NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2024-2025

Batch Number	DG6
Team Members	M.Madhavi (22475A0522) M.Sreya Reddy(21471A05N8) P.Nikhitha(22475A0504)
Guide	Mothe Sathyam Reddy M.Tech,
Title	Accuracy and Efficiency Gains in Waste Classification Through Continuous Learning and Advanced Techniques
Domain/Technology	DEEP LEARNING
Base Paper Link	https://link.springer.com/article/10.1007/s11356-024-33233-w
Dataset Link	1. https://colab.research.google.com/drive/1aLWfIRClMqKye8pWNstaqYDBbTOZve8W?usp=drive_link (Google Drive). 2. https://drive.google.com/drive/folders/1-DMMpCzFnE1FnWQz7SqzQDoYKNG73ISZ?usp=drive_link(kaggle)
Software Requirements	Browser: Any latest browser like Chrome Operating System: Windows 7 Server or later Python (COLAB)
Hardware Requirements	SystemType: Intel Core i3 or above RAM: 8 GB Number of cores:3 Number of Threads: 4
Abstract	Efficient waste management is crucial for sustainable development, given the growing waste volume. This paper introduces a model combining Multi-Objective Beluga Whale Optimization with InceptionV3 architecture to classify waste like paper, plastic, metal, and glass. Using data augmentation and optimized hyperparameters, it achieves 97.75% accuracy and 99.55% specificity, outperforming traditional models. Enhanced by CNNs and transfer learning, the system is scalable and ready for real-world applications, with future plans for real-time classification and integration into smart city infrastructures..

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