# Strawberry Ripeness Classification using MobileNetV2

Team2\_Zelbytes | AI & Data Science Internship @ Zelbytes Pvt. Ltd.

## Team Details

Team Name: Team 2

Team Members: Anila Roy, Ravisankar S, Saahil Manoj M P

Company: Zelbytes Pvt. Ltd. — A product-based startup working on Robotics, IoT, Embedded Systems, and E-waste management through renovation.

## Project Objective

This project aims to develop a deep learning model that classifies strawberry images into three ripeness categories:

* - Ripe
* - Turning
* - Unripe

## Model Details

Model File: mobilenetv2\_strawberry\_ripeness\_final.h5

Base Model: MobileNetV2 (pretrained on ImageNet)

Framework: TensorFlow (with Keras)

|  |  |
| --- | --- |
| Metric | Value |
| Accuracy | 0.9934 |
| Loss | 0.2628 |
| Validation Accuracy | 0.9867 |
| Validation Loss | 0.2702 |

## Dataset Description

Dataset File: dataset.zip

Total Images: 1,509

|  |  |
| --- | --- |
| Class | Image Count |
| Ripe | 722 |
| Turning | 290 |
| Unripe | 497 |

### Data Split

|  |  |  |
| --- | --- | --- |
| Split | # Images | Percentage |
| Training | 1,208 | ~80% |
| Validation | 301 | ~20% |
|  |  |  |

## Test Results

The model was evaluated on 10 unseen test images.

Confusion Matrix:

Predicted →  
 Ripe Turning Unripe  
Actual ↓  
Ripe 3 0 0  
Turning 0 3 0  
Unripe 0 0 4

Classification Report:

precision recall f1-score support  
  
 ripe 1.0000 1.0000 1.0000 3  
 turning 1.0000 1.0000 1.0000 3  
 unripe 1.0000 1.0000 1.0000 4  
  
 accuracy 1.0000 10  
 macro avg 1.0000 1.0000 1.0000 10  
weighted avg 1.0000 1.0000 1.0000 10

## Colab Notebook

Notebook: day13\_evaluation\_Team2.ipynb  
Contains model loading, evaluation, test predictions, and visualizations.

## GitHub Repository

https://github.com/Ravisankar-S/Team2\_Zelbytes/

## Acknowledgement

This project was completed as part of the AI & Data Science Internship at Zelbytes Pvt. Ltd. We thank the organization for the opportunity and guidance.