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FRIDGE LOAD MANAGEMENT SYSTEM WITH ARTIFICIAL INTELLIGENCE (AI) AND INTERNET OF THINGS (IOT) ALERT

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The technological development nowadays has allowed the use of smart appliances and machines almost anywhere. The refrigerator is considered one of the most significant appliances that is being used in almost every place for the purpose of storing foods, drinks, and medicines at cold temperatures, and in a sealed place to avoid it from being exposed. When drinks are out of stock, the seller sometimes forget to restock. Moreover, to prevent the content of the refrigerator from out of stock, the seller needs to check the refrigerator from time to time. When the seller needs to restock, he or she needs to make a list of what drinks are out of stock and need to be restocked. Therefore, a system is introduced which can manage fridge load with AI and IoT alert. Using object detection, the system is able to detect types of drinks which are cans and bottles. The dataset images of cans and bottles is trained using two models, Faster R-CNN and SSD mobilenet. The system will count the number of drinks detected by the camera, which the data obtained is sent to IoT cloud which is Ubidots. The Ubidots dashboard will show the number of drinks detected and the stock availability. In the same time, if the number of drinks detected is zero, it will send a notification to the Telegram to alert the user that the drinks are out of stock. Faster R-CNN model get the accuracy of 97% and above in detection the drinks while 66% - 75% accuracy can be achieved when using SSD mobilenet for the drinks detection. Using this system is better since it only need to use a camera as the medium to detect products instead of using many sensors which cause wiring hassle.

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TABLE OF CONTENTS