

# Diabetic Retinopathy

**MINOR PROJECT**

PIOUS ANNIE 20103049

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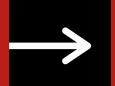
RIJUL SINGLA 20103080

ARMAAN BADHAAN 20103104

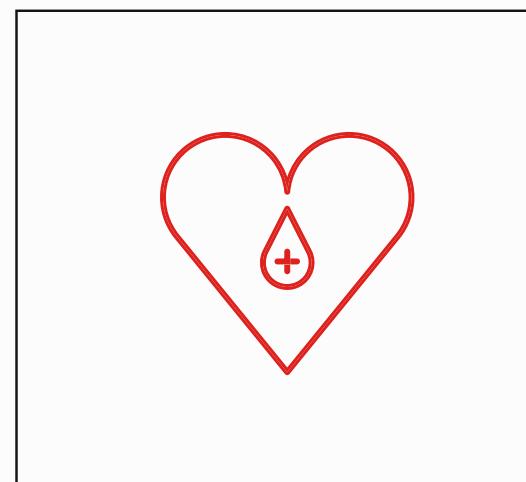
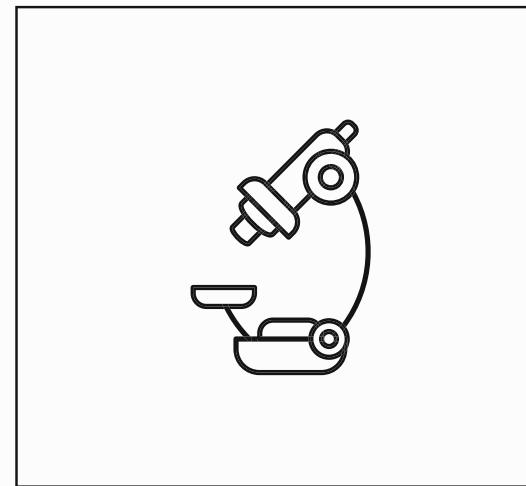


**India is said to be the diabetic capital of the world by 2030 with over 80 million people affected by it.**

1 in 11 Indians have been diagnosed with diabetes



# Our **Agenda** for Today



## Key concepts

- What is diabetic retinopathy?
- What is our solution?
- Whom is our solution for?
- Technical roadmap
- Technical stack
- Process overview
- Future scope

