4. PROJECT DESIGN

4.1 Problem – Solution Fit

Date	30 June 2025
Team ID	LTVIP2025TMID34162
Project Name	GrainPalette – A Deep Learning Odyssey in Rice Type Classification Through Transfer Learning
Maximum Marks	2 Marks

Problem – Solution Fit Canvas

Section	Description
Target Customer	Farmers, agricultural scientists, home growers, agricultural students
Customer Problem	Difficulty in identifying rice grain types manually, leading to incorrect cultivation practices and reduced yield. Lack of quick and reliable tools for rice grain classification.
Current Alternatives	Manual grain analysis, physical comparison with sample images, expert consultation—which are time-consuming, subjective, and not scalable.
Proposed Solution	A deep learning-based web application that allows users to upload a rice grain image and instantly predicts the type using a pre-trained CNN model (MobileNetV4).
Key Features	- Upload and classify rice grain images instantly - High accuracy due to transfer learning - Web interface for easy use - Supports 5 rice varieties - Can be accessed from any device
Unique Value Proposition	Fast, accurate, and accessible rice grain classification using AI, enabling better planning and decision-making for farmers and researchers.
Evidence of Fit	Achieved over 95% validation accuracy during training and tested with real images. Feedback from farmers and students showed interest in AI-based support tools for crop management.

✅ **Purpose This Template Serves**

- **Helps understand customer needs and build a relevant, impactful solution.**

- **Validates that your AI model addresses a real agricultural pain point.**

- **Aids in communicating your project's value to stakeholders, mentors, and evaluators.**

📚 **References**

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

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

Template:

References:

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