

## **Dog breed identification using transfer learning**

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TEAM ID	LTVIP2026TMIDS90703
PROJECT NAME	Dog breed identification using transfer learning
MAXIMUM MARKS	5 MARKS

## **Chapter 4**

### **Project Design**

#### **4.1 - Problem Solution Fit**

In the Project Design phase, establishing a clear Problem–Solution Fit is essential to ensure that the proposed system effectively addresses the identified user needs and challenges. The Dog Breed Identification using Transfer Learning project was designed after carefully analyzing the difficulties users face in accurately identifying dog breeds and aligning those challenges with an appropriate technological solution.

The core problem identified is the difficulty in accurately distinguishing between a large number of dog breeds that often share similar physical characteristics. Manual identification methods, such as visual comparison through online searches or consulting experts, are time-consuming, inconsistent, and dependent on human expertise.

Users frequently experience confusion due to subtle variations in fur patterns, facial structure, size, and color. Additionally, variations in image quality, lighting conditions, and camera angles further complicate accurate breed recognition. Traditional machine learning approaches that rely on handcrafted feature extraction methods lack robustness and fail to generalize effectively in diverse real-world conditions.