Project Initialization and Planning Phase

Date	11-03-2025
Team ID	740047
Project Title	AI-POWERED VEHICLE DAMAGE ASSESSMENT FOR COST ESTIMATION AND INSURANCE CLAIMS.
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

To address the inefficiencies in manual vehicle damage assessment and insurance claim processing, this project proposes the development of an AI-Powered System capable of automatically analyzing vehicle images to detect damage, classify its severity and estimate repair costs.

Project Overview	
Objective	The objective of this project is to develop an AI-powered system that automates vehicle damage assessment through image analysis. The system aims to accurately detect and classify the type and severity of damage using deep learning and computer vision techniques. It will estimate repair costs based on predefined pricing models, helping to eliminate the need for manual inspections. By doing so, the project seeks to enhance the accuracy, speed, and consistency of insurance claim evaluations while reducing the risk of human error and fraudulent claims.
Scope	It includes the design and development of an AI-based system capable of assessing vehicle damage from images. It covers the collection and preprocessing of image datasets, training of machine learning models, and integration of repair cost estimation logic. The system will support damage classification, severity analysis, and cost prediction. A user interface will be developed to allow users to upload vehicle images and receive instant feedback. The solution will be designed for scalability and integration with insurance claim systems. The project does not include physical repairs or human claim verification beyond the AI-generated output.
Problem Statement	

Description	Vehicle damage assessment is currently a manual process requiring expert inspection. It is often slow, subjective, and varies between inspectors. This leads to inefficiencies and inconsistent insurance claim evaluations.
Impact	An AI-powered solution can automate and standardize damage assessment. It will reduce claim processing time and improve accuracy. This enhances customer satisfaction and minimizes insurance fraud.
Proposed Solution	
Approach	The project uses computer vision and deep learning techniques to analyze vehicle damage from uploaded images. A convolutional neural network (CNN) model is trained on annotated datasets to detect and classify damage. The system then maps damage severity to estimated repair costs, automating the insurance claim process.
Key Features	Automatic detection and classification of vehicle damage from images. Instant repair cost estimation based on predefined pricing logic. User-friendly interface with integration capabilities for insurance platforms.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Tensorflow, Matplotlib, numpy, glob and vgg16

Development Environment	IDE, version control	Google colab, Vs Code
Data		
Data	Source, size, format	Kaggle dataset, 614, csv