
PROJECT TOPIC:SKIN CANCER DETECTION USING ANN AND CNN

Group No. 253

Project Group Members:

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About the Project:

This project aims to develop a system for early detection of **skin cancer** using **Artificial Neural Networks (ANN)** and **Convolutional Neural Networks (CNN)**. Skin cancer, especially **melanoma**, is a dangerous condition that can lead to severe health complications if not diagnosed early.

Traditional diagnostic methods are invasive, time-consuming, and expensive. Our project leverages machine learning algorithms to classify skin lesions as cancerous or non-cancerous based on image data. By implementing ANN and CNN models, the system will automatically detect abnormalities in skin images, providing an efficient, non-invasive diagnostic tool that can improve early detection and treatment.

Motivation:

Skin cancer is increasingly becoming a global health issue. Early detection is crucial in saving lives. Using **AI** in medical diagnostics not only reduces human error but also speeds up the detection process. This project has the potential to positively impact the healthcare sector by offering a reliable, automated solution for early skin cancer detection, making it ideal as a major final-year project.

Innovation:

1. Utilizes **deep learning techniques (CNN and ANN)** for higher accuracy in image classification.
2. **Non-invasive** and cost-effective alternative to traditional biopsy methods.
3. Capable of handling **large datasets** for improving detection of rare cancer types.
4. Integration of **advanced image processing** to improve skin lesion recognition.
5. Provides potential for real-time **mobile or web-based applications** in healthcare.

Project Planning:

Phase 1: Research & Data Collection

Task: During this phase, the team will conduct a literature review and acquire datasets such as HAM10000 and PH2 to build a solid foundation for the project.

Timeframe: September 2024 to October 2024

Phase 2: Learning & Implementation

Task: The team will focus on implementing Artificial Neural Network (ANN) and Convolutional Neural Network (CNN) models using frameworks like TensorFlow and Keras.

Timeframe: November 2024 to December 2024

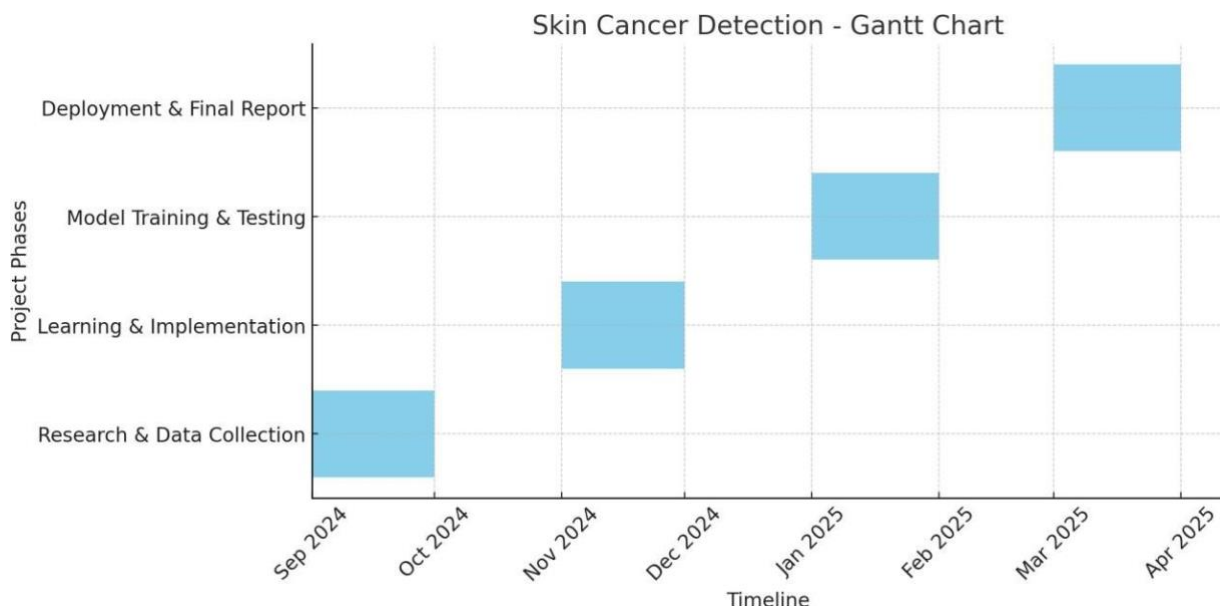
Phase 3: Model Training & Testing

Task: This phase will involve training the models on the collected dataset and evaluating their performance to ensure accuracy.

Timeframe: January 2025 to February 2025

Phase 4: Deployment & Final Report

Task: This phase will involve integrating the trained model into a user interface and preparing comprehensive documentation of the project outcomes.



Timeframe: March 2025

Tools Required:

- **Hardware Requirements:**

- High-performance GPU for model training.
- Standard computer setup for development.

- **Software Requirements:**

- **Python** with libraries like TensorFlow, and Keras.
 - **Dataset access** from public repositories (e.g., ISIC, HAM10000).
 - Image processing tools.
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Signature of Project Supervisor: _____