DIAGNOSIS OF ACUTE DISEASES IN VILLAGES AND SMALLER TOWNS USING AI

A PROJECT REPORT

Submitted by,

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Under the guidance of,

Ms. Radhika Sreedharan

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

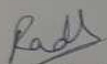**COMPUTER SCIENCE AND ENGINEERING
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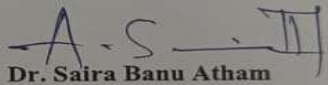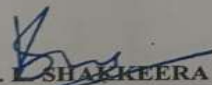**PRESIDENCY UNIVERSITY**

BENGALURU

JANUARY 2025

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CERTIFICATE

This is to certify that the Project report **"DIAGNOSIS OF ACUTE DISEASES IN VILLAGES AND SMALLER TOWNS USING AI"** being submitted by "Chandrashekhar K S, Praveen P, Bhuvaneshwar C, Manasa H A" bearing roll number(s) "20211CSG0074, 20211CSG0016, 20211CSG0002, 20211CSG0033" in partial fulfillment of the requirement for the award of the degree of **Bachelor of Technology** in **Computer Science and Technology** is a bonafide work carried out under my supervision.

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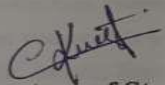CSE
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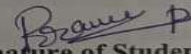
PRESIDENCY SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **DIAGNOSIS OF ACUTE DISEASES IN VILLAGES AND SMALLER TOWNS USING AI** in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Technology**, is a record of our own investigations carried under the guidance of **Ms. Radhika Sreedharan, Assistant Professor, Presidency School of Computer Science Engineering, Presidency University, Bengaluru.**
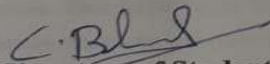
We have not submitted the matter presented in this report anywhere for the award of any other Degree.
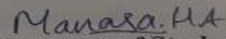
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ABSTRACT

The rapid growth in AI-driven healthcare solutions has paved the way for advanced diagnostic tools, especially in resource-constrained environments like villages and smaller towns. Acute diseases often require timely intervention, and delays in diagnosis can have severe health consequences. This project addresses these challenges by developing an AI-based system capable of diagnosing acute diseases in under-served areas. The system leverages machine learning models trained on diverse medical datasets and offers a cost-effective, scalable solution to support healthcare providers in rural areas.

The core of the proposed system relies on natural language processing (NLP) for symptom analysis, computer vision for image-based diagnosis, and predictive analytics for disease forecasting. NLP models analyze patient-reported symptoms, enabling a more comprehensive understanding of health conditions. Computer vision techniques, powered by convolutional neural networks (CNNs), identifying disease-specific patterns. Predictive analytics uses statistical models to forecast disease progression and suggest preventive measures. The proposed system is designed with a user-friendly interface, allowing healthcare professionals and community health workers to easily interact with the diagnostic tool. The implementation of the system follows a modular approach, enabling easy updates and integration with external data sources. The system also prioritizes data privacy and security, ensuring the confidentiality of patient information.

The development process of this AI-based diagnostic system involves several key phases, including data collection, preprocessing, model training, system integration, and performance evaluation. A large dataset comprising patient records and disease-related data has been used to train and validate the models. Results from initial testing have demonstrated high accuracy in diagnosing diseases such as pneumonia, tuberculosis, and skin infections. The system's prediction accuracy is on par with human healthcare providers in specific use cases. Additionally, the AI model's ability to identify disease symptoms from images and patient inputs significantly reduces the diagnostic workload on healthcare professionals, thereby improving the overall efficiency of healthcare services in villages and smaller towns. The AI-driven system offers a scalable solution that can be extended to diagnose a wider range of diseases in the future. By leveraging AI, the system empowers healthcare workers and reduces the burden on overstretched medical resources, ultimately leading to better health outcomes for rural populations.

ACKNOWLEDGEMENT

First of all, we indebted to the **GOD ALMIGHTY** for giving me an opportunity to excel in our efforts to complete this project on time.

We express our sincere thanks to our respected dean **Dr. SAMEERUDDIN KHAN**, Pro-VC, Presidency School of Engineering and Dean, Presidency School of Computer Science Engineering & Information Science, Presidency University for getting us permission to undergo the project.

We express our heartfelt gratitude to our beloved Associate Deans **Dr. SHAKKEERA L and Dr. MYDHILI NAIR,** Presidency School of Computer Science Engineering, Presidency University, and **Dr. Saira Banu Anthem**, Head of the Department, Presidency School of Computer Science Engineering, Presidency University, for rendering timely help in completing this project successfully.

We are greatly indebted to our guide **Ms. Radhika Sreedharan,** Assistant Professor of Presidency School of Computer Science Engineering, Presidency University and Reviewer **Ms. Sharon**, Assistant professor, Presidency School of Computer Science Engineering, Presidency University for her inspirational guidance, and valuable suggestions and for providing us a chance to express our technical capabilities in every respect for the completion of the project work.

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