

PERCEPTION OF THE PUBLIC TOWARDS THE IMPACT
OF HYBRID CAR IN MALACCA, MALAYSIA

RHAMANAR A/L THANGARAJOO

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

SUPERVISOR DECLARATION

I hereby declare that I have checked this project and in my opinion, this project is adequate in terms of scope and quality for the award of the degree of Bachelor of Technology Management and Innovation (Honours)

Signature :
Supervisor's Name : Mdm. Murzidah Binti Ahmad Murad
Date :

Signature :
Assessor's Name :
Date :

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IN MALACCA, MALAYSIA

RHAMANAR A/L THANGARAJOO

This report is submitted in partial fulfilment of the requirements for the award of a
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DECLARATION

“I hereby declare that the work of this exercise is mine except for the quotations and summarize that have been duly acknowledged”

Signature :

Name : RHAMANAR A/L THANGARAJOO

Date :

DEDICATION

To my beloved family especially mother, father and all family members. Thank you for raising me with full of education and without all of you, I am nothing.

No to forget, thank you to my admirer who always gives support whenever I felt weak.

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Thank you to the God for giving me wisdom, strength, support and knowledge in exploring things, and also make this Final Year Project 1 possible.

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ABSTRACT

In this modern arena, the transportation became as basic necessity of human's daily life especially the cars. But there is a big issue on the fossil fuel cars which is from the internal combustion engine car or fossil fuel car, the society and environment receiving bad impacts such as disease to human, climate change, decrease of reserve oil and so on. So many countries adopted the hybrid car technology to solve this type of problems. As general the Hybrid car is the combination of two component which is electric motor and internal combustion engine motor in a car. So it is being an alternative energy to the cars. Besides that, the main purpose of this research and study is to investigate perception of the public towards the impact of hybrid car to the society and environment in Malacca, Malaysia. A total 100 questionnaires was distributed to the public in Malacca to gain the data. There was the statistical techniques such as descriptive analysis, reliability, and validity were used in this study.

Keywords: Hybrid Car, Impacts, Malacca.

ABSTRAK

Dalam arena moden ini, pengangkutan merupakan salah satu keperluan asas kehidupan harian manusia terutamanya kereta. Tetapi terdapat satu isu besar pada kereta petrol iaitu pembakaran dalaman enjin atau bahan api fosil kereta, masyarakat, alam sekitar dan alam semula jadi. Ia akan memberi kesan negatif seperti penyakit kepada manusia, perubahan iklim, penurunan minyak rizab dan sebagainya. Maka, Negara-negara yang maju telah menggunakan teknologi kereta hybrid untuk menyelesaikan masalah tersebut. Kereta hybrid adalah gabungan dua komponen iaitu motor elektrik dan motor enjin pembakaran dalaman. Jadi, ia merupakan satu tenaga alternatif bagi kereta. Seterusnya, tujuan utama kajian ini adalah untuk menyiasat kesan kereta hybrid kepada masyarakat dan alam sekitar di Melaka, Malaysia. Sebanyak 100 soal selidik yang telah diedar kepada rakyat Melaka untuk mengumpul data. Slain itu, terdapat teknik-teknik statistik seperti analisis deskriptif, kebolehpercayaan, dan kesahihan itu akan digunakan dalam kajian ini.

Kata kunci: Kereta Hibrid, Impak, Melaka.

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LIST OF ABBREVIATIONS

ASEAN	=	Association of Southeast Asian Nations
CO ₂	=	Carbon Dioxide
ICE	=	Internal Combustion Engine
HCs	=	Hydrocarbons
NO ₂	=	Nitrogen Oxide
SPSS	=	Statistical Package for Social Science

LIST OF SYMBOLS

%	=	Percent
<	=	Greater-than
>	=	Less-Than
=	=	Equals
&	=	And

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter is covered about the background of the study, which described about the Hybrid Car and it also described how it works. After that it is followed by the problem statement, which states the ultimate problem that need to solve at the end of this research. Two main research objectives and two research questions of the study has been obviously defined in this chapter. Moreover, it is further with scope of study which tells about the range or scale of this research in detail. On the other hand, it is continued with limitation that faced while conducting this research by researcher. Then the following on describes the significant or importance of this study. Finally, it was concluded with a brief summary of the overall chapter 1.