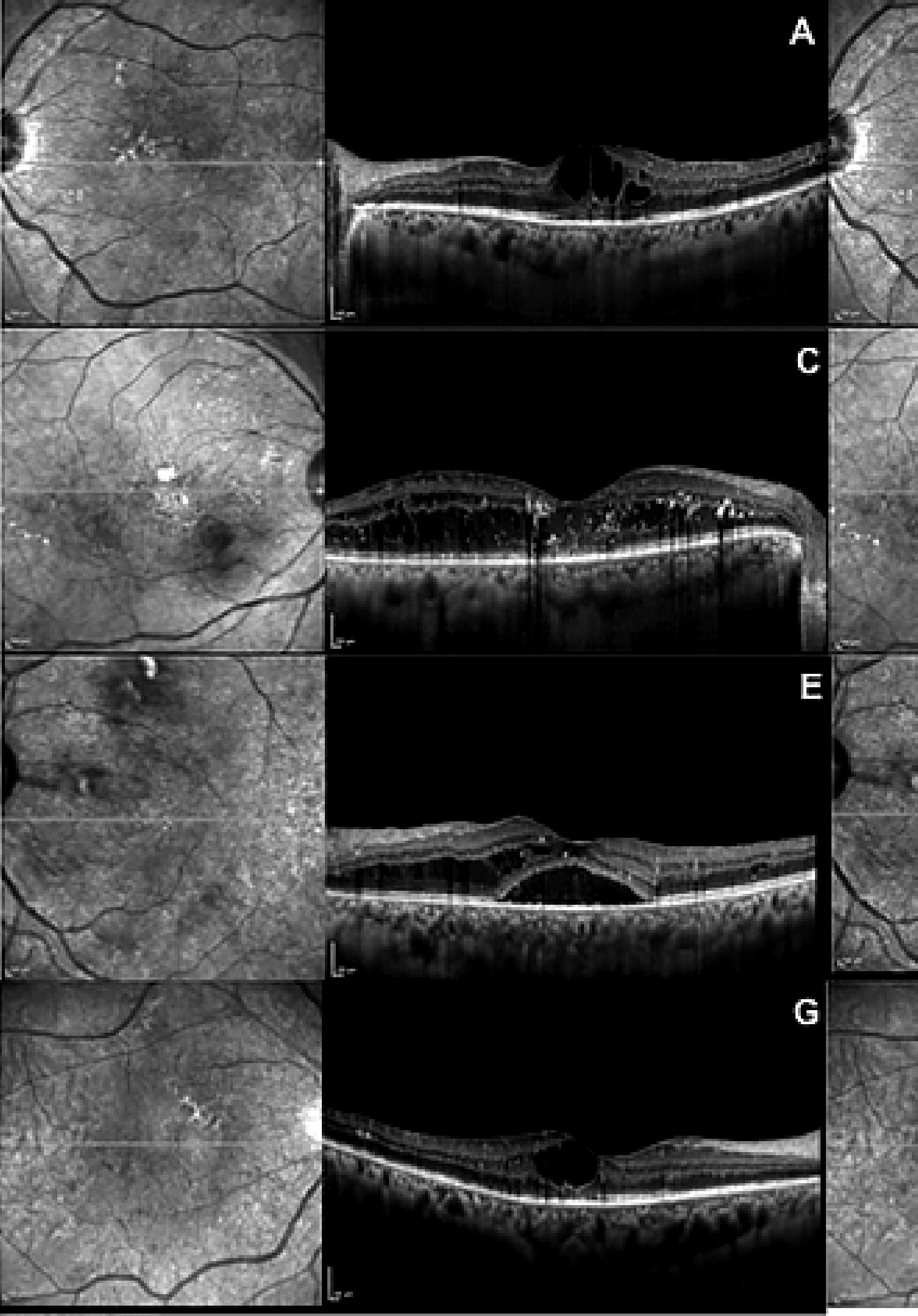




# What is diabetic retinopathy?

People with diabetes can have an eye disease called diabetic retinopathy. This is when high blood sugar levels cause damage to blood vessels in the retina. These blood vessels can swell and leak. Or they can close, stopping blood from passing through. All of these changes can steal your vision. If not treated at early stages, it could lead to permanent blindness. A major contributor towards this condition is **delayed diagnosis!**





# What is our solution?

- ✓ An ML model with a focus on privacy, scalability and interpretability.
- ✓ Matching cases based on severity and time for immediate diagnosis.



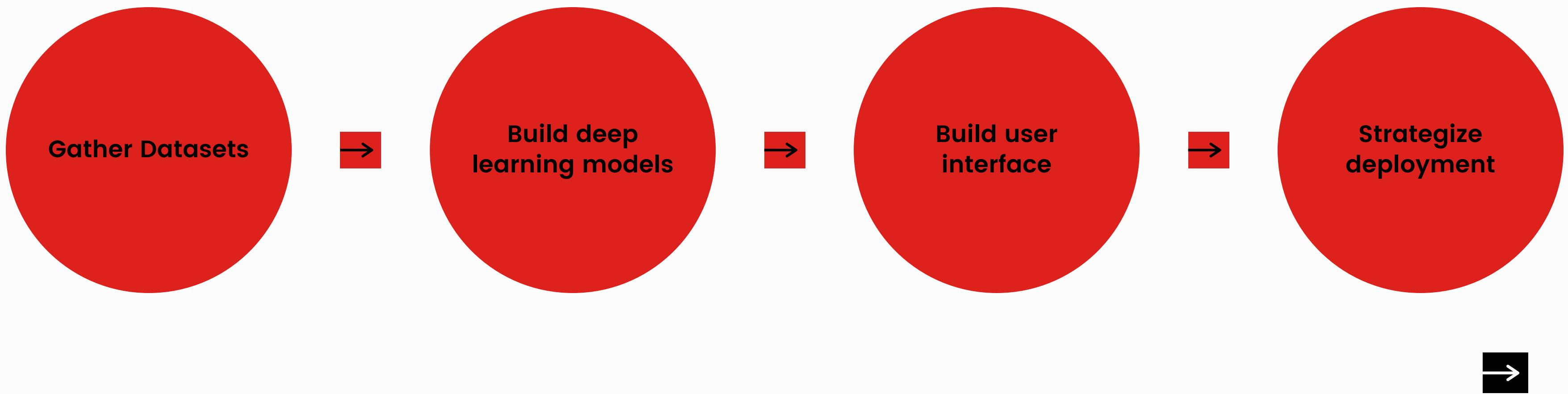
# Whom is our solution intended for?



