

Title: MushroomDetect: An Investigation into Local Mushroom Classification in Bangladesh Using Transfer Learning

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Abstract: When it comes to achieving food security, one of the main obstacles is ensuring that the diet includes high-quality foods. The development of scientific technologies has made manual local identification completely impractical because it takes so long and is so imprecise. To address this problem, Using a machine vision-based approach to swiftly identify the most popular and farmed mushrooms from photos raises the accuracy level to our desired level. Pictures of our chosen species were carefully clicked to compile the dataset. We carefully selected new circumstances for seven varieties of selected mushrooms, including “Ear mushroom,” “Golden Oyster,” “Milky Mushroom,” “Oyster mushroom(Po2),” “Oyster mushroom(Po10),” “Pink Oyster,” and “Reishi Mushroom,” to generate a bespoke dataset. We collected the 500 basic photographs and divided them into 7 groups. To get a position where training a dataset will be simple, we sought to increase the amount of raw dataset with augmentation. InceptionV3, InceptionResNetV2, and DenseNet201 were the transfer learning models employed in the initial stage. After putting DenseNet201 into practice, we received the intended outcome. All of these models provide us with a respectable level of accuracy, but after training DenseNet201, we were able to reach an accuracy of 96.72%. Accidental mushroom identification may also be possible in this study.

Keywords: Transfer learning, InceptionV3, Training, InceptionResNetV2, DenseNet201

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