**AI -Driven Diagnostic System for Detection of Chronic Diseases**



A Project report submitted in partial fulfillment of requirements for the award of degree of

**BACHELOR OF TECHNOLOGY IN**

**COMPUTER SCIENCE AND ENGINEERING (AI & ML)**

**By**

**V.SAI CHARAN (219X1A3364)**

**Under the esteemed guidance of Smt. K. Asha Rani**

**Assistant Professor Department of E.C.S**

**Department of Emerging Technologies in Computer Science**

**G. PULLA REDDY ENGINEERING COLLEGE (Autonomous): KURNOOL**

**(Affiliated to JNTUA, ANANTHAPURAMU)**

**2024 – 2025**



**Department of Emerging Technologies in Computer Science**

**G. PULLA REDDY ENGINEERING COLLEGE (Autonomous): KURNOOL**

**(Affiliated to JNTUA, ANANTHAPURAMU)**

**CERTIFICATE**

***This is to certify that the Project Work entitled* ‘*AI -Driven Diagnostic System for Detection of Chronic Diseases*’ *is a bonafide record of work carried out by***

**V.SAI CHARAN (229X5A3372)**

Under my guidance and supervision in partial fulfillment of the requirements for the award of degree of

**BACHELOR OF TECHNOLOGY**

**IN**

**COMPUTER SCIENCE AND ENGINEERING (AI & ML)**

|  |  |
| --- | --- |
| **Smt. K. Asha Rani** Assistant Professor, Department of ECS.,  G. Pulla Reddy Engineering College, Kurnool. | **Dr. R. Praveen Sam**  Professor & Head of the Department, Department of ECS.,  G. Pulla Reddy Engineering College, Kurnool. |
| **Signature of the External Examiner** | **: ……………………………..** |

**DECLARATION**

I are hereby declare that the project titled “**AI -Driven Diagnostic System for Detection of Chronic Disease**” is an authentic work carried out by me as the students of **G. PULLA REDDY ENGINEERING COLLEGE (Autonomous) Kurnool,** during 2024-25 and has not been submitted elsewhere for the award of any degree or diploma in part or in full to any institute.

**V.SAI CHARAN**

**(219X1A3364)**

**ACKNOWLEDGEMENT**

I wish to express my deep sense of gratitude to my project guide **Smt.** [**K. Asha Rani**](https://www.gprec.ac.in/images/ecs%20profiles/AshaRani.pdf), **Assistant Professor** of Emerging Technologies in Computer Science Department, G. Pulla Reddy Engineering College, for her immaculate guidance, constant encouragement and cooperation which have made possible to bring out this project work.

I am grateful to my project in charge **Smt.** [**K. Asha Rani**](https://www.gprec.ac.in/images/ecs%20profiles/AshaRani.pdf)**, Assistant Professor** of Emerging Technologies in Computer Science Department, G. Pulla Reddy Engineering College, for helping me and giving me the required information needed for our project work.

I am thankful to my Head of the Department **Dr. R. Praveen Sam Garu**, for his whole hearted support and encouragement during the project sessions.

I am grateful to our respected Principal **Dr. B. Sreenivasa Reddy Garu,** for providing requisite facilities and helping me in providing such a good environment.

I wish to convey my acknowledgements to all the staff members of the Emerging Technologies in Computer Science department for giving the required information needed for my project work.

Finally, I wish to thank all my friends and well wishers who have helped me directly or indirectly during the course of this project work.

**ABSTRACT**

Artificial intelligence (AI) has the potential to significantly improve patient outcomes and diagnostic accuracy in the quickly developing sector of healthcare. The goal of this project is to create an AI-powered diagnostic assistance system that will help medical practitioners identify chronic illnesses including cancer, heart disease, and diabetes at an early stage. In order to find patterns suggestive of an early disease onset, the system will use sophisticated machine learning algorithms to evaluate patient data, including medical history, test results, and imaging data. The system will offer actionable insights and risk assessments to improve decision-making and enable prompt intervention by fusing real-time data processing and predictive analytics. To achieve high accuracy and generalizability, the research will concentrate on building a solid model that has been trained on a variety of datasets. To improve accessibility and expedite productivity, the system will also be built to seamlessly interact with current electronic health record (EHR) systems. The anticipated outcome is a tool that helps to enhance patient care and outcomes by lowering the workload of medical practitioners and increasing diagnostic precision.

**CONTENTS**

**Page No**

1. **INTRODUCTION**
   1. [Introduction 1](#_TOC_250021)
   2. [Motivation](#_TOC_250020) 2
   3. Problem Definition 4
   4. Objective 5
   5. Organization of the Report 6
2. [SYSTEM SPECIFICATIONS](#_TOC_250019)
   1. [Software Specifications](#_TOC_250018) 7
   2. [Hardware Specifications](#_TOC_250017) 10
3. [LITERATURE SURVEY](#_TOC_250016)
   1. [Existing System 1](#_TOC_250015)4
   2. Disadvantages of Existing System 20
   3. [Proposed System 2](#_TOC_250014)3
4. [DESIGN](#_TOC_250013)
   1. [Introduction 2](#_TOC_250012)7
   2. [Flow chart of the Model](#_TOC_250011) 30
   3. [UML Diagrams](#_TOC_250010)
      1. [Use Case Diagram 3](#_TOC_250009)2
      2. [Sequence Diagram](#_TOC_250008) 33
5. [IMPLEMENTATION AND RESULTS](#_TOC_250007)
   1. Source Code 41
   2. Output Screens 52
6. [TESTING AND VALIDATION](#_TOC_250004) 57
7. [CONCLUSION AND FUTURE ENHANCEMENTS](#_TOC_250003)
   1. [Conclusion](#_TOC_250002) 60
   2. [Future Enhancements](#_TOC_250001) 61
8. References 62

**LIST OF FIGURES**

|  |  |  |
| --- | --- | --- |
| **FIGURE NO.**  1.4.1  4.2.1  4.2.2  4.2.3  5.2  5.3  5.4  5.4  5.5  5.6  5.7  5.8  5.9 | **FIGURE NAME**  Steps of Extraction Flow chart  Use Case Diagram Sequence Diagram  Service Page  Disease Diagnosis Service Provided Diagnosis Selection Page  Heart Disease Prediction input form Diabetes Prediction input form  Liver Disease Prediction input form  High Risk output for diabetes  Low Risk output for diabetes  Moderate Risk output for diabetes | **PAGE NO.**  6  30  32  33  52  53  53  54  54  55  55  56  56 |