1. Rural areas which have small dispensaries and can afford a fundus camera, but don't have expert medical professionals available.
2. A tool for doctors to prioritise cases based on the severity of the condition.
3. For anyone who wants to make healthcare affordable and accurate.



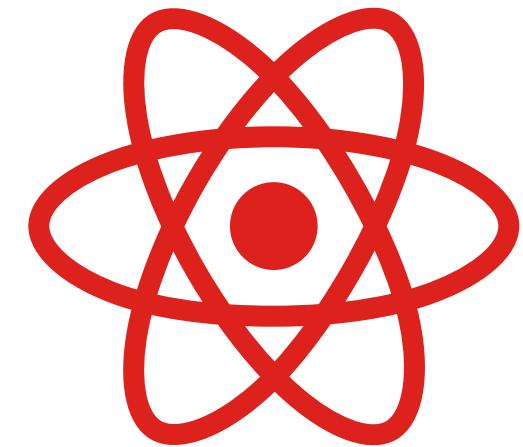
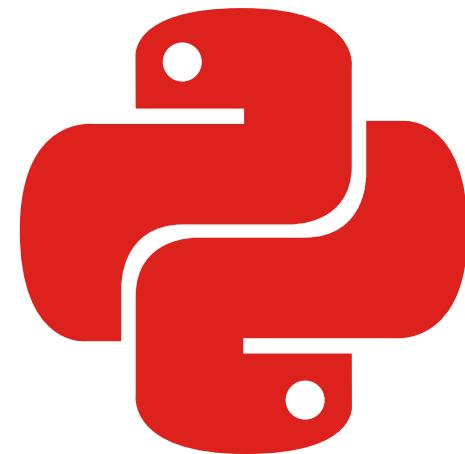
# Technical Roadmap



