



**PRELIMINARY DESIGN OF AN AUTOMATIC COOLING SYSTEM USING  
SOLAR PHOTOVOLTAIC (PV) SYSTEM**

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
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## **AUTHOR DECLARATION**

**“I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree.”**

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## **ABSTRACT**

This thesis presents a preliminary design of an automatic cooling system using solar photovoltaic (PV) system. Automatic cooling system using solar photovoltaic system is a system that uses solar photovoltaic system as a source of electricity to generate the cooling system with the presence of controller to make the system to operate automatically. The aim of the project is to design the automatic cooling system inside car cabin. The purpose of the system is not for cooling the car cabin like an air conditioning system, but to reduce the interior temperature inside the car cabin when the car is being exposed to the hot sun. The scopes of this project are to design an automatic cooling system that provides ventilation inside car cabin with the uses of solar photovoltaic energy as the source of electricity, to fabricate the design to ensure that the system will function as desired, and to test the design whether it can reduce interior car temperature or not by installing the system into a car. This project involves the uses of PIC (Programmable Interface Controller) microcontroller to control the system to operate automatically when the temperature inside car cabin above than the ambient temperature outside of the car. Temperature sensors (thermistors) will detect the temperature inside and outside of the car as the input signal for the PIC microcontroller. This project encompasses some literature review on the solar photovoltaic system and the ventilation inside car, sizing the PV system in order to determine the size of the PV module and the rechargeable battery to ensure the solar PV system operate efficiently with optimal costs, and also involves designing, fabricating and testing the automatic cooling system. The result of this project is the comparison of the obtained data of the temperature inside the car cabin with and without the presence of the cooling system.

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