

Project Design Phase

Proposed Solution Template

Field	Details
Date	28 June 2025
Team ID	LTVIP2025TMID46346
Project Name	HematoVision - Blood Cell Classification Using Transfer Learning
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Critical Healthcare Challenge in Hematological Diagnosis: Manual blood cell classification in clinical laboratories faces multiple critical issues: Time Inefficiency: Traditional microscopic analysis requires 5-10 minutes per sample, creating bottlenecks in patient diagnosis with labs processing 50-200 samples daily Human Error & Inconsistency: Manual counting shows 15-20% variation between technicians due to fatigue, experience levels, and subjective interpretation, leading to potential misdiagnosis Expertise Shortage: Shortage of trained hematologists, particularly in rural and developing regions, limiting access to accurate blood disorder diagnosis Training Complexity: New laboratory technicians require 6-12 months of intensive training to achieve proficiency in accurate cell identification Quality Control Challenges: Maintaining consistent diagnostic standards across different shifts, technicians, and laboratory locations Cost Implications: High operational costs due to lengthy analysis time, expert staff requirements, and potential repeated testing due to inconsistencies Impact: Delayed patient treatment, increased healthcare costs, reduced diagnostic accuracy, and limited access to specialized care in underserved areas.
2.	Idea / Solution Description	**HematoVision: AI-Powered Bloo