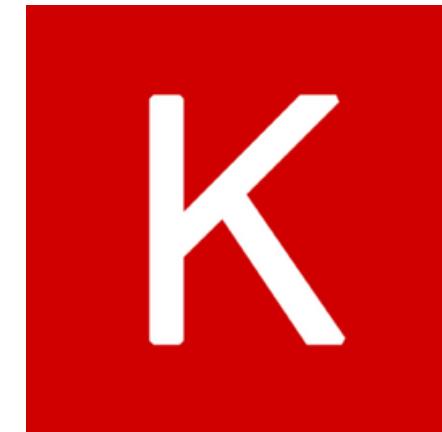
# Technical Stack



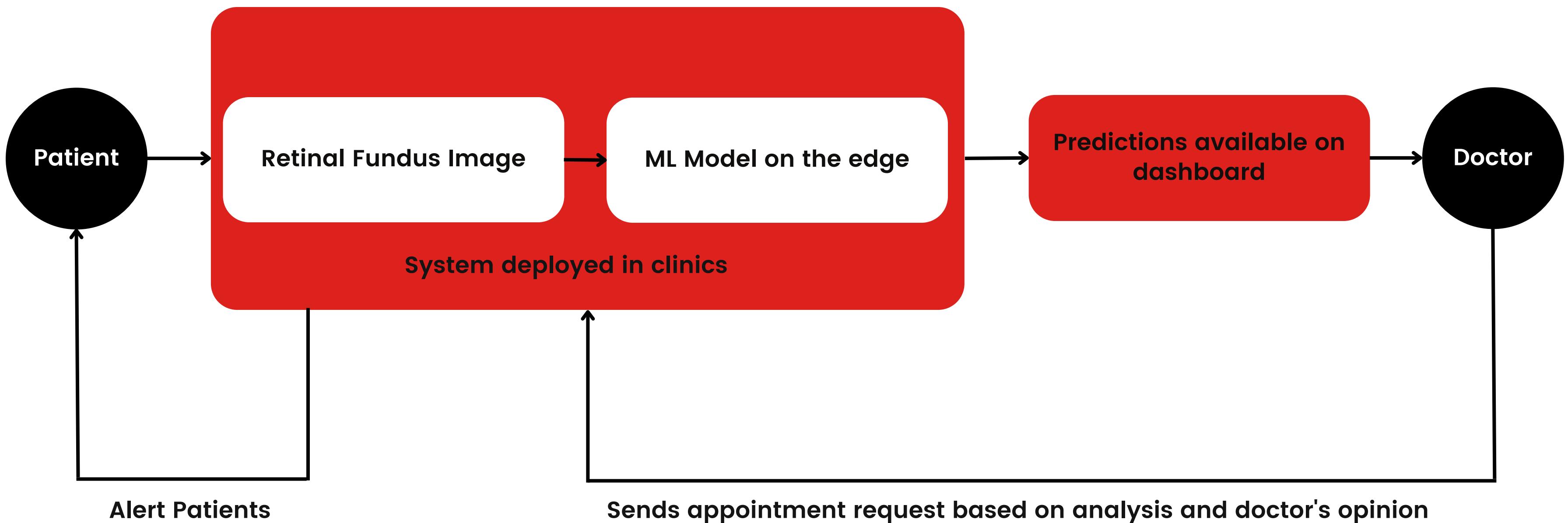
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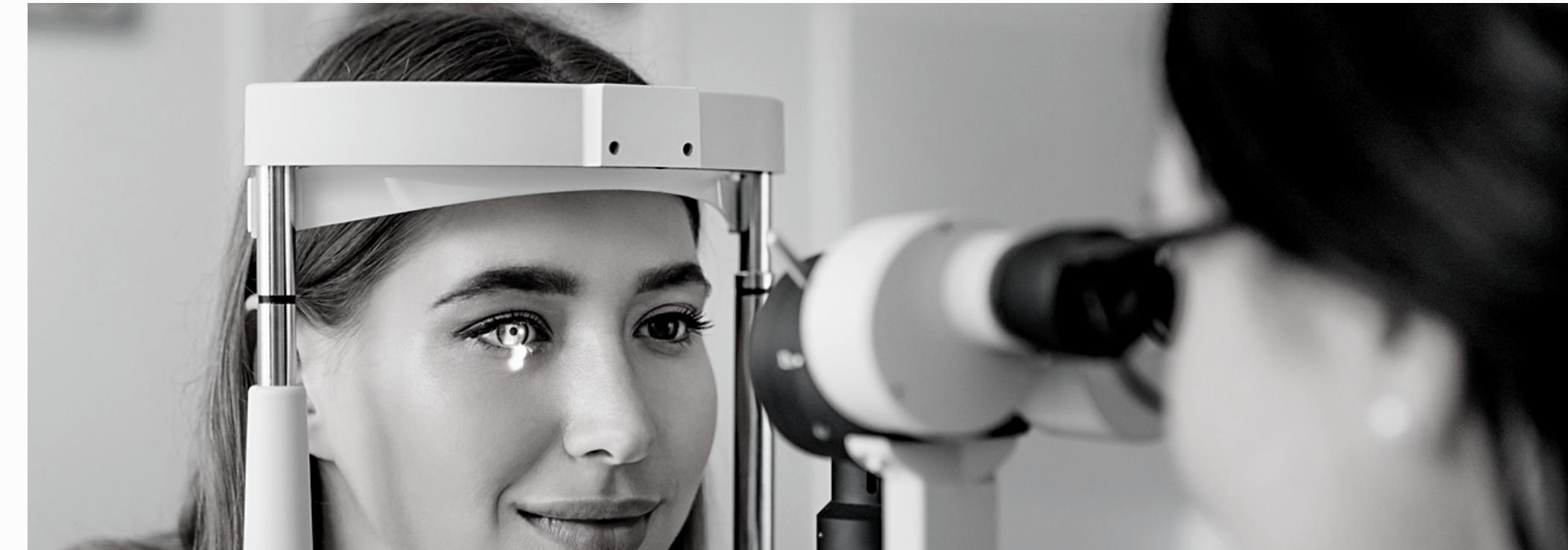
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# Process Overview



# Future scope



Predict more than 5 stage diabetic retinopathy, like other biological conditions based on the retinal image.

**Split Learning and Differential Privacy to preserve privacy.**

**Weak Supervision and Meta Learning** algorithms can be used to deploy this for a larger set of images.



**Thank  
you**

