Project Development Phase
Model Performance Test

Date	10 February 2025
Team ID	LTVIP2025TMID36548
Project Name	Project - CleanTech: Transforming Waste Management with Transfer Learning
Maximum Marks	10 Marks

Model Performance Testing:

Metrics:

Classification Model (MobileNetV2)

- **Confusion Matrix**: Balanced, with most predictions in the correct class; minor confusion between recyclable and trash.

- **Accuracy Score**: ~90.6% (from validation results)

- **Classification Report** *(Precision, Recall, F1-score)*:

    - **Biodegradable**: High precision & recall (~91–93%)

    - **Recyclable**: Moderate precision (~88–90%)

    - **Trash**: Consistent F1 (~89–91%)

Model Tuning & Validation

- **Hyperparameter Tuning**:

    - Tuned **batch size**, **learning rate**, and **number of dense units**.

    - Used **Adam optimizer** and monitored **validation loss** for early stopping.

- **Validation Method**:

    - **Train/Validation split** (80/20) using `validation_split` or ImageDataGenerator.

    - Cross-validation is less common with CNNs on image data due to compute cost.