ABSTRACT

DESIGN AND DEVELOPMENT OF A MOBILE-BASED FRUIT AND VEGETABLE RECOGNITION APPLICATION USING FLUTTER AND YOLOV5

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Fruits and vegetables are known as essential sources of vitamins and minerals for humans. This is because they provide a variety of nutrients necessary for body development and maintenance. The body's immune system may weaken when lacking in vitamins and minerals. To maintain health and immune system strength, a diverse range of nutrients found in fruits and vegetables is required. According to the World Health Organization (WHO), to obtain sufficient dietary fiber intake and reduce the risk of non-communicable diseases, it is recommended to consume at least 400 grams or five servings of fruits and vegetables each day. However, many people still do not follow this recommendation. Based on the results of the Basic Health Research (Riskesdas) report in 2018, 95.5% of Indonesia's population aged 5 and above were categorized as consuming insufficient amounts of fruits and vegetables. Furthermore, a survey conducted among 100 respondents showed that only 19% of them consume fruits daily, and only 44% consume vegetables daily. This research aims to develop a mobile application using machine learning technology with the YOLOv5 architecture, capable of recognizing fruits and vegetables and providing knowledge and learning materials about them, in order to raise awareness among the public about the importance of consuming fruits and vegetables. The Mobile Application Development Lifecycle (MADLC) methodology is employed for application development, encompassing phases such as identification, design, development, prototyping, testing, deployment, and maintenance. Testing results utilizing white-box testing and think-aloud methods indicate that the application performs well. It can successfully identify, provide information, and offer learning materials about the nutritional content and benefits of various fruits and vegetables. The application can also be distributed through app stores.

Keywords: Android, IOS, Machine Learning, YOLO, Mobile Application Development Lifecycle