UNIVERSITI TEKNOLOGI MARA

CARING DASH: CAR DASHBOARD SYMBOL RECOGNITION SYSTEM USING MACHINE LEARNING TECHNIQUE

MUHAMMAD AFIQ BIN MOHD ZAILANI

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ABSTRACT

A vehicle dashboard is the control panel of a vehicle; it is important to alert to any lights that appear on car dashboard once the driver turns the vehicle on or while the driver is driving. Red lights are used in a car to tell the driver if something's not right and probably needs very quick attention because continuing could damage the car or put the driver or passengers at risk. Many drivers do not know or understand the symbols that displayed on the car dashboard and what action should be taken. This project is intended to develop a mobile application of a car dashboard symbol Recognition System using Machine Learning Technique for Perodua car users. The method use for the development is Mobile Application Development Life Cycle (MADLC) Model. This application help car user identify what those dashboard symbols indicate when lit and action should be taken. This mobile application will involve camera-based graphical symbol detection. This technique locates and recognizes graphic symbols in clustered environments at the same time, without the need for a segmentation stage. Image recognition makes use of visual search technology to identify objects through the camera of a mobile device. Users can take a picture of a symbol, and get information about the symbols. The application only limits locating nearby workshops rather than acting as an intermediary to the shop services. The user can figure out what those dashboard symbols indicate when lit. This application will help navigate the nearest car workshop. This application is useful especially for all the car drivers out there which can save time and ease their movement anytime at anywhere.

Keywords: car dashboard, symbols, image recognition, the Mobile Application Development Life Cycle (MADLC), Machine learning.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

This chapter provide the background of study, problem statements, project priorities, scope and significant of this project.

1.1 Background of Study

The automotive industry plays a significant role as the backbone of every country's economy. The initiation of the first national automotive project, PROTON, in 1983 with the formation of a joint venture between the Heavy Industry Corporation of Malaysia (HICOM), Mitsubishi Motor Corporation (MMC), and Mitsubishi Corporation (MC) of Japan was the Malaysian government’s attempt to increase local content, rationalize the industry to achieve economies of scale and upgrade the assembly industry to a manufacturing industry with international competitiveness (Wad, Peter, Govindaraju, V.G.R Chandran, 2011). The dashboard warning light is one of the key components of the car interior and it plays a very important role in various areas such as health, reliability, user-friendliness, functionality, and appearance. (Praveen, P, 2016).

The car dashboard is a bridge for information exchange between the driver and the vehicle (Li, R, Qu, Q. X & Lu, Z, 2017). Warnings are integral to ensuring the safe operation of a vehicle. The use of auditory alerts and warnings has the potential to alleviate drivers' workload, increase drivers' situation awareness, and facilitate efficient and safe driving (Sabic, E, Mishler, S, Jing, C & Bin, H, 2017). The warning lights are color-coded and it is important for users to know how urgently they need to act. Predominantly, Red lights demand immediate intervention and are often connected to safety-critical devices. Yellow lights culmination device mistakes, vital feature details or low level of fluid (Evans, J, 2020). Based on top 10 best-selling car models in Malaysia in 2019, the top 3 models are