Problem–Solution Fit Template

🎞 Project Information

Field	Details	
📅 Date	20 July 2025	
👥 Team ID	LTVIP2025TMID36397	
📌 Project Name	*Pollen's Profiling ⬚ Automated Classification of Pollen Grains*	
🎯 Maximum Marks	2 Marks	

☑ Problem–Solution Fit Template

The Problem–Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers, and corporate innovators identify behavioral patterns and recognize what would work and why.

☑ Purpose

☑

Objective

Solve complex biological classification problems in a way that fits the actual needs of researchers and biologists.

Succeed faster and increase adoption by integrating with existing research methods and education systems.

Sharpen scientific communication and collaboration through real-time, interpretable classification results.

Increase touch-points with researchers by addressing urgent and high-effort manual microscopy workflows.

Understand current limitations in manual pollen identification to create scalable, accessible alternatives.

⊞ Problem – Solution Fit Table

S. No	Component	Details
1	**Customer Segment ⬚CS⬚**	⬚ Researchers in botany, ecology, and palynology ⬚ Medical professionals studying allergy-causing pollens • Environmental analysts ⬚ Academic institutions and students
2	**Jobs-to-be-Done/Problems ⬚JBTD⬚**	⬚ The need to classify pollen species from microscopic images quickly and accurately ⬚ Difficulty in manually sorting visually similar grains ⬚ Lack of scalable classification tools
3	**Triggers ⬚TR⬚**	⬚ A biologist analyzing field samples of pollen ⬚ A student uploading microscope images for classifying species ⬚ A lab testing allergenic patterns seasonally
4	**Emotions ⬚EM⬚**	• **Before⬚** Confused, frustrated with complex morphology and reference lookup • **After⬚** Confident and productive with AI-assisted accurate output
5	**Available Solutions ⬚AS⬚**	⬚ Manual microscopy and domain experts ⬚ Static botanical charts or paper atlases ⬚ Custom research scripts with limited accessibility

S. No	Component	Details
6	**Customer Constraints CC**	▢ Limited availability of diverse, labeled datasets ▢ Inconsistent quality of input images (focus, lighting) ▢ Model must be lightweight for smooth web-based deployment
S. No	Component	Details
7	**Behavior B**	▢ Researchers search for classification guides ▢ Users upload images through the app ▢ Use results for documentation, publication, or field studies
8	**Channels CH**	▢ A Flask-powered web interface for fast access and predictions ▢ Future potential integration with mobile microscopes or institutional servers
9	**Problem Root Cause RC**	▢ Over-dependence on time-consuming manual observation ▢ Absence of standardized tools for automated morphological classification
10	**Your Solution S**	▢ A CNN-based classification system trained on 790 labeled images across 23 pollen types ▢ Deployed via Flask for real-time image uploads and prediction ▢ Supports ecological, educational, and medical workflows

References

▢ https://www.ideahackers.network/problem-solution-fit-canvas/

▢ https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe