Proposed Solution Template

Date: 27 June 2025

Team ID: LTVIP2025TMID42022

Project Name: Hematovision: Advanced 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) | Manual blood cell classification is time-consuming and prone to human error, requiring highly skilled pathologists. In rural or under-resourced regions, this leads to delays and misdiagnoses in critical conditions such as leukemia and anemia. |
| 2. Idea / Solution Description | Our solution, Hematovision, uses transfer learning with deep learning models (e.g., ResNet, VGG) to automate the classification of blood cells. It can identify Red Blood Cells (RBC), White Blood Cells (WBC), Platelets, and abnormal cells with high accuracy using a trained CNN, offering real-time support to healthcare professionals. |
| 3. Novelty / Uniqueness | Unlike conventional AI models requiring large datasets, our approach utilizes pre-trained models through transfer learning, drastically reducing training time and data requirements. The user-friendly interface and cloud deployability make it accessible for labs with minimal technical infrastructure. |
| 4. Social Impact / Customer Satisfaction | Hematovision empowers clinics in remote areas to perform accurate and fast blood analysis, improving diagnostic turnaround and reducing patient risk. It helps bridge the diagnostic gap between urban and rural healthcare facilities, contributing to equitable healthcare. |
| 5. Business Model (Revenue Model) | The model follows a SaaS approach with subscription tiers for diagnostic centers and labs. Freemium access can be provided for small clinics with basic features, while advanced diagnostics and analytics are unlocked in premium plans. |
| 6. Scalability of the Solution | The solution is scalable across geographies with internet access. It supports integration with hospital management systems (HMS) and can be upgraded to include additional blood-related diseases. Cloud deployment allows easy rollout and updates. |