

RIPHAH INTERNATIONAL UNIVERSITY



Faculty of Computing FINAL YEAR PROJECT PROPOSAL & PLAN

[Diabeto Vision]

Project Team

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([Lecturer | FC])

[Diabeto Vision]

Project Proposal

Project Title: [Diabeto Vision]

Opportunity & Stakeholders:

Patients: Diabetic patients who would benefit from early detection of retinopathy to prevent blindness.

Healthcare Providers: Doctors and ophthalmologists who will use the software to assist in diagnosing and grading the severity of diabetic retinopathy.

Early Detection and Prevention: Providing healthcare professionals with a tool for early detection of diabetic retinopathy, which could save patients' vision.

Automation in Healthcare: Automating the grading process of retinopathy, reducing the burden on doctors, and speeding up diagnoses.

Accessibility: Making the software accessible to remote or underserved areas where specialists may not be available.

Existing System/ Description of the Current Situation:

Currently, retinal fundus images are manually evaluated by clinicians, which is time-consuming and expensive as well. Machine learning and deep learning approaches have demonstrated significant success in automating DR detection.

But this software is very helpful for those who had not time to get the appointment and also for those who have not pay the ophthalmologist fee. And also help for those people who lived in the area which have no doctor only have some labs which have fundus camera or anything else.

Problem Statement:

There is a need for an automated, accurate, and scalable system for diabetic retinopathy detection, which can work with minimal human intervention, to help reduce the rising global cases of DR-induced blindness.

Proposed Solution:

Collect and preprocess retinal fundus images. Train CNN models (ResNet, Efficient Net) using transfer learning to classify the images. Fine-tune the models with the specific dataset (APTOS, Kaggle EyePACS). Implement real-time testing and Validation.

Scope of the Project:

The project aims to develop a scalable system for detecting diabetic retinopathy using state-of-the-art deep learning methods.

Modules:

- **Data Collection Module:** Collect and preprocess fundus images from various datasets.
- **Image Preprocessing Module:** Prepare images for machine learning models.
- **Model Training Module:** Train machine learning models to detect and grade diabetic retinopathy.
- **Diabetic Retinopathy Detection Module:** Use the trained model to detect diabetic retinopathy.
- **Grading Module:** If diabetic retinopathy is detected, grade its severity.
- **Deployment Module:** Make an app or website for users (Doctors or patients) to interact with the system

List of Faculty Proposed Changes

Diabeto Vision

Supervisor's Signature: _____

Proposed Change	Proposed By	Supervisor's Decision
Domain knowledge is weak. Must interview relevant domain expert.	Mr Sharjeel Gillani	Approved
Good idea presented	Mr. Mubariz Rehman	Approved
This idea still need a lot of literature, methodology of Retinopathy detection actual process lab equipment and many more functional requirements are still to be decided	Mr.Waqar Arshad	Approved
Conduct questionnaire survey with domain knowledge person	Mr.Muhammad Usman	Approved
Be clear about your fyp idea	Mr.Zeeshan Ali	Approved
Work on suggestion	Mr.Tajamul Shahzad	Approved
Need to improve literature review and market survey.	Mr.Islam Abbasi	Approved

Project Plan

Work Breakdown Structure: A work breakdown structure (WBS) is deliverable based decomposition of project scope. The WBS includes 100% of the work defined by the project scope and captures all deliverables – internal, external, and interim – in terms of the work to be completed, including project management.

Sample WBS:

1. Project Management

- 1.1. Work Breakdown Structure (WBS)
- 1.2. Roles & Responsibility Matrix
- 1.3. Change Control System

2. Reports / Documentation

- 2.1. Final Documentation Introduction
- 2.2. Literature / Markey Survey
- 2.3. Requirements Analysis
- 2.4. System Design
- 2.5. Implementation
- 2.6. Testing & Performance Evaluation
- 2.7. Conclusion & Outlook
- 2.8. End User Documentation
- 2.9. Application Administration Documentation
- 2.10. System Administrator Documentation

3. System

- 3.1. Development Environment
 - 3.1.1. IDE
 - 3.1.2. Version Control
 - 3.1.3. Server
 - 3.1.4. Database

3.2. Presentation Layer

3.2.1. Deliverable 1

3.2.2. Deliverable 2

3.2.3. ...

3.3. Business Logic Layer

3.3.1. Deliverable 1

3.3.2. Deliverable 2

3.3.3. ...

3.4. Data Management Layer

3.4.1. Deliverable 1

3.4.2. Deliverable 2

3.4.3. ...

3.5. Physical Layer

3.5.1. Deliverable 1

3.5.2. Deliverable 2

3.5.3. ...

Roles & Responsibility Matrix:

The purpose of roles & responsibility matrix is to identify who will do what.

WBS #	WBS Deliverable	Activity #	Activity to Complete the Deliverable	Duration (# of Days)	Responsible Team Member(s) & Role(s)
1.0	Project Scope Definition	1.1	Define re-demo objectives, including specific features and system performance to showcase	9	Mudabbir(Team Lead),Saad Munaf, Saad Rizwan
2.0	Re-planning	2.1	Revise Project features on the basis of suggestions from the committee	7	Saad rizwan(Documentation Lead)
2.0	Survey	2.2	Survey according to the questionnaire	2	Whole team
3.0	Documentation	3.1	Done all the documentation including the templates/Approval from the supervisor	4	Saad Rizwan(Documentation Lead)
4.0	Dataset Development and model training	4.1	Gathering the datasets for uploading on the colab and buying the premium version for the model training	33	Saad Munaf(Datascientist), Mudabbir
5.0	Training and testing	5.1	Training the dataset accordingly and then testing	45	Mudabbir,Saad Munaf(Datascientist)
6.0	Write report and submit	6.1	Writing the final report and after	7	Saad Rizwan-

			reviewing it, Submit it the supervisor.		(Documentation Lead)
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Approval

Project Supervisor

Comments _____

Name: _____

Date: _____ Signature: _____

Project Coordinator

Comments _____

Name: _____

Date: _____ Signature: _____