

ABSTRACT

Since long time ago in Indonesia, cattle have been used as livestock for business. In starting a livestock business, initial capital is one of the obstacles because it requires a large amount of capital, while one of the obligations to determine the success of the cattle business is weighing.

Scales are used to determine the weight of cattle, but the scales commonly used are expensive and inflexible. These problems can be solved using a digital image processing system. The system designed has an input in the form of a cow image and will produce an output in the form of cow weight along with the classification of large, medium, and small cows.

The program was designed using MATLAB software and displayed in the form of a Graphic User Interface (GUI). The results of the system using the fractal and random forest methods resulted in an accuracy of estimating the weight of cattle of 85.7% with an average computation time of 0.336 seconds. The total number of images of cows as data in this final project is 68 images, with a total of 7 cows that were taken for each cow as many as 9-10 images. The image of a cow consists of three classes, namely small, medium, large. The training data used 47 images of cows from three different classes. The test data used 21 images of cows from three different classes as well. The tolerance values for the weight estimation system are 108.16 for Schoorl's calculations, 99.68 for Winter's calculations, and 111.71 for Denmark's calculations.

Keywords: *Fractal, Random Forest, Cow Weight.*