VISVESVARAYA TECHNOLOGICAL UNIVERSITY
"Jnana Sangama", Belagavi-560014, Karnataka

A PROJECT REPORT ON

"BREAST CANCER DIAGNOSIS USING MACHINE LEARNING"

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE

BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE & ENGINEERING

Submitted By

AKSHATHA M	(1SV19CS005)
ANKITHA K	(1SV19CS007)
BHUVANESHWARI A	(1SV19CS022)
KALPANA M N	(1SV19CS038)

Under the guidance of

Prof.Dr.Dinesha H A B.E., M.Tech.,Ph.D.,

Dept. of CSE.

PRINCIPAL
SIET. TUMKUR.

SHRIDEVI
education

Department of Computer Science and Engineering

SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Affiliated To Visvesvaraya Technological University)
Sira Road, Tumakuru – 572 106, Karnataka.
2022-23

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that, the project entitled "BREAST CANCER DIAGNOSIS USING MACHINE LEARNING" has been successfully carried out by Akshtha M [1SV19CS005], Ankitha K [1SV19CS007], Bhuvaneshwari A [1SV19CS022], Kalpana MN [1SV19CS038], in partial fulfillment for the award of **Bachelor of Engineering** in **Computer Science & Engineering** of the **Visvesvaraya Technological University, Belagavi** during the academic year **2022-23.** It is certified that all the corrections/suggestions indicated for internal assessments have been incorporated in the report. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

25/5/23

Signature of Guide
Prof. Dr. Dinesha H A B.E., M.Tech.,Ph.D
Dept. of CSE,
SIET, Tumakuru.

25/5/23

Signature of H.O.D
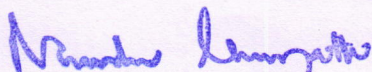**Dr.Basavesha D** B.E.,M.Tech.,Ph.D.,
Associate Professor & HOD
Dept. of CSE,
SIET, Tumakuru.

Signature of Principal

Dr.Narendra Viswanath M.E., Ph.D., MIE, MISTE, MIWS., FIV.,
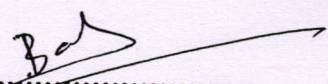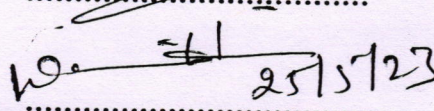Principal,
SIET, Tumakuru

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SIET. TUMKUR.

External Viva

Name of the Examiners

Signature with Date

1. Dr. Basavesha.D

2. Wasim Uddin

25/5/23

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

<u>DECLARATION</u>

We, Akshatha M [1SV19CS005], Ankitha K [1SV19CS007], Bhuvaneshwari A [1SV19CS022], Kalpana M N [1SV19CS038], student of VIII semester **B.E** in Computer Science & Engineering, at Shridevi Institute of Engineering & Technology, Tumakuru, hereby declare that, the project work-II entitled **"Breast Cancer Diagnosis Using Machine Learning"**, embodies the report of our project work carried out by our team under the guidance of **Dr. Dinesha H A, Assistant Professor, Department of CSE**, SIET, Tumakuru as partial fulfillment of requirements for the award of the degree in **Bachelor of Engineering in Computer Science & Engineering of Visvesvaraya Technological University, Belagavi,** during the academic year **2022-23**. The project has been approved as it satisfies the academic requirements in respect to the Project work.

Place: Tumakuru

Date: 25/05/2023

Student Name & Signature

Akshatha M   [1SV19CS005].

Ankitha K   [1SV19CS007].

Bhuvaneshwari A   [1SV19CS022].

Kalpana MN   [1SV19CS038].

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✉ : shritekinnovations@gmail.com

Date: 23/05/2023

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. AKSHATHA M** bearing USN **1SV19CS005** Student of **Shridevi Institute of Engineering and Technology** has successfully completed her Project Work titled "Breast Cancer Diagnosis Using Machine Learning".

We wish every success in her career.

For ShriTEK Innovations

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Authorized Signature

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Date: 23/05/2023

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. ANKITHA K** bearing USN **1SV19CS007** Student of **Shridevi Institute of Engineering and Technology** has successfully completed her Project Work titled "Breast Cancer Diagnosis Using Machine Learning".
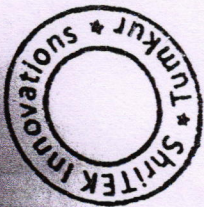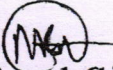
We wish every success in her career.

For ShriTEK Innovations

PRINCIPAL
SIET. TUMKUR.

Authorized Signature

Date: 23/05/2023

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. BHUVANESHWARI A** bearing USN **1SV19CS022** Student of **Shridevi Institute of Engineering and Technology** has successfully completed her Project Work titled "Breast Cancer Diagnosis Using Machine Learning".

We wish every success in her career.

For ShriTEK Innovations

PRINCIPAL
SIET. TUMKUR.

Authorized Signature

Date: 23/05/2023

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. KALPANA M N** bearing USN **1SV19CS038** Student of **Shridevi Institute of Engineering and Technology** has successfully completed her Project Work titled "Breast Cancer Diagnosis Using Machine Learning".

We wish every success in her career.

For ShriTEK Innovations

Authorized Signature

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ACKNOWLEDGEMENT

This project work will be incomplete without thanking the personalities responsible for this venture, which otherwise would not have become a reality.
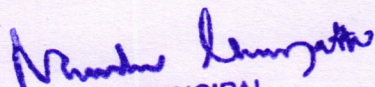
We express our profound gratitude to **Dr.Narendra Viswanath,** Principal, S.I.E.T, for his moral support towards completing our project work.

We would like to thank Head of Department **Dr. Basavesha D** Head, Department of CSE, SIET for providing all the support and facility.

We would like to thank my guide **Dr. Dinesha H A, Professor,** Department of computer Science and Engineering, SIET for his help, sharing his technical expertise and timely advice.

We whole heartedly thank, **Mr. Girish L,** Assistant Professor, Project coordinator, Department of Computer Science and Engineering, for the support.

We would like to express our sincere gratitude to all teaching and non-teaching faculty of the department of CSE for guiding us throughout the course of this project by giving valuable suggestion and encouragement.

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By,

Akshatha M	**[1SV19CS005]**
Ankitha K	**[1SV19CS007]**
Bhuvaneshwari A	**[1SV19CS022]**
Kalpana MN	**[1SV19CS038]**

Abstract

Breast cancer is the most frequently encountered medical hazard for women in their forties, affecting one in every eight women. It is the greatest cause of death worldwide, and early detection and diagnosis of the disease are extremely challenging. Breast cancer currently exceeds all other female cancers, including ovarian cancer. Researchers can use access to healthcare records to find previously unknown healthcare trends. According to the National Cancer Institute (NCI), breast cancer mortality rates can be lowered if the disease is detected early. The novelty of our work is to develop an optimized stacking ensemble learning model capable of early breast cancer prediction. A dataset from the University of California, Irvine repository was used, and comparisons to modern classifier models were undertaken. The implementation analyses reveal the unique approach's efficacy and superiority when compared to existing contemporary categorization models (AdaBoostM1, gradient boosting, stochastic gradient boosting, Cat Boost, and XG Boost). In every classification task, predictive models may be used to predict the class level, and the current research explores a range of predictive models. It is better to integrate multiple classification algorithms to generate a set of prediction models capable of predicting each class level with 91–99% accuracy. On the breast cancer Wisconsin dataset, the suggested OSEL model attained a maximum accuracy of 99.45%, much higher than any single classifier. Thus, the study helps healthcare professionals find breast cancer and prevent it from happening.

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