1.2 Background

Transportation has become as a basic necessity of human's life, especially the cars. Due to this reason, there are billions of cars moving on the road and it is showing on the rise of cars that seems might will overtake the population of the human beings in the world in future. As a general, what is a car? The car can define as a vehicle made up with four wheels and an engine and that is used for carrying passengers on the roads (Merriam-Webster,2015). Francois Isaac de Rivaz was designed and created the 1st car in the world which powered by an internal combustion engine fuel by hydrogen in

1807 and the first petrol or gasoline powered automobile the 'Benz Patent-Motorwagen' was invented by Karl Benz in 1886 (History.com). The World's first car was used the fuel, which made from the hydrogen and the following year the car developed for use the petrol or gasoline as an energy resource to function. By following the petrol cars, in year 1901, the Ferdinand Porsche developed the Lohner-Porsche Mixte Hybrid, which was the first petrol with electric which the hybrid automobiles in the world. The hybrid car did not become widely available until the launched of the Toyota Prius in Japan in 1997 by Toyota Automotive manufacturer and followed by the car competitor who was the Honda Insight in 1999 (Brad Berman, 2011). Furthermore, what is the hybrid car? And why hybrid car addressed as hybrid? The hybrid word brings the meaning of, the combination of two different equipment or motors in one belongings and the hybrid concept in cars is the combination of electric motor and internal combustion engine to produce energy (Deanna Sclar, n.d.). The hybrid car's battery will receive electrical energy from the regenerative braking system in the car and from its internal combustion engine. The hybrid technology is reducing effect on the environment from the pollution made by internal combustion engine cars. The hybrid car being an environmental friendly or eco-friendly car with it hybrid technology and it's also being an alternative energy source to the fuel. The hybrid car with two energy sources is better for the environment and society compare than the traditional cars with internal combustion engine which not an eco-friendly car to the earth.

Presently, there some automotive industries had manufactured eco-friendly cars such industries Toyota, Nissan, Honda, and so on. Currently the hybrid car production increasing dramatically every year, according to the Wards Auto (2012). The following graph shows the forecasting of the Hybrid vehicle production in global 2012-2016.

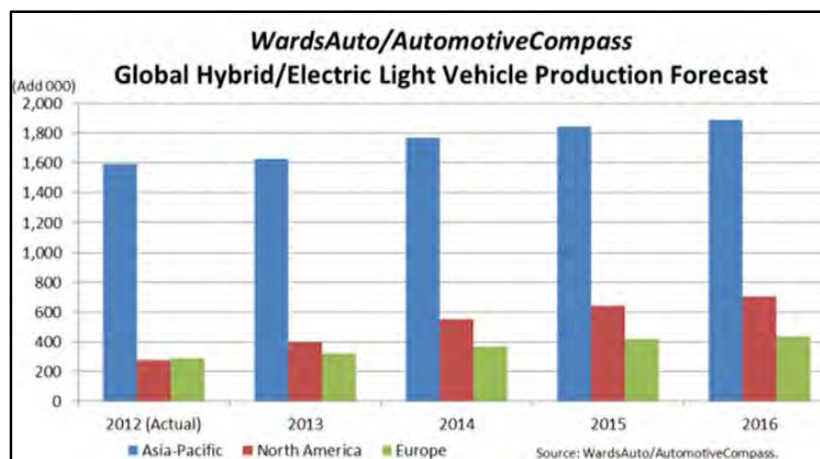


Figure 1.1: Global Hybrid/Electric Light Vehicle Production Forecast(Source: WardsAuto/AutomotiveCompass)

The focus of this research is about the perception of the public towards the impact of hybrid car in Malacca, Malaysia. The Hybrid Car is intended to replace the Internal Combustion Engine (ICE) Cars, with the expectation that the Hybrid Cars are more efficient and eco-friendly. The use of Hybrid cars roots to many impacts to the society and environment in Melaka, Malaysia. Besides that, why this research mainly focused on the Malacca State? Because the Malacca state is moving forward to the Go Green Concept since 2011. The Malacca State Government has established the Green Technology Malaysia Melaka on 16 May 2011 in order to realize the vision of Melaka State Green City Technology in 2020 under the chairmanship of the Chief Minister. At the level of the Federal Government, the National Green Technology Council and Climate Change chaired by the Prime Minister of Malaysia. (Melaka Green Technology Corporation (MGTC). Furthermore, the Chief Minister Datuk Seri Mohd Ali Rustam had announced an “aspiring plan to develop a pioneer green city”. The new green city would be entitled as “Hang Tuah Jaya Green, City and would be conceptualized after Putrajaya and Cyberjaya”. The one of the main activities to support the utilization of green technology was the new Hang Tuah Jaya Green City would have the limitation in motorized vehicles on the road. Subsequently, the research carried out in Malacca City to support the Go Green concept by adopting hybrid technology.

1.3 Problem Statement

In this modern era, the transportation usage is increasing dramatically every year. We cannot be proud to have countless cars on the surface of the earth because the transportation is the main factor that affect the society and environment. The Internal Combustion Engine (ICE) cars which using the fuel or petrol to produce the energy to function, releasing the nitrogen oxide (NO), carbon monoxide (CO), carbon dioxide (CO₂), and unburned HCs into the environment from burning the fuel. According to the Union of Concerned Scientists (n.d.), the high amount of heat trapping emissions, which is more than 19 pounds per gallon release from internal combustion engine car's tailpipe or exhaust. These harmful gases will affect the environment's health and also affect human health. For an example, such as issues global warming, climate change, air pollution and noise pollution. Besides that, the internal combustion engine car affect the environment, and also to the human beings get affect by the unhealthy environment. For example, global warming will melt down the ice caps and it intend to rise of the sea water level, which lead to the flood on the earth (Natural Resource Defense Council, 2005). Moreover, human also infected by some diseases from the air pollution which made from the cars or transportation.

