Classification of Monkeys for the Automatic Monkey Repellenter using Transfer Learning

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Monkeys take over the cultivations looking for foods, and it makes the fields wasted and it has become one of the major problems that farmers have to face in many areas. Furthermore, monkeys attack the normal households, and cities have become a common problem in the present society. The typical method to warding off monkeys is through human involvement such as shouting and lighting torches, air riffles, and fire crackers to repel the monkeys that come to their crops. Moreover, these methods are not easy, and some of them are harmful to monkeys as well as human. Additionally, these methods are familiar to the monkeys. Therefore, even if they leave at those times, they are used to coming back again. This is a lot of time wasting for the farmers, and it is difficult to protect the cultivations whole day. In some scenarios, monkeys attack farmers when they attempt to repel them from cultivations. Due to the damages that made by monkeys to the cultivations in Sri Lanka, there is a huge lose to economy. Therefore, accurate, efficient automatic method for chase different classes of monkeys is very useful tool. This paper describes classification of three classes of monkeys using transfer learning and electronic monkey repellenter to prevent this issue. This can help to protect the cultivation for the farmers whole the day without any labor cost. This can fill the gap of experts with cheap labors and computers or mobiles. The developed application consists of four main steps namely image pre-processing, data augmentation, train the model and visualize the results. Furthermore, this model can identify the three classes of monkeys and repel them from the cultivations by emitting a frequency wave. The accuracy of the system was calculated after visualized the results with the help of the prediction of the labels of the test images, and found as 98%. In the conclusion, the developed method can help farmers to recognize three classes of monkeys and warding off them early and cheaply using the Automatic Repellenter.

Keywords: Monkey; Transfer learning; Data augmentation; Cultivations