# Project Design Phase

## Problem – Solution Fit Template

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| Date | 17 JULY 2025 |
| Team ID | LTPV2025TMID42255 |
| Project Name | HEMATOVISION: ADVANCED BLOOD CELL CLASSIFICATION USING TRANSFER LEARNING |
| Maximum Marks | 2 Marks |

## Problem – Solution Fit Template

The Problem–Solution Fit means that you have identified a genuine issue in the medical diagnostics field—specifically in blood cell classification—and designed a solution that accurately addresses the problem using advanced AI techniques. This approach aids pathologists, medical technicians, and healthcare providers by automating and improving diagnostic accuracy and speed.

## Purpose:

* ✔ Solve complex problems in a way that fits the state of your customers.
* ✔ Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
* ✔ Sharpen your communication and marketing strategy with the right triggers and messaging.
* ✔ Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
* ✔ Understand the existing situation in order to improve it for your target group.

## Template:

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| Section | Details |
| Target Group | Pathologists, clinical laboratories, diagnostic centers, and hospitals involved in hematological analysis. |
| Current Situation | Manual blood cell classification is time-consuming, prone to human error, and requires extensive expertise. |
| Undesirable Effect | Misclassification of cells leads to diagnostic delays, treatment errors, and increased patient risk. |
| Existing Alternatives | Traditional microscopy, semi-automated tools, and older ML models lacking generalization across datasets. |
| Our Solution | HEMATOVISION: An AI-powered platform using transfer learning to accurately classify various types of blood cells using microscopic images. |
| Why It Works | Leverages pretrained deep learning models to achieve high accuracy even on limited data. Enhances speed and reduces human dependency. |
| Advantages Over Existing | Faster results, improved diagnostic accuracy, reduced need for manual input, scalable solution across healthcare institutions. |
| How Customers Use It | Upload blood smear images through a web-based interface or hospital system integration; receive cell classification and diagnostic suggestions. |
| Success Metrics | Classification accuracy >95%, reduction in diagnostic time by 50%, increased adoption by labs, positive feedback from clinical users. |