Besides that, there has a serious effect to the natural resource such as fossil fuel. The fossil fuel can be defined as "the chemical that is refined to produce gasoline called petroleum, which is found in underneath of the earth's surface". Nowadays the reserve oil is decreasing every year, which intend to the oil price increase. The transportation can be a victim at the end of the natural resource in the future because the increase of the internal combustion engine cars will lead to increase in need of the petroleum or fossil fuel.

One the other hand, in order to solve those kind of issues, some international countries such as Norway, Turkey, France, United Kingdom, and china who are the top five countries already adopted hybrid vehicles widely in their daily life (The energy collective, 2014). Because these Hybrid cars was an eco-friendly car to the environment and society. Moreover, the hybrid technology already introduced in Malaysia's automotive market, but the usage or adoption of hybrid car widely is still in inferior stage. According to Paultan.org (n.d.) which is the Malaysia's number one

source for automation news, and it shows the internal combustion engine car sales in 2013 were 576,657 units but the hybrid car sale in 2013 was 18967 units. It shows the internal combustion engine car usage in Malaysia was 96.81%, but the Hybrid car usage was just 3.18%. It clearly shows the low utilization of hybrid cars, among the Malaysians. For this research, researcher focussed on Malacca state to research about the perception of public towards the impact of hybrid car in Malacca, Malaysia. The reason for researcher selected the Malacca state is because the Malacca state was already in the line of the Go Green concept.

1.4 Research Questions

Based on research objectives, the research questions are as follow:

- a) What are the intention of public towards the hybrid car in Malacca, Malaysia?
- b) What are the perception of the public towards the impact of the hybrid car to the society and environment in Malacca, Malaysia?

1.5 Research Objectives

The aim for this research is to investigate the impact of the Hybrid cars in Malacca based on following two objectives:

- a) To explore the intention of public towards the hybrid car in Malacca, Malaysia.
- b) To investigate perception of the public towards the impact of the hybrid car to the society and environment in Malacca, Malaysia.

1.6 Scope of Study

The focus of this research is to identify perceptions of the public towards the impact of hybrid car in Malacca, Malaysia. It is based on the adoption of hybrid technology that alternative to the internal combustion engine cars, to shrinkage of the effect on the environment, and society in Malacca, Malaysia. In addition, to save the natural resource in the future. Nevertheless, the gaseous emissions from Internal Combustion Engine (ICE) cars prove that hybrid cars are better for the society and to the environmental protection.

In order to arrive at more specific research objectives and to clarify the theoretical contribution of this research, a literature review presented in next chapter starting with an introduction of car innovation, hybrid technology, and internal combustion engine car. Afterward, in the literature review, there are information about the impact of hybrid car to the society, the environment and some factors that influence consumer behaviour to purchase the hybrid car has been explained in order to get superior understanding.

Following, the proposed integration of the impacts from hybrid car to the society and environment, the theoretical framework was presented together with the objectives of this research followed by the hypotheses. In addition, the discussion of this research is carried out and followed by the main conclusion, as well as in the recommendation.

1.7 Limitation

In this research, the limitation or problem arising when there have only limited source of the articles and journals for this research for the literature review. Moreover, this research only has limited time period to get done, which are 28 weeks. Because of this, it becomes hard for the researcher to conduct the research because the data and the accurate information not easy to gain from the sources and respondents. Moreover,

the result of respondents can be not accurate or can be a not royal respondent and can have less knowledge about the hybrid car.

1.8 Significance of Study

This research is beneficial to the societies, environment and automotive manufacturers industry, as a reference to study and know about what does the perception of the Malacca citizens towards the Hybrid cars. Then, to study about the impact of Hybrid car in Malacca to the society and the environment. In addition, to save the world for the future by adopting Hybrid cars. This study also helps the automotive industries to reduce the internal combustion engine car production in the future. Last but not least, this research will gave an awareness to the society about the hybrid technology and its benefits to them. From this, the hybrid car sale will increase in future compare than the internal combustion engine cars.

1.9 Summary

As a summary, Hybrid Car refer to the combination of two different equipment or motors in one belongings and the hybrid concept in a cars was the combination of electric motor and internal combustion engine to produce energy. The problem is in Norway, Turkey, France, United Kingdom, and china already implemented the hybrid car to solve the problem from the internal combustion engine car but Malaysia still in the inferior stage. The objective of this study is included exploring what is a hybrid car and to investigate perception of the public towards the impact of hybrid car to the society and the environment. The research scope of this project is focused on green technology and the impact that will be focused on the research objective. The limitation of this research were it could be generalized from the respondent who gave the wrong answer during the survey. In coming chapter 2, discussed about the literature review.