PROJECT SYNOPSIS

Project Title: EYE PROBLEM DETECTOR APP

1. Introduction

Eye-related problems have become increasingly common due to prolonged use of digital devices, poor lighting conditions, environmental factors, and lack of regular eye check-up s. Conditions such as eye strain, dryness, redness, blurred vision, and early-stage eye dis eases often go unnoticed until they become severe. Access to eye specialists is also limit ed in many areas, making early diagnosis difficult.

The Eye Problem Detector App is proposed as a smart, technology-based solution that a ssists users in identifying possible eye problems at an early stage. The application uses smartphone cameras and user-provided symptoms to analyze eye conditions and provid e preliminary assessments and recommendations. The system aims to promote eye heal th awareness and encourage timely medical consultation.

2. Problem Statement

Many people suffer from eye discomfort and vision problems but delay seeking medical attention due to lack of awareness, high medical costs, and limited access to eye care se rvices. As a result, minor eye problems may develop into serious conditions that can lead to vision impairment or blindness. There is a need for an accessible, low-cost, and user-fr iendly application that can help users detect potential eye problems early and guide the m toward appropriate medical care.

3. Objectives of the Project

Main Objective

To design and develop an Eye Problem Detector App that assists users in the early detect ion of common eye problems using image analysis and symptom-based assessment.

Specific Objectives

To develop a mobile-based application for eye problem detection

To allow users to capture eye images using a smartphone camera

To analyze user symptoms and eye images to predict possible eye conditions

To provide basic recommendations and eye care guidance

To increase awareness of eye health and preventive measures

4. Scope of the Project

The project focuses on detecting common eye problems such as eye strain, redness, dry ness, and vision discomfort. The application provides preliminary results only and does not replace professional medical diagnosis. The system is intended for general users an d will be implemented as a mobile application with basic machine learning and image pr ocessing techniques.

5. Significance of the Project

The Eye Problem Detector App will benefit users by promoting early detection of eye prob lems and reducing delays in seeking medical assistance. It will be especially useful for st udents, office workers, and individuals in remote areas with limited access to eye special ists. The project contributes to preventive healthcare by improving awareness, accessibili ty, and early intervention.

6. Methodology

The project will follow a structured software development approach, including:

Requirement analysis and system design

Data collection of eye images and symptom information

Development of image processing and basic machine learning models

Application implementation using mobile development tools

System testing and validation

Deployment and user evaluation

Technologies to be Used

Frontend: Android XML / Flutter

Backend: Python / Java / Kotlin

Image Processing & ML: OpenCV, TensorFlow (basic level)

Database: SQLite / Firebase

Tools: VS Code, Android Studio

7. System Requirements

Software Requirements

Android Operating System

Android Studio / VS Code

Python / Java / Kotlin

SQLite / Firebase Database

Hardware Requirements

Smartphone with camera

Laptop or desktop computer

Minimum 4GB RAM

Internet connection (optional)

8. Expected Output

A functional Eye Problem Detector mobile application

Eye image capture and symptom analysis module

Preliminary eye problem prediction and recommendations

User-friendly interface for easy interaction

Project documentation and user guide

9. Conclusion

The Eye Problem Detector App aims to provide a practical and accessible solution for ear ly detection of eye problems using mobile technology. By integrating image analysis and user input, the system supports preventive healthcare and encourages timely medical co nsultation. The project demonstrates how modern ICT tools can be applied to address re al-world health challenges effectively.