Functional Specification Document (FSD)

Project Name: Dog Breed Identification Using Transfer Learning

1. Project Information

Project Title: Dog Breed Identification Using Transfer Learning
Team ID: LTVIP2026TMIDS55972

S.No	Name	Role	Responsibility
1	Rizwana Devaragutta	Team Leader	Project coordination, planning, monitoring progress
2	Shaik Amreen	ML Developer	Model training, transfer learning implementation
3	Mandla Dharani	Backend Developer	API development, server integration
4	Tokala Nageswari	Frontend Developer	UI design, image upload interface
5	V Prasanalakshmi	Tester & Documentation	Testing, validation, preparing reports

2. Project Overview

Purpose: Develop an intelligent system to identify dog breeds from images using Transfer Learning techniques.

Problem Statement: Manual identification of dog breeds requires expertise. The system automates breed prediction using AI.

Scope: Accept image input, process image, use pre-trained model, predict breed, and display result with confidence score.

3. Functional Requirements

- User can upload dog image (JPG/PNG).
- System validates and preprocesses image.
- Model predicts dog breed.
- System displays breed name and confidence score.
- Admin can retrain model and update dataset.

4. Non-Functional Requirements

- Prediction time less than 5 seconds.
- Accuracy above 80%.
- User-friendly interface.
- Secure image upload and data privacy.
- Reliable and continuous operation.

5. System Architecture

The system follows a 3-Tier Architecture: 1. Presentation Layer (Frontend) – HTML, CSS, JavaScript. 2. Application Layer (Backend) – Python (Flask/Django). 3. Data Layer – Dataset and trained model storage.

6. Expected Output

- Predicted Dog Breed Name.
- Confidence Score (%).
- Clean and user-friendly interface.