**Ideation Phase**
**Empathize & Discover**

| | |
|---|---|
| Date | 31 January 2025 |
| Team ID | LTVIP2026TMIDS82253 |
| Project Name | Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy |
| Maximum Marks | 4 Marks |

**Empathy Map Canvas:**

## Project: Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy

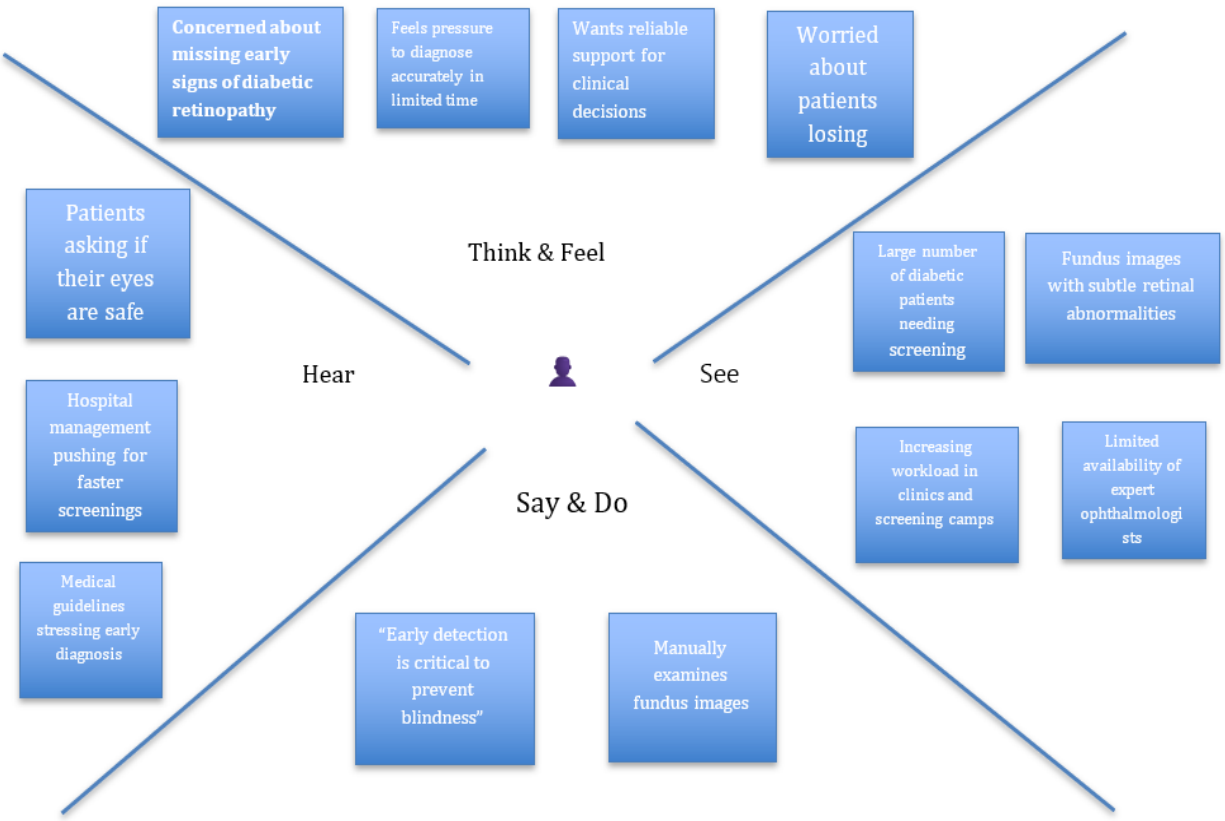
The empathy map is used in this project to understand the needs, challenges, and emotions of healthcare professionals involved in screening diabetic patients for diabetic retinopathy. By analyzing what doctors **think, feel, see, hear, and do**, the project design is aligned with real-world clinical requirements.

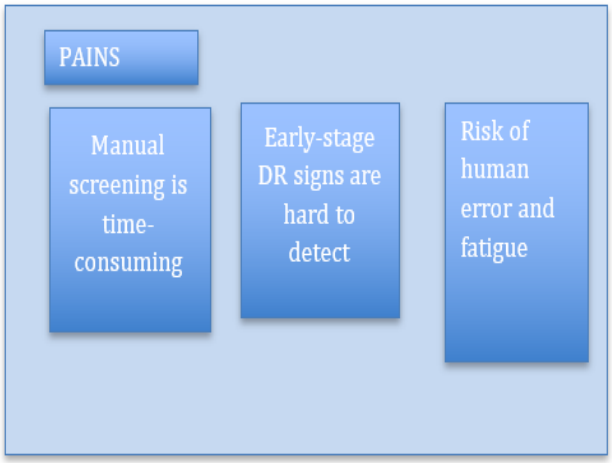
Using the empathy map, we identified key pain points such as time-consuming manual screening, difficulty in detecting early-stage retinal abnormalities, and heavy workload during large-scale screenings. These insights helped in shaping the system requirements, including the need for high accuracy, fast image analysis, and reliable decision support

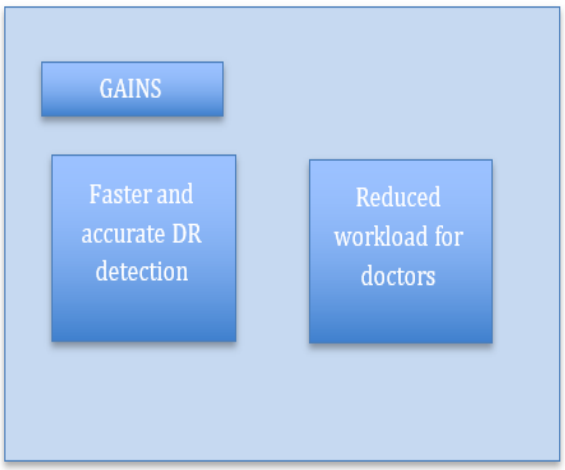
The empathy map also guided the development of a user-friendly interface that presents clear predictions, severity levels, and visual explanations of model decisions. This ensures that the deep learning system effectively supports doctors in early diagnosis, reduces human error, and improves patient outcomes.

Overall, the empathy map ensures that the proposed solution is **user-centered**, addressing both technical and emotional challenges faced by healthcare professionals, thereby increasing trust, usability, and adoption of the system in real clinical environments.

**Example:**


Concerned about missing early signs of diabetic retinopathy
Feels pressure to diagnose accurately in limited time
Wants reliable support for clinical decisions
Worried about patients losing
Patients asking if their eyes are safe
Think & Feel
Large number of diabetic patients needing screening
Fundus images with subtle retinal abnormalities
Hear
See
Hospital management pushing for faster screenings
Increasing workload in clinics and screening camps
Limited availability of expert ophthalmologists
Say & Do
Medical guidelines stressing early diagnosis
"Early detection is critical to prevent blindness"
Manually examines fundus images


PAINS
Manual screening is time-consuming
Early-stage DR signs are hard to detect
Risk of human error and fatigue


GAINS
Faster and accurate DR detection
Reduced workload for doctors