ABSTRACT

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APPLICATION OF THE DEEP LEARNING MODEL IN A WEB-BASED ORANGE FRUIT FRESHNESS DETECTION SYSTEM

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(X+59+Attachments)

Oranges are a type of horticultural crop that is popular and developed in Indonesia. Orange plants are classified as an annual plant originating from Asia. The area believed to be the place where oranges grew for the first time is China (Naharsari, 2007). Since hundreds of years ago, oranges began to grow in Indonesia either naturally or cultivated by Indonesian people. The citrus plants that exist in Indonesia today are Siamese oranges and tangerines which are a legacy of the Dutch imported directly from America and Italy (Prihatman, 2000). Oranges can be grown and cultivated by farmers in lowland to highland areas, with different varieties, and can be consumed by people with low incomes to people with high incomes (Lesmana, 2009). Oranges are popular with many people because of their fresh taste when consumed directly or in processed form. Apart from that, oranges also contain quite a lot of vitamin C which is good for body health. Orange fruit production in Indonesia in 2020 reached 2,593,384 tons. In previous years.

Orange fruit production in Indonesia continues to increase every year. So far, the detection of orange fruit has only reached AI and there is no prototype yet, so this system was built. Furthermore, this website was built with the Streamlit Framework and uses the YOLOv5 model. From the results of the prototype development, several displays or features were produced, namely "Upload Your Own Data" which contains a detection feature by uploading an image of an orange and then the results of detecting the orange fruit itself are suitable/not suitable. From the test results with appropriate and inappropriate data, we got an average accuracy of 0.91 at a distance of 30cm, and we can also calculate from the results of several images.

Using the Software Development Life Cycle approach method with stages, namely planning, analysis, design, implementation and testing, using YOLOv5 as a model and data set and VSCode as a text editor with the Streamlit framework to manage the database.

Bibliography (2017- 2023)