

Universiti Teknologi MARA

**Halal Product Checker: Real Time Ingredient
Verification Application Using Mobile Text Scanning**

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ABSTRACT

The Halal Product Checker: Real-Time Ingredient Verification Application Using Text Scanning is an OCR (Optical Character Recognition) technology-based mobile application created to assist Muslims in ascertaining whether the ingredients in foods are halal. It scans product labels to check ingredients and compares them with a halal ingredients database in real time. This project has adopted the Agile Scrum methodology, which emphasizes iterative refinement and continual improvement in product quality. Completion of the application has been achieved and System Usability Scale (SUS) testing indicated high user satisfaction. Users reported an enhancement in their confidence to make halal food choices, with speedier decisions and accurate real-time verification. Results confirmed the app's effectiveness in streamlining the halal verification process, solving problems such as ambiguous ingredient lists and the absence of real-time verification tools in other systems. Although the app met its targeted goals, limitations remain such as offering low-quality images and limited OCR accuracy, restricted database coverage, and lacking comprehensive cross-referencing. Further revisions will aim on improving the lack of multilingual algorithms and broadening the database to make the app accessible to users worldwide. All in all, The Halal Product Checker App demonstrates its reliability and efficacy as an aid to the user's confidence and decision-making in selecting halal food.

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CHAPTER 1

INTRODUCTION

The main topics of the first chapter include the background study, problem statement, research questions, research objectives, project scope, and project significance. It provides an overview of the Halal Product Checker application, which is designed to assist Muslim consumers in verifying the halal status of food ingredients using OCR technology and a real-time halal database.

1.1 Background Study

When choosing what to buy, Muslim shoppers place halal compliance at the top of the list, especially in the food aisle. The Arabic word halal, meaning permissible, covers much more than meals or drinks; it can touch almost every everyday action. For a product to meet the halal standard, every ingredient must come from an approved source, while anything forbidden such as pork, alcohol, or meat not slaughtered in the correct way is absolutely off limits. Clean tools and equipment also matter, as even the faintest contact with haram substances can render the whole batch unusable. In Malaysia, where Muslims make up about 62% of the population (JAKIM, 2023), confirming that a product meets this benchmark becomes a routine yet essential task for manufacturers and shoppers alike. For Muslims, halal verification is not just a religious obligation; it reflects a conscious lifestyle that values hygiene, ethical sourcing, and spiritual discipline.

Food labels on supermarket shelves rarely tell the full story, particularly when goods come from across oceans and borders. Many shoppers still expect each label to clarify what is permissible according to their beliefs, but instead, they encounter lengthy ingredient panels filled with Latin names, synthetic additives, and vague phrases. This leaves even the most diligent Muslim buyer uncertain about whether the product truly meets halal criteria. This uncertainty wastes time, fuels anxiety, and occasionally forces families to abandon products that otherwise appear sound,