



A Mobile-Based Application for Food Management Using QR Codes

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Introduction

Food waste has become a critical global issue, with tons of food wasted globally every year. The waste is a consequence of the fact that consumers cannot monitor expiration dates of their perishable foods. A FAO study revealed that at least one-third of the food that is produced globally is wasted. However, this situation could be improved with proper food management. Taking advantage of information technology, a mobile-based application developed for food management has the potential to reduce food waste. This study developed a mobile-based application that integrates QR code technology to validate food expiration dates. This mobile application will assist consumers in effectively managing their food inventory, alert them to approaching expiration dates, and ultimately reduce food waste by allowing the timely consumption of perishable items.

Methodology

The mobile application development follows an iterative process of software development that includes requirements gathering, design, development, and testing. The Software application was developed with Java and Kotlin programming languages, Firebase was used as the back-end solution for real-time database management. With the use of the open-source ZXing library, QR code functionality was easily implemented, which allowed easy scanning and processing of the product. The application underwent various phases of testing, including unit testing, integration testing, and user acceptance testing.

Results and Discussion

The application was successfully developed and will be deployed for testing among a proposed group of users. It is expected that the developed application will reduce food waste, improve food inventory management, and attract user engagement, among others. The development of a mobile-based food management application using QR codes to validate food expiration dates will optimize food management. QR code integration will enable users to promptly retrieve important product information, allowing for more accurate tracking of expiration dates. In households and businesses that may not have a fast turnover in inventory, this system offers an advantage as expired food items become more frequent.

Conclusion

An innovative and practical approach for reducing food waste is the use of a mobile-based application using QR codes to manage food expiration. The effectiveness of applying the application can be applied to improve food management, waste reduction, or increase user engagement. This system will communicate when certain foods expire so consumers have the opportunity to make informed decisions on their food inventory, thus aiding in sustainable food practices.

Keywords: Food and Agriculture Organization, Food management, Food security, mobile-based, QR codes