ABSTRACT

Weather describes the condition of the atmosphere over a short period of time. It is known that there are several types of weather, namely sunny, cloudy, and rainy. Weather conditions also affect people's daily activities. Several sectors that are affected by weather conditions are agriculture, animal husbandry, aquaculture, aviation, and others. Extreme weather changes quickly, requiring fast weather classification analysis as well.

In this research, it is proposed to design a weather classification system using the Convolutional Neural Network (CNN) method with the MobileNet architecture. In addition, this research utilizes digital images derived from secondary data, namely the Kaggle platform. With this research, an image acquisition process was carried out with a dataset consisting of 4 classes. The class consists of 300 Cloudy images, 215 Rain images, 253 Shine images, and 357 Sunrise images. The overall dataset is divided into 80% training data and 20% test data.

In this paper tested several parameters that affect system performance including image size, optimizer type, learning rate, epoch value, and batch size. Of the five parameters are tested into 5 scenarios. For each scenario, the best result is selected. So that the optimal parameters are obtained, namely resize image to 224×224 pixel, Adamax optimizer, epoch 50, batch size 16 and learning rate 0.0001. With an accuracy value of 95.56% and a loss value of 0.194.

Keywords: *Weather, Convolutional Neural Network, MobileNet, Image*