Project Initialization and Planning Phase

Date	11-03-2025
Team ID	740037
Project Title	Early Stage Disease Diagnosis System Using Human Nail Image Processing Using Deep Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

To address the inefficiencies in manual vehicle damage assessment and insurance claim processing, this project proposes the development of an Early Stage Disease Diagnosis System is capable of automatically analyzing Disease of a patient In early stage and prevents.

Project Overview	
Objective	To develop a non-invasive, AI-based system that detects early-stage diseases by analyzing human nail images using deep learning techniques, enabling timely diagnosis and improved healthcare accessibility.
Scope	The system will focus on detecting visible symptoms of diseases such as anemia, liver disorders, and fungal infections through nail image analysis. It will utilize image processing and deep learning to classify nail features, offering a preliminary health assessment. The solution is intended for educational, research, and basic screening purposes—not as a replacement for medical advice.
Problem Statement	
Description	Many individuals lack access to affordable, non-invasive tools for early disease detection. Traditional diagnostic methods are often invasive, expensive, and unavailable in rural or low-resource settings, resulting in delayed diagnosis and treatment.
Impact	☐ Increases accessibility to early-stage disease detection, especially in underserved communities ☐ Reduces dependence on expensive and invasive diagnostics ☐ Encourages proactive health monitoring ☐ Supports healthcare professionals with an additional screening tool

Proposed Solution	
Approach	☐ **Data Collection:** Gather and preprocess a diverse dataset of labeled human nail images ☐ **Model Development:** Design and train a CNN to recognize patterns linked to specific diseases ☐ **System Integration:** Develop a front-end interface for user interaction and back-end for model deployment ☐ **Testing & Validation:** Evaluate the model's performance and improve based on real-world feedback
Key Features	☐ Nail image upload and analysis ☐ Disease prediction using deep learning (CNN) ☐ Simple, intuitive user interface ☐ Real-time or near real-time results ☐ Secure image handling and data privacy

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Tensorflow, Matplotlib, numpy, glob and vgg16
Development Environment	IDE, version control	Google colab, Vs Code
Data		
Data	Source, size, format	Kaggle dataset, 614, csv