* Early detection of diabetic retinopathy through fundus image analysis using DL



Empathizing(Target group)

- 1. useful for doctors (Early Detection and Intervention)
- 2. Ophthalmologists and Healthcare Provider
- 3. People with diabetes and early prediction of it



GOAL

- 1. Early Detection Fundus Fundus images are used to identify signs of diabetic retinopathy
- 2. Accurate Diagnosis:
- 3. . Prevent Vision Loss:
- 4. Enhance Efficiency

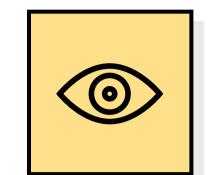
Type your paragraph...

Thoughts and feels

1.feel relief in having a convenient tool for monitoring their eye health.

2.There may be a degree of skepticism about the system's

3.A history of accurate predictions and a positive user experience can build trust in the system's accuracy. 4.If the system consistently provides reassurance about their eye health, users may feel more at ease.



What do they THINK and FEEL?

Mind map

What are their fears, frustrations, and anxieties?

inconsistent or unreliable.

alarms from the system.

significant anxiety.

system or uploading images.

specialist and the patient.

their concern on their eye health

Frustration: On the flip side, users may feel

frustrated if they perceive the system to be

they have experienced inaccuracies or false

Anxiety: Others may also feel anxiety, due to

Misinterpretation: Users may struggle with

severity of their condition, and in case of

interpreting the results and understanding the

misdiagnosing diabetic retinopathy can cause

Technical Challenges: Users may experience

frustration if they have difficulty operating the

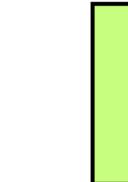
Time Consuming: If the system is taking time for

set up, capture, reviewing of images, generating

of reports then it will be frustration for both

Doubt: users may doubt the system's reliability, if

PAINS



GAINS

What are their wants, needs, hopes, and dreams?

!. Fast , Integrated , Responsive app 2. Simple ,Scalable to Use

3. High Accuracy on Test Results 4.Cloud Intergrable

Increased accuracy: Deep learning models can achieve higher accuracy in detecting DR than traditional methods, even in mild cases. This means that more people with DR can be identified and treated early, before they lose their

Improved efficiency: Deep learning models can analyze fundus images very quickly, making them suitable for largescale screening programs. This can help to reduce the burden on healthcare systems and make early detection more accessible to people with diabetes.

Reduced costs: Deep learning systems can be deployed on a variety of low-cost devices, making them more affordable for people in all parts of the world. This can help to reduce

Improved quality of life: By detecting DR early and pro<mark>viding timely t</mark>reatment, deep learning systems can help to prevent vision loss and improve the quality of life for people with diabetes.

Reduced risk of complications: DR can lead to a number of serious complications, such as macular edema and glaucoma. By detecting DR early and providing treatment, deep learning systems can help to reduce the risk of these complications.

Increased access to care: Deep learning systems can be deployed in a variety of settings, including rural areas and developing countries. This can help to improve access to early detection and treatment for people with diabetes.

What do they SEE?

1.clear accuracy results on the detection of the disease.

2.fast results on the test image

- 4. Easy printing of reports of the patient. "GPT Results"
- " The system is easy to use and does not require any specialized training."
- The system is scalable and affordable, making it possible to reach a large number of people.
- A person with diabetes using the system to self-screen for DR at home. The system is user-friendly and provides clear instructions on how to use it.
- An Al-powered system that is integrated into a fundus camera. The system automatically detects DR in fundus images, as soon as they are taken.
- A system that is used to monitor the progression of DR over time. The system provides doctors with valuable information about the patient's condition and can help them to make informed decisions about treatment.



What to expect...

- 1. Early Detection: Fundus images can detect early signs of retinopathy, often before symptoms appear, allowing for early intervention and
- 2. Early Stages (Non-Proliferative Diabetic **Retinopathy) prediction -** At this stage, you may not experience noticeable symptoms, regular eye screenings, which often involve fundus imaging, can detect subtle changes in the retina.



treatment.



What do they HEAR?

retinopathy.

providers.

Clear idea for the doctors to identify

Patient concerns: Fears, anxieties,

and questions related to diabetic

which stage of diabetes is it

Medical advice: Advice and

instructions from healthcare

Support network: Feedback from

family, friends, and support groups.

Motivation and expectation

1.Early Detection of the diabetic Retinopathy

monitor their eye health.

3. Can use Conveniently

1.Accuracy of the System.

For Expectation Part:

vision-related issues.

specialist.

2. Individuals may use the system to proactively

4. the system may provide a more accessible and

2.Early Detection will result in timely Intervention and a

3. Users may expect the system to provide guidance

on appropriate treatment options or referral to a

4.improved diagnosis and treatment will result in a

better quality of life, with fewer complications and

cost-effective means of eye screening.

higher likelihood of preserving their vision.

Context and Environment:

Home: Many individuals use the system at home for regular eye health monitoring. This provides a comfortable and convenient environment

Community Health Centers: Access to the system might be available in community health centers to serve patients in underserved areas.

Assistance: In healthcare facilities, they may receive assistance from healthcare professionals or technicians in using the system.



User-friendly.

1. Easy and simple way to upload and manage the test patients retinopathy images.

2. Fast working of the app.

- "We need to integrate the system into existing healthcare systems, so that it can be used seamlessly by doctors and other healthcare providers."
- "We need to develop a system that is robust to variations in fundus images, such as those caused by different camera settings or eye conditions."
- "We need to develop a system that can detect DR in mild cases, before it causes vision loss."