PROJECT PROPOSAL

Title: EYE PROBLEM DETECTOR

1. Introduction

Eye health is a critical aspect of human well-being, yet many people suffer from undetect ed or late-diagnosed eye problems such as eye strain, redness, dryness, blurred vision, ca taracts, and myopia. The increasing use of digital devices such as smartphones, comput ers, and televisions has significantly contributed to eye-related disorders, especially amo ng students and working professionals. Despite this rise, access to eye specialists remai ns limited, particularly in rural and low-resource areas.

The Eye Problem Detector project proposes the development of a smart application syst em that uses modern technology to assist in the early detection of common eye problem s. The system will analyze eye images and user-provided symptoms to give a preliminary assessment and recommendations. This project aims to raise awareness, support early diagnosis, and encourage timely medical consultation.

2. Problem Statement

Many individuals experience eye discomfort or vision problems but fail to seek medical a ttention at an early stage due to lack of awareness, high consultation costs, and limited access to eye care services. As a result, minor eye conditions often progress into serious complications, leading to vision impairment or blindness. There is a need for a simple, a ccessible, and cost-effective system that can help users identify possible eye problems a t an early stage using widely available devices such as smartphones.

3. Objectives of the Project

3.1 General Objective

To design and develop an Eye Problem Detector system that assists users in the early de tection of common eye problems using image analysis and symptom-based assessmen t.

3.2 Specific Objectives

To develop a user-friendly application for eye problem detection

To allow users to capture and upload eye images using a mobile device

To analyze eye images and symptoms to predict possible eye conditions

To provide basic recommendations and eye-care guidance

To increase awareness about eye health and preventive measures

4. Scope of the Project

The scope of this project is limited to the detection of common eye problems such as ey e strain, redness, dryness, and vision discomfort. The system will provide preliminary res ults only and will not replace professional medical diagnosis. The project focuses on mo bile or desktop-based application development and basic machine learning/image proce ssing techniques.

5. Significance of the Project

The Eye Problem Detector project is significant because it:

Promotes early detection of eye problems

Reduces delays in seeking medical attention

Improves awareness of eye health

Provides a low-cost and accessible solution for users

Supports preventive healthcare, especially in underserved areas

6. Methodology

The project will be developed using the following steps:

1. Requirement Analysis – Identifying system requirements and user needs

2. System Design – Designing system architecture and user interface

3. Data Collection – Collecting sample eye images and symptom data

4. Model Development – Training a basic machine learning model for detection.

5. System Implementation – Coding and integrating the application

6. Testing – Testing system accuracy and usability

7. Deployment – Running the system on a mobile or desktop platform.

7. Hardware and Software Requirements

7.1 Hardware Requirements

Smartphone or computer

Camera (mobile or webcam)

Minimum 4GB RAM

Internet connection (optional)

7.2 Software Requirements

Operating System: Android / Windows

Programming Language: Python / Java / Kotlin

IDE: VS Code / Android Studio

Libraries: OpenCV, TensorFlow (optional)

Database: SQLite / Firebase

8. Expected Outcomes

A functional Eye Problem Detector application

Improved awareness of eye-related health issues

Early identification of possible eye problems

Increased encouragement for users to consult eye specialists.

9. Conclusion

The Eye Problem Detector project presents an innovative approach to addressing eye he alth challenges through technology. By leveraging mobile devices and intelligent system s, the project aims to provide a practical and accessible solution for early eye problem de tection. This system will contribute positively to preventive healthcare and support indivi duals in maintaining better eye health.