

Table of Contents

CHAPTER No.	TITLE	PAGE No.
	ABSTRACT	i
1	INTRODUCTION 1.1 About The Project 1.2 Aim Of The Project 1.3 Heart Disease 1.4 Scope Of The Project 1.5 Problem Statement 1.6 Introduction to Machine Learning 1.6.1 Machine Learning Approaches 1.6.2 Applications of Machine Learning in Heart Disease Prediction 1.7. Machine Learning Approaches 1.7.1. Data Preprocessing 1.7.2. Hyperparameter Tuning 1.8. Role of Classification Algorithm 1.9. Organization of the Project	1 1 2 6 7 7 10 12 14 14 17 20 26
2	LITERATURE SURVEY 2.1 Introduction 2.2 Approaches For Heart Disease Prediction	27 27
3	PROPOSED SYSTEM 3.1 Architecture of The Proposed System 3.2. Support Vector Machine (SVM) Algorithm 3.2.1. Working of SVM 3.2.2. Kernel Functions in SVM 3.2.3. Choosing the Hyperparameters 3.2.4. Architecture of SVM Algorithm 3.2.5. FCMIM-SVM (Fast Conditional Mutual Information Maximization with SVM)	43 44 45 45 45 46 46

	3.2.6. Grid Search SVM	47
	3.2.7. Bayesian Optimization SVM	48
	3.2.8. Random Search SVM	49
4	EXPERIMENTAL RESULT & DISCUSSION	51
	4.1 Data Set	54
	4.2 Evaluation Metrics	56
	4.3. Experimental Analysis	
5	CONCLUSION & FUTURE ENHANCEMENTS	61
	5.1 Conclusion	62
	5.2 Future Enhancements	
	BIBLIOGRAPHY	63

TABLE No.	TITLE	PAGE No.
Table 2.1	Computational Approaches for Heart Disease Prediction: A Review	36
Table 3.1	Computational steps for Grid Search - SVM	47
Table:3.2	Computational steps for Bayes SVM	48
Table 3.3	Computational steps for Random Search -SVM	49
Table 4.1	Dataset Attributes and Descriptions	52
Table 4.2	Dataset Splitting for Model Evaluation	54
Table 4.3.	Support Metrics	55
Table.4.4.	Parameter Metrics and Formulas	56
Table 4.5.	Performance Comparison of FCMIM-SVM & Optimized SVM	57

FIG. No.	TITLE	PAGE No.
Fig. 3.1	Architecture of Proposed System	43
Fig. 3.2	Kernel formulas	45
Fig. 3.3	Architecture for SVM	46
Fig 4.1	Histogram of heart disease dataset.	53
Fig 4.2	The heat map for correlation features of heart disease dataset	53
Fig.4.3	ROC Curve Comparison of Proposed Methods and Existing Method	57
Fig. 4.4	Performance comparison of the proposed methods with previously proposed method	58
Fig 4.5	Grid Search -SVM Classifier Result for User input	59
Fig 4.6	Grid Search -SVM Classifier Result for User input	60