Project Design Phase-II

Technology Stack (Architecture &Stack)

Date	31 January 2025
Team ID	LTVIP2026TMIDS53438
Project Name	Dog breed Prediction Using Transfer Learning
Maximum Marks	4 Marks

Technical Architecture:

ThesystemconsistsofaWebUserInterfacewhereusersuploaddogimages.TheFlaskbackend processes the image and forwards it to the trained VGG19 Transfer Learning model. The model performs inference and returns the predicted dog breed. The result is displayed back to the user interface. The application is deployed on a local server (127.0.0.1:5000).

Table-1: Components &Technologies

S.No	Component	Description	Technology
1	User Interface	Image upload & result display	HTML, CSS, JavaScript
2	Application Logic-1	Flask backend request handling	Python, Flask
3	Application Logic-2	Image preprocessing & model inference	TensorFlow, Keras
4	File Storage	Stores uploaded images temporarily	Local File System
5	Machine Learning Model	Dog Breed Classification	VGG19 (Transfer Learning)
6	Infrastructure	Application Deployment	Local Server

Table-2: Application Characteristics

S.No	Characteristic	Description	Technology
1	Open-Source Frameworks	Frameworks used in development	TensorFlow, Keras, Flask
2	Security	Input validation & secure file upload	Flask Security Practices
3	Scalable Architecture	3-Tier Architecture (UI + Backend +	Architecture
4	Availability	Runs in local server environment	Localhost Deployment
5	Performance	Optimized inference using pre-trained model	VGG19