NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2024-2025

Batch Number	AG2
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Guide	Dr.S.N.Tirumala Rao **M.Tech , Ph.D.**
Title	DeepFruit: A Unified Deep Learning Framework for Fruit Classification and Quality Evaluation
Domain/Technology	DEEP LEARNING
Base Paper Link	https://ieeexplore.ieee.org/document/10475330
Dataset Link	https://www.kaggle.com/datasets/shashwatwork/fruitnet-indian-fruits-dataset-with-quality
Software Requirements	Browser: Any latest browser like Chrome Operating System: Windows 7 Server or later Python (COLAB PRO), Flask
Hardware Requirements	SystemType: Intel Core i5 or above RAM: 8 GB Number of cores:5 Number of Threads: 4
Abstract	The dual problem of classification and grading of fruits, a very important aspect in agricultural automation, is seldom pursued in the sphere of personal computer vision. Though several works are performed based on features regarding size, shape, and color using CNNs for classification, the current work will utilize transfer learning to leverage pre-trained deep learning models. This work classifies six categories of fruits namely banana, apple, orange, pomegranate, lime, and guava using the FruitNet Indian Fruits dataset comprising 19,400 images by implementing various architectures like MobileNetV2, EfficientNetV2, NASNet, DenseNet, VGG16, InceptionV3, and Xception. It is observed that pre-processing increased the model performance for classification and grading by a huge margin to enable MobileNetV2 to go as high as 99.7% accuracy. In this paper, a discussion will be made on the possibility of applying MobileNetV2 in fruit classification and grading for improvement towards developing agricultural automation

Signature of the student(s) **Signature of the Guide** **Signature of the project coordinator**