalui hos dan melalui penapis asap daripada bebas ke udara. Selain itu, projek “Auto Grill With Smoke Filter” ini juga dilengkapi “Power Window Motor” untuk memusingkan lidi pencucuk secara automatic. Alat pemanggang ini berdimensi 1.4m x 2.04m x 0.54m. Oleh yang demikian, alat pemanggang ini boleh digunakan dan dibawa kemana sahaja kerana mempunyai dimensi yang sesuai dan alat pemanggang ini dilengkapi roda untuk memudahkan pengguna membawa alat pemanggang ini kemana sahaja. Alat pemanggang ini menggunakan arang untuk memanggang dan alat pemanggang ini mempunyai sebanyak 40 lubang dan memuatkan sebanyak 40 lidi pencucuk bagi setiap pemanggangan. Kesimpulannya, projek “Auto Grill with Smoke Filter” ini terdapat ciri-ciri ergonomik kerana dilengkapi motor untuk memusingkan lidi pencucuk bagi mengelakkan pembaziran tenaga kerja pengguna. Selain itu, alat pemanggang ini dilengkapi penapis asap bagi mengurangkan pembebasan asap ke udara yang menjadi salah satu faktor terjadinya pencemaran udara.