Project Design Phase
Problem – Solution Fit Template

Date	29 june 2025
Team ID	LTVIP2025TMID46471
Project Name	Hematovision : advanced blood cell classification using transfer learning
Maximum Marks	2 Marks

1. Problem Statement

Manual classification of blood cells is a time-consuming and error-prone task that pathologists and lab technicians perform. This results in inefficiencies, errors in diagnosis, and delays in patient treatment plans. The need for an automated system that can classify blood cells accurately and rapidly is evident. The existing process is prone to fatigue and human error, leading to a potential risk in medical decision-making.

2. Solution Description

HematoVision leverages a deep learning-based solution to automate the classification of blood cells using MobileNetV2, a pre-trained model fine-tuned for blood cell images. The system allows users to upload images of blood cells, which the model processes and classifies into four types: Eosinophil, Basophil, Monocyte, and Lymphocyte. This solution reduces manual errors and significantly speeds up the diagnostic process, enabling faster and more accurate diagnoses.

3. Customer/Target Audience

The primary target audience for HematoVision includes pathologists, lab technicians, and medical professionals who rely on blood cell classification for diagnostic purposes. The solution also caters to medical institutions that require an efficient, scalable way to classify blood cells with accuracy.

4. Customer Needs and Behaviors

The customers face the challenge of manual and time-consuming blood cell classification, which is prone to errors and inefficiencies. They need a fast, accurate, and reliable method to classify blood cells without the heavy reliance on human labor. The solution should fit into their current workflow and help them speed up diagnostics, reduce errors, and increase operational efficiency.

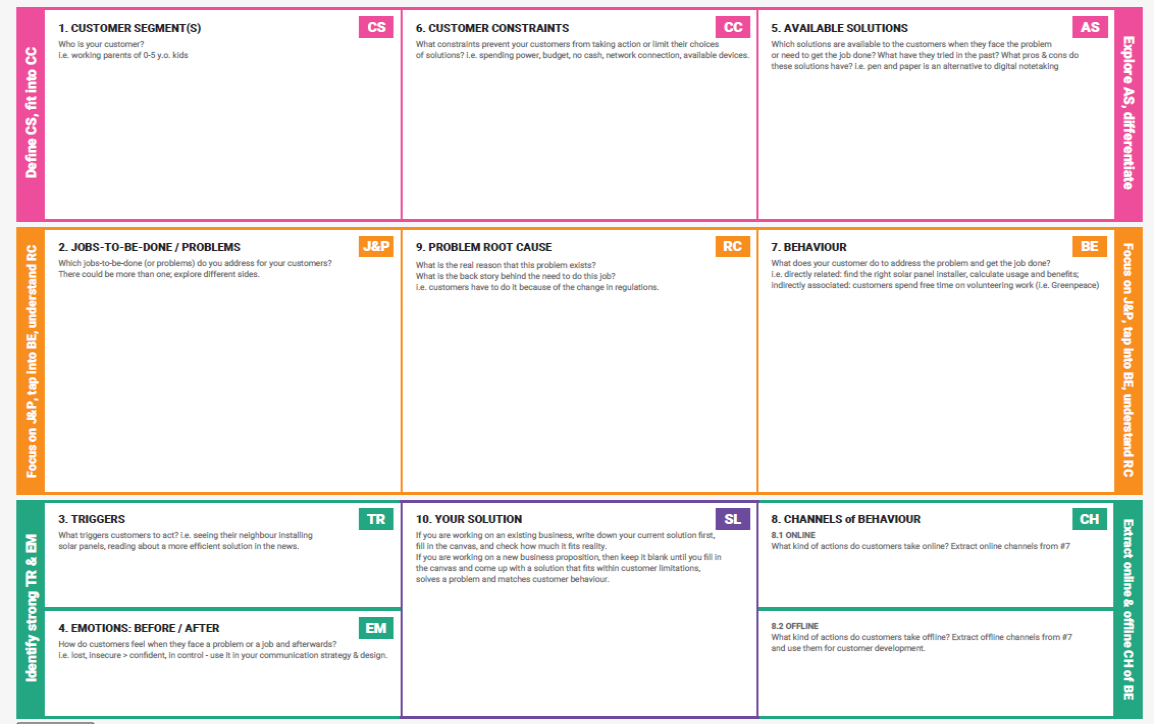
5. Solution Fit

HematoVision addresses these customer needs by providing an automated solution for blood cell classification using advanced machine learning techniques. The web-based tool is user-friendly and does not require significant changes to existing workflows. It automates the image classification process, offering a quick and reliable alternative to manual methods, and ultimately improves the speed and accuracy of diagnoses.

6. Key Metrics for Success

Success for HematoVision will be measured by the following key metrics:
1. **Reduction in Classification Time: Faster image processing compared to manual methods.**
2. **Accuracy Improvement: Increased accuracy in blood cell classification.**
3. **Customer Adoption Rate: The rate at which pathologists, lab technicians, and medical facilities adopt the solution.**
4. **Operational Efficiency: Improved efficiency in medical workflows and diagnostics.**

Template:



References:

1. https://www.ideahackers.network/problem-solution-fit-canvas/
2. https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe