Project Initialization and Planning Phase

Date	1 December 2024
Team ID	740061
Project Title	Garbage Classification Using Deep Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	To develop a deep learning-based model that classifies garbage into categories to improve waste segregation efficiency and promote sustainable waste management practices.
Scope	The project will address waste classification in residential, commercial, and municipal settings.
Problem Statement	
Description	Inefficient manual garbage segregation leads to improper waste disposal, increased landfill usage, and missed recycling opportunities.
Impact	Solving this issue would enhance recycling rates, reduce waste management costs, and contribute to environmental conservation by minimizing landfill dependency and pollution.
Proposed Solution	
Approach	Build a convolutional neural network (CNN)-based deep learning model trained on a labeled dataset of garbage images. Integrate the model into a web application where users can upload images to receive classification results in real-time.
Key Features	High Accuracy, User-Friendly Interface, Real-Time Results, Scalable Architecture.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	12th Gen Intel ® Core ™ i5-1235U 1.30 GHz
Memory	RAM specifications	16 GB
Storage	Disk space for data, models, and logs	456 GB
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Tensorflow, keras
Development Environment	IDE, version control	Jupyter Notebook, Git Hub, Spyder
Data		
Data	Source, size, format	Google drive dataset, 2500 images