

Project Initialization and Planning Phase

Date	24 June 2025
Team ID	SWTID1750058607
Project Title	Early-Stage Disease Diagnosis System Using Human Nail Image
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address a specific problem. With a clear objective, defined scope, and a concise problem statement, the proposed solution details the approach, key features, and resource requirements, including hardware, software, and personnel.

Project Overview	
Objective	To develop a Deep Learning-based system that detects early-stage diseases by analyzing images of human nails.
Scope	The project involves detecting early-stage diseases by analyzing human nail images. It covers data collection, model training, and deployment through a user-friendly interface for quick and reliable predictions.
Problem Statement	
Description	Many health conditions manifest subtle symptoms on the nails (e.g., discoloration, ridges, changes in shape). However, people often overlook these indicators or lack the knowledge to interpret them. There's a need for an automated tool that can assist in early detection by analyzing nail images
Impact	An accessible AI-driven tool can help individuals and healthcare professionals identify potential diseases at an early stage, enabling faster diagnosis, preventive action, and reducing healthcare costs and complications
Proposed Solution	
Approach	Collect a large dataset of annotated nail images. Preprocess the images (resizing, normalization, augmentation).

	<p>Train a Convolutional Neural Network (CNN) model to classify disease presence.</p> <p>Evaluate model performance using accuracy, precision, recall.</p> <p>Deploy the model with a web interface using Flask to make it user-friendly and accessible.</p>
Key Features	<p>AI-driven detection of diseases from nail images.</p> <p>Real-time prediction through a web-based interface.</p> <p>Simple and intuitive UI for user convenience.</p> <p>Scalable architecture for adding new disease categories.</p> <p>Safe handling of user-uploaded images.</p>

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	GPU for training the VGG16 model	1 × NVIDIA V100 GPU or equivalent
Memory	RAM for model training and inference	16 GB
Storage	Disk space for dataset, model files, and logs	256 GB SSD
Software		
Frameworks	DL and web development frameworks	Tensorflow, Flask
Libraries	Additional libraries	Keras, OpenCV, NumPy, Pandas
Development Environment	IDE, version control	Google Colab, GitHub
Data		
Data	Source, size, format	Custom dataset of human nail

		images, 655 training and 183 testing images (JPEG/PNG) images
--	--	---