

## ABSTRACT

*Culinary businesses that continue to grow around the world create a variety of interesting culinary delights with great demand. Along with the development of technology and information systems that contain very attractive culinary advertisements, the culinary industry has become very popular in recent years. Donuts are one type of culinary that has great interest. In the manufacturing process there is a very important process in producing the perfect donut shape, namely the proofing process. In this process, errors often occur due to various factors. From this problem we need a system that can help classify the level of proofing of donut dough. The classification process in this study uses Artificial Intelligence (AI) technology. AI technology can assist in detecting quickly and accurately so as to reduce the amount of dough that is thrown away due to failure of the proofing process. The classification process uses digital image techniques by analyzing the color and texture of the donut dough. The dataset used is 200 images consisting of two classes, where each class is 100 mixed images labeled "successful" and 100 mixed images labeled "failed". The dataset will go through a preprocessing process and will be followed by modeling the results of feature extraction using the Histogram method and image classification using the K-Nearest Neighbor. System testing is assessed based on the calculation values of accuracy, precision, and recall. The results showed an accuracy of 93.50%, a precision of 91.42%, and a recall of 96.00%. From these results, it is evident that the system model that has been tested is capable of success in assessing the success rate of the proofing process on donut dough.*

*Keywords: Donuts, K-Nearest Neighbor, Histogram, Proofing.*