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In the name of Allah, the Beneficent and the Merciful

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ABSTRACT

In automotive industry, applications for electric cars gradually increasing rather than today conventional cars that using internal combustion. It's due to less of energy usage, low maintenance costs and good for the environment. In this paper, we report on design and development of motor monitoring system for identify and characterized the performance of motor used in electric vehicles industry. The system was develop based on LabVIEW and open source hardware platform Arduino. Three sensors were connected to the Arduino Uno for measure the current, voltage and RPM of the motor. The reading for the sensors are real time displayed and recorded in the LabVIEW GUI. Laboratory test was conducted to relate the power consumption over certain input voltages and relation between revolution per minute (RPM) with voltage. This system will predetermine the performance of an electric motor implemented by using Arduino. The objective of this project is to monitor the performance and reliability of motor by increasing the output energy to drive an electric motor. Based on overall an electric motor performance, the data was logged and converted to excel for further research. The higher the efficiency of an electric motor, the further the electric car can go.

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CHAPTER 1

INTRODUCTION

1.1 PROJECT BACKGROUND

Efficiency is an essential factor when it comes to electrical appliances. In fact efficiency will determine the overall performance and desired output. Nowadays efficiency was seen as a crucial matter. High efficiency will give out the best performance and higher accurate output thus it minimizes the losses from dissipating to nowhere. Improving the efficiency of any device or electric motor can save up a lot of energy, reduce maintaining costs[1], minimize the operating costs, and also accelerate the production time.

The efficiency of a motor controller is measure of how well it transfers the energy from the power supply to the brushed motor or how it converts the electrical energy to make it operating without causing major loss. Most of the energy lost are produced in the form of heat. In order to increase the motor controller efficiency all the losses must be minimized. All the motor controller losses can be determined by the intention and construction consideration by the quality of the conception and fabrication process. Thus, the difference between a lower efficiency motor controller and a higher motor efficiency can be magnificent[2].