

# **CATARACT AND GLAUCOMA DETECTION SYSTEM**

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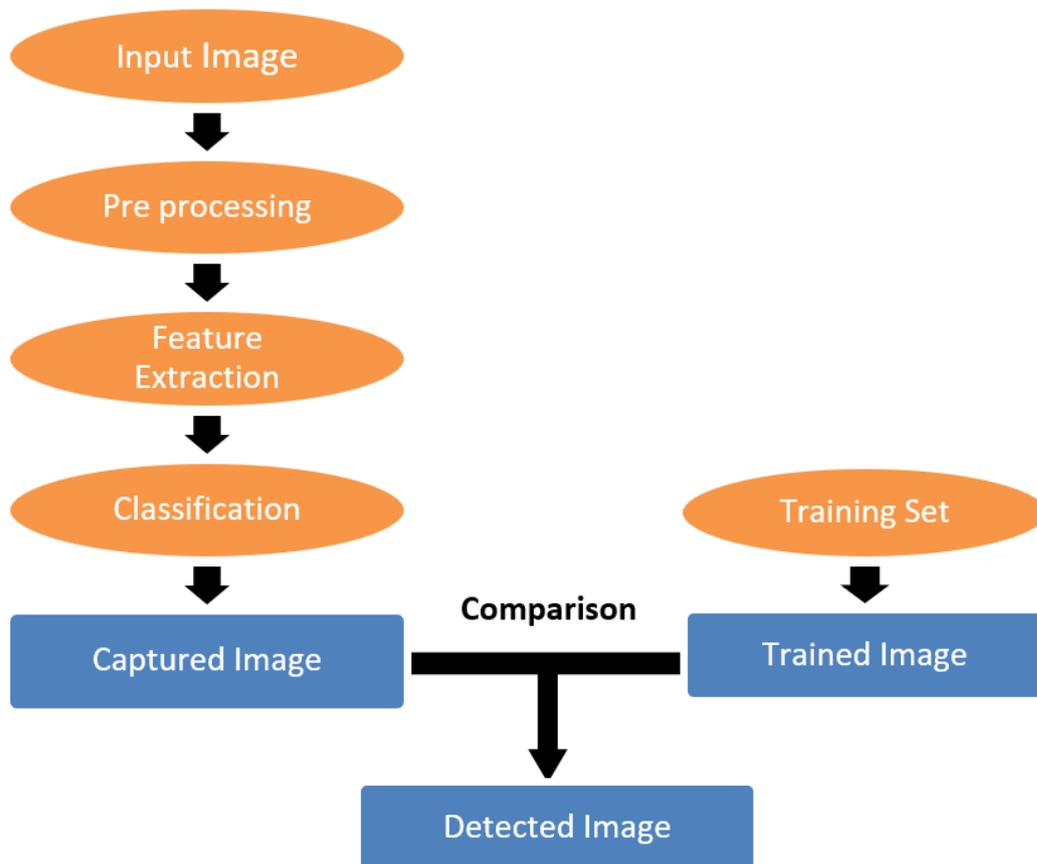
## **ABSTRACT**

Cataracts are the clouding of the lens of our eye, which is normally clear. Most cataracts develop slowly over time, causing symptoms like blurry vision. Roughly, there is one ophthalmologist for every 2,50,000 people in rural areas. Glaucoma is a condition of increase pressure within the eyeball which causes loss of vision. Cataract and glaucoma remains a major public health concern in India. Automated Detection of Cataract and Glaucoma can be implemented by AI and Machine Learning algorithms. Our project merges applications of E-paarvai and Image processing detection of Glaucoma in a new mobile application. The database in our app consist of fundus images. The app captures the image of our eye and compares with the database and executes the result. Machine Learning and Image processing techniques are used to develop the proposed system. Numbers of datasets are increased to improve the accuracy thus increasing the success ratio.

## **INTRODUCTION**

Cataracts are the leading causes for vision impairment and blindness globally. Over the years, researchers have achieved significant progress in developing state-of-the-art artificial intelligence techniques for automatic cataract classification and grading, helping clinicians prevent and treat cataract in time. Our project provides a comprehensive survey of recent advances in machine learning for cataract classification and grading based on ophthalmic images. The main objective of this project is to benefit both rural and urban people, especially rural areas as these facilities and the accessing process makes it easy for them to access and benefit. This project aims in including the detection of both cataract and glaucoma in a single app.

## SYSTEM ARCHITECTURE



## PROJECT TIMELINE

S.No	Milestone	Action plan	Timeline	Expenses
1.	Inspection and data collection	Field work /data processing	3months	Rs.10,000/-
2.	Designing & coding	App development	2 months	Rs.30,000/-
3.	Internal & External Testing	Testing the software	1 month	Rs.10000/-
<b>Total</b>				Rs.50000

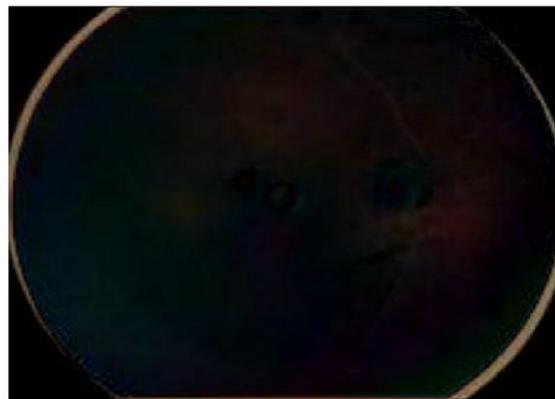
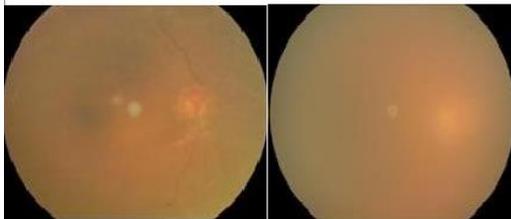
## PROGRESS

We are in the phase of database collection from the nearby Siddha hospital and started our implementation phase. A simple implementation is executed using simple machine learning techniques , that is difference between the normal and the cataract eye using python IDE(imported libraries).Database collection is a very important phase in our project as it improves the accuracy rates .We have planned to spent some amount of get clarity fundal images from the private hospitals also. The front end design our project is successfully executed using Android studio. The snap of the particulars are attached with it.

cata.py - C:\Users\Deepak\Downloads\cata.py (3.10.2)

File Edit Format Run Options Window Help

```
from PIL import Image, ImageChops
image_1=Image.open(r"fi.jpeg")
image_2=Image.open(r"se.jpeg")
difference_0=ImageChops.difference(image_1,image_2)
difference_0.show()
|
```



This is the implementation done using python IDE.The image in the right shows the result (difference between cataract and normal eye) which is stored and moved for the next set of processes.

This is visit that we have taken for the database collection in the hospital.

