Project Design Phase-1

Proposed Solution Architecture

Date	**06-05-2023**
Team ID	**NM2023TMID14637**
Project name	**ODIR: Seeing the Big Picture for Eye Health**
Maximun Marks	**4 marks**

Solution Architecture:

The solution architecture for ODIR encompasses various components and technologies that work together to provide comprehensive and scalable eye health assessment, diagnosis, and treatment. Here is an overview of the key components:

1. Data Collection and Storage:

Patient Data: Collects and stores patient information, including medical history, demographics, and eye examination results.

Image Repository: Stores a large database of eye images, including retinal scans, fundus photographs, and other relevant diagnostic images.

2. Image Processing and Analysis:

Pre-processing: Cleans and enhances the quality of captured eye images, removing noise and artifacts.

Feature Extraction: Extracts relevant features from the images, such as blood vessel patterns, lesions, and abnormalities.

Machine Learning Models: Trained models utilize the extracted features to identify and diagnose various ocular diseases accurately.

3. Disease Identification and Diagnosis:

Classification Algorithms: Utilizes machine learning algorithms, such as convolutional neural networks (CNNs), to classify eye images and detect ocular diseases, including glaucoma, diabetic retinopathy, macular degeneration, and others.

Decision Support System: Assists healthcare professionals in interpreting the diagnosis results, providing additional information and recommendations for treatment

4. Telemedicine and Remote Consultation:

Telemedicine Platform: Enables remote consultations between patients and eye care professionals through video conferencing, allowing real-time communication and evaluation of patients' eye conditions.

Mobile Applications: Provides user-friendly mobile applications for patients to capture and upload images of their eyes, receive diagnostic results, and schedule appointments for further consultations.

5. Integration and Interoperability:

Electronic Health Records (EHR) Integration: Integrates ODIR with existing EHR systems to ensure seamless data sharing and continuity of care across different healthcare providers.

Healthcare Information Exchange (HIE): Facilitates the exchange of eye health data and medical records among healthcare organizations and specialists, enhancing collaboration and coordination.

Example- Solution Architecture Diagram: