

AI-Based Disease Prediction System

A Project Report

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of**

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by

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ABSTRACT

This project focuses on developing an AI-based disease prediction system using machine learning techniques.

The system takes patient symptoms as input and predicts the probable disease using a trained model.

The objective is to enhance early diagnosis and assist healthcare professionals in decision-making.

The methodology involves data preprocessing, training a Random Forest Classifier, and evaluating its performance.

The model achieves a high accuracy rate, demonstrating the potential of AI in medical diagnostics.

Future improvements include deep learning integration and real-time patient data processing.

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CHAPTER 1: INTRODUCTION

1.1 Problem Statement

Timely disease diagnosis is crucial for effective treatment, but manual diagnosis is prone to errors.

This project aims to develop an AI-powered disease prediction

system to assist in diagnosing diseases based on symptoms.

1.2 Motivation

With advancements in AI, healthcare can leverage machine learning to enhance diagnostic accuracy.

This project aims to reduce the dependency on manual diagnosis and provide a reliable automated solution.

1.3 Objectives

- Develop a machine learning model for disease prediction.**
- Improve diagnostic efficiency and accuracy.**
- Provide an intuitive interface for users to input symptoms.**

1.4 Scope of the Project

- Focuses on common diseases based on available datasets.**
- Uses machine learning techniques for predictive analysis.**
- Future expansion includes integration with healthcare systems.**

CHAPTER 2: LITERATURE SURVEY

A review of existing AI models in disease prediction highlights the growing use of machine learning in medical diagnostics.

Studies on Random Forest, SVM, and Neural Networks show their potential in improving diagnostic precision.

However, existing models often lack real-time applicability, which this project aims to address.

CHAPTER 3: PROPOSED METHODOLOGY

System Design

The system consists of a dataset preprocessing module, a trained Random Forest model, and a user input interface for symptom-based prediction.

Requirement Specification

- Hardware Requirements: Standard PC with at least 8GB RAM, GPU for scalability.
- Software Requirements: Python, Scikit-learn, Pandas, NumPy, Jupyter Notebook.

CHAPTER 4: IMPLEMENTATION AND RESULTS

Implementation Steps

1. Data preprocessing and feature engineering.
2. Training a Random Forest Classifier on labeled symptom data.
3. Testing and evaluating model performance.
4. Deploying a user-friendly interface for predictions.

Results

The model achieved an accuracy of ****[accuracy_score]**** on test data.

The system provides accurate disease predictions based on user input symptoms.

GitHub Link for Code

[Provide GitHub repository link]

CHAPTER 5: DISCUSSION AND CONCLUSION

Future Work

- Integration with electronic health records (EHR).
- Implementing deep learning for enhanced accuracy.
- Developing a mobile application for wider accessibility.

Conclusion

The AI-based disease prediction system demonstrates the effectiveness of machine learning in medical diagnostics.

By automating the diagnostic process, the project contributes to reducing workload and improving patient care.

REFERENCES

- Research papers on AI in healthcare.
- Medical symptom databases.
- Machine learning documentation and sources.

This document follows the AICTE Internship 2024 project report template.

Ensure to update ****[accuracy_score]**** before final submission.