I. INTRODUCTION

In the genus-group of natural citrus plants, there are 16 species and eight varieties of citrus [1], including conventional citrus that are spread in Indonesia, such as chayote, pummelo, sweet orange. Citrus has been cultivated in Indonesia for a long time, even hundreds of years ago. *Citrus fruit* is a horticultural commodity that has a function as a source of nutrition for humans.

However, citrus production has not met expectationsdue to farmer's lack of knowledge in planting and the emergence of pests, diseases, and viruses. Some of the diseases that often attack citrus plants are Citrus Vein PhloemDegeneration (CVPD), cancer, and black spot disease. The effects of the disease vary, such as fruitlessness, dry leaves, and death for citrus plants. As a farmer or citrus cultivator, identifying citrus crop problems is very important to provide proper treatment. Another problem that arises is that it takes a long time to consult a botanist because not all citrus plant experts have the time to answer questions that arise from citrus cultivators.

Image processing is a reasonably easy task for humans to do. The development of science in Computer Vision allows computers to have intellectual abilities that canwork like humans in general. Different techniques have beenused over the past years for fruit detection for disease [2]. In identifying problems that occur in citrus plants, several solutions can be offered. One of them is image processing. Many studies have used image-processing technology, for example, plant classification [3], [4] and disease identification[5], [6], [7]. A lot of the methods have been done in previous studies. However, the problem with this method is that the result of accuracy is below 90%.

Another method is CNN, which is suitable for use in imageprocessing. This method is known as the deep learning method, which has the most significant results in recognizingimages [8]. Using CNN, the work when performing featureextraction is automatic because CNN can extract features directly from the image that has beeninput through theconvolution and filter process. However, several studies thatuse the CNN method do not always produce good accuracy. For example, research [3] produces an accuracy below 90% due to the number of layers used too much. Therefore, the CNN method was chosen as a method for disease classification in citrus plants that use fewer layers so that theexpected results have an accuracy of above 90%. Meanwhile, to evaluate the performance of the model, K-Fold Cross-Validation is used.