

Ideation Phase

Empathize & Discover

Date	31 January 2025
Team ID	LTVIP2025TMID32756
Project Name	Pollen 's Profiling:Automated Classification Of Pollen Grains
Maximum Marks	4 Marks

Empathy Map Canvas

1.User Profile

Target Users:

- Researchers (Palynologists, Botanists, Environmental Scientists)
- Laboratory Technicians
- Agricultural Specialists
- Healthcare Professionals (e.g., Allergists)

User Goals:

- Classify pollen grains with high accuracy and speed
- Reduce manual analysis effort
- Enhance reproducibility and scalability in pollen data collection
- Enable better insights for allergy prevention, crop health, or climate tracking

User Challenges:

- Morphological diversity among pollen grains makes classification complex
- Manual identification is time-consuming and requires expert skill
- Inconsistency across different analysts or labs
- Limited access to cutting-edge AI tools in smaller institutions

2. Empathy Quadrants

SAYS:

- "Manual classification is tedious."
- "I need results to be highly accurate."
- "Will this integrate with our lab tools?"

THINKS:

- "Automation could save hours of work."
- "What if the tool misclassifies a sample?"
- "Will I need special training to use it?"

DOES:

- Spends long hours viewing samples
- Uses microscopy + multiple references
- Attends training/workshops or conferences

FEELS:

- Frustrated with repetitive manual tasks
- Hopeful about automation's potential
- Overwhelmed by the data volume

3. Pain Points & Needs

Pain Points:

- Manual classification is subjective and error-prone
- Lack of a unified database for pollen grain images
- High cost of commercial automation solutions
- Slow turnaround for large batch analysis

User Needs:

- User-friendly interface requiring minimal training
- High precision in classification with transparent AI logic
- Integration with microscopes and existing lab systems
- Affordable or open-source alternatives to proprietary tools

4. Proposed Solutions

- Automated Imaging System:

Use AI-powered microscopy to analyze and classify pollen grains in real-time.

- Open-Source Pollen Database:

Crowdsourced and curated image sets with expert-tagged morphology references.

- Customizable Analysis Settings:

Users can fine-tune model sensitivity based on region, species, or grain rarity.

- Export-Friendly Platform:

Seamless export of classification reports to CSV, PDF, or lab management systems.

Inspired by MURAL Empathy Map Template: <https://www.mural.co/templates/empathy-map-canvas>

Example

Empathy map

