

Abstract

Recognizing various types of fruit is one of activities that often occur in supermarkets, where staff must be able to recognize not only certain types of fruit, but also their variations, so they will be able to determine the price of the fruit. However, still there is problem have been found, such as staff not being able to memorize each fruit code, leading to errors in pricing. Therefore, it is necessary to build a system that can recognize or classify types of fruit automatically through images. This system can classify 131 types of fruit from Fruits-360 dataset which are related between classes, such as tomatoes and strawberries have the same color even though they are different in shape, as well as Braeburn apples and golden apples where they have almost same shape but have differences in color. The image of the fruit will be extracted using Histogram of Oriented Gradient (HOG) and the HSV Histogram and combined with Random Forest (RF) as the classification method. The training process with 67,692 training images has produced a model that can classify 131 types of fruit. The result of the prediction made on 22,688 test images with 131 different class types can predict fruit classes with the up to accuracy 98.11795%

Keywords: fruit recognition, machine learning, HOG, HSV, random forest