



**UNIVERSITI TEKNOLOGIMARA CAWANGAN
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MEC299

DESIGN AND FABRICATE OF SOLAR COOKER

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ABSTARACT

This project about design and fabricate a solar cooker. Using heat transfer science concept than focus on heat conduction, conservation radiation and insulation. The idea of design was trigger by privies design by another creator. overall dimension of product 1m x 1m x 0.7m. The project is generated for helping people in reduce their daily life cost by deal with almost zero cost on prepare food for family. They do not need to provide additional money on buying gas/fuel or paid electric bill on gas or electrical stove. good design was generated by Consider all factor like effeteness and factor for good performant.

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1 INTRODUCTION

1.1 Background of Study

in this research I have make some study about solar energy and two type of solar cooker first box solar cooker and another one is parabolic type solar cooker. the study about how it works and their mechanism and factor. In this research I also study about the heat transfers, greenhouse effects, heat insulation and search previous research about the topic by other. Search of previous research on finding suitable material for project by analysing material characteristics.

1.2 Problem Statements

Cooking is common activities to people about 2-to-4-time people cooking to provide food for family. Gas stoves make a big cost in long-term also, beside they used charcoal to produce fire to heat their food or cooking this provide to air pollution. Lost lasting live cost like gas electricity. Beside gas produce pollution, it relies on Co₂ into air became little helping to global warming. A decided need to prevent the bad effect and improve quality of life

1.3 Objectives

1. To design a workable solar cooker to help reduce daily cost.
2. To fabricate a workable solar cooker to help reduce daily cost

1.4 Scope of Works

In this will be done at open space than receive maximum sunlight in Uitm Bukit Besi. This project also includes about design of product than can cooked food, produce heat. Create device collect sunlight radiation.

The solar cooker we can relate to cooking and heat food. Talk about cooking about temperature, time, cook in suitable temperature. The device aims to become green technology device than give no or reduce pollution while prevent energy source or become an alternative energy.

The project' s focus in create a device than only use solar energy to cook food. Reduces time in cook food than another solar cooker. Making improvement in aspect cook time, power, while not forget the safety factor. Product able to work in same condition in experiment took placed.

1.5 Expected Result

Able create a design of solar cooker, the product work by applied heat transfer, light reflection, and greenhouse. The generate design able to fulfil the concepts. The product work by main components. All components theoretical able to function normally. Light reflector able to reflect the light to wanted location the cook box able to trap and insulate heat so heat not free in air. Base can hold and join all component. Overall design can follow standard requirements in stability, strength and finally solved the problem acquired

However, fabrication of solar cooker will not be able to determine. It will do in FYP2 in next semester. This semester the focus is about design of project.

2 LITERATURE REVIEW

2.1 Factor Of Effectiveness Of Solar Cooker

In build a solar cooker there are factor need to make sure the effectiveness of a product. a solar cooker depends on lot of factor that state by (Ali Mostafaipoor, 2021). Geography and environment are very important in solar energy application, Capital and Economy were the other vital factors affecting the implementation of this new technology .Technology and infrastructure were of great importance because useful technologies and equipment as well as existing infrastructure for constructing and running a project should be made available to establish new technologies, like solar cookers. Interactions involved contacts and connections with skilled experts who have adequate experience and knowledge of solar cooker manufacturing and use. Financial support related to banks and the government who have effective roles in the Iranian manufacturing industry. The Cultural, social, and political factor related to the beliefs, norms, acceptance, awareness, etc of the people.the good factor make the good solar cooker.

2.2 Insulation Factor

(Le Duong Hung Anh, 2021)make research for insulation factor in building. Insulation materials are supposed to conduct heat badly in order to prevent large heat losses. The lower the heat conduction in a material, the less heat flows through it. The heat conduction of an insulator is strongly influenced by several factors: temperature, moisture content, density, aging time, along with secondary factors such as raw material, cell gases, nature and microstructural of solid component, air surface velocity, pressing, and sample thickness.