1. INTRODUCTION

Revolution in every single field including agriculture was bringing good impact development. One of innovation that bring the agriculture revolution is the automation machine. Automation program should in processing of agriculture chains in every nation. Because, it will help farmers to reach a maximum quality and quantity to bring the economic stable and prosperous. One of source that should be good farm is beef. Beef it is very important because the body need a big protein. Beef has a lot benefit depend in used, such as to adding iron substance (risk of anaemia), increase metabolism, and adding fat (risk of autoimmune).

However, the develop of freshness and spoilage apparently a few researchers not focused on quality of beef specially about redness colour. The appearance of beef in a retail display plays a crucial role in shaping consumer choices. Shoppers tend to link the colour of beef with its quality. Bright red beef is generally seen as a sign of freshness and high quality, prompting consumers to prefer it. In contrast, beef that appears pale, discoloured, or darker is often perceived as less fresh and of lower quality by consumers, possibly nearing spoilage (Corlett, M. T, 2021).

In addition, spoilage beef gives bad impact for the healthiest such as typhus can occur due to beef contaminated by *Salmonella typhi* bacteria, digestive disorders, disorders of the nervous system caused by *Clostridium botulinum* bacteria, and the terrible disease is Anthrax. The resident of Pedukuhan Jati, Gunungkidul, Indonesia inform 73 years old died due to exposure to the anthrax virus. The Gunungkidul Livestock and Animal Health Service (DPKH) said the victim had consumed a beef of a cow that died of illness last May. The government appeals to the public to always be aware of the quality of the beef they eat and maintain self-clean and self-health. Therefore, maintaining the quality of the Beef produced is very necessary for the public to avoid diseases caused by that has been contaminated by bacteria.

To reduce the inefficiently effort it needs automation process more comprehensive. The efficient technique is automation detection using deep learning. Deep learning can be used to automate beef detection. The architecture of deep learning is made up of feed-forward networks with multiple layers. The most widely used method for image processing is deep learning. Basic image processing techniques and deep learning can be used to process beef images. The optimizing classification can be performed by enhanced their performance. For this purpose, detection with ensemble methods deliver for support the automation system and collecting the new objective for their future works.

For instance, in another researcher was shown classifying an image into various groups according to the kinds of fish that are present in it. For these kinds of image detection issues, there are distinct practical obstacles: The articles, first and foremost, are tiny when contrasted with the foundation. Standard CNN based techniques like ResNet and Faster R-CNN might get familiar with the component of the boats (background) but not the fishes (objects). As a result, when images of new boats are shown, it will fail. Second, imbalanced data sets are prevalent in the real world and have made classification tasks extremely

difficult. Consequently, CNN models may have difficulty categorizing classes with few training samples because they may be biased toward majority classes with large training samples. Thirdly, obtaining data is costly and labour-intensive in real-world applications. For instance, ground truth must be labelled and verified by multiple experts in the field. In both academia and industry, achieving high performance from a small training dataset remains a significant obstacle (YANG, Xulei., 2018).

In the other subject, several researchers start to develop CNN architecture and expand it by enhanced customizing performance. The subset method for enhancing model performance is ensemble learning. Ensemble learning was giving good development for enhancement. The improvement of developing ensemble has a significant impact on classification for enhance performance to adapt some method by merging many predictions (Abouelmagd, L. M., 2022).

This work suggested demonstrates how detection can give better results from ensemble learning with optimizing detection of beef quality on ensemble method. The set of data are organizing with image detection and set on the trainer model using ensemble method. The result shows an improving accuracy and predicting percent level of combining Xception and EfficientNet for enhance ensemble. Furthermore, this paper brings a benefit to researcher for future analyses of using ensemble on automation machine detection.