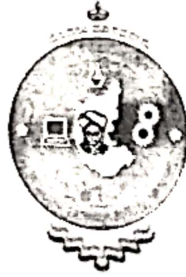


**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**  
"Jnana Sangama", Belagavi-560014, Karnataka



PROJECT REPORT ON

**"EPILEPTIC SEIZURE DETECTION USING DEEP LEARNING"**

*SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE  
PROJECT*

**BACHELOR OF ENGINEERING  
IN  
INFORMATION SCIENCE & ENGINEERING**

Submitted By

**H RANJITHA (1SV19IS005)  
VAISHNAVI C S (1SV19IS024)  
JOSHNI P S (1SV19IS007)  
ABHISHEK V (1SV19IS001)**

Under the guidance of

**Mr. Girish L**

Assistant Professor, Dept. of CSE.  
SIET, Tumakuru.



*(Handwritten Signature)*  
**PRINCIPAL  
SHRIDEVI INSTITUTE OF  
ENGINEERING AND TECHNOLOGY  
TUMKUR - 572106**

Department of Information Science and Engineering

**SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY**  
(Affiliated To Visvesvaraya Technological University)

Sira Road, Tumakuru – 572106, Karnataka.

2022-2023





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EDUCATION

Sri Shridevi Charitable Trust (R)  
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Approved by AICTE, New Delhi. Recognised by Govt. of Karnataka and Affiliated to Visvesvaraya Technological University, Belagavi

ESTD 2002



DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that, Internship project report of entitled "EPILEPTIC SEIZURES DETECTION USING DEEP LEARNING" has been successfully carried out by H RANJITHA[ISV19IS005], VAISHNAVICS[ISV19IS024], JOSHINIPS[ISV19IS007], ABHISHEK V[ISV19IS001] in partial fulfillment for the project report of **Bachelor of Engineering in Information 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 certifies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

*Girish L*

Signature of Guide

**Mr. Girish L**  
Assistant Professor,  
Dept. of CSE,  
SIET, Tumakuru.

*Suhas G K*

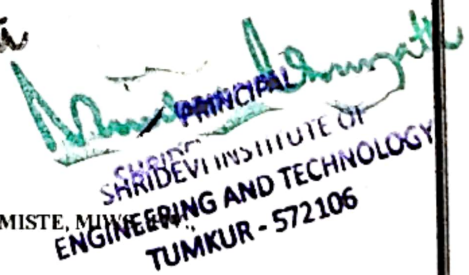
Signature of H.O.D

**Dr.Suhas G K** BE.,M.Tech.,Phd  
Associate Professor & HOD  
Dept. of ISE,  
SIET, Tumakuru.

*Narendra Viswanath*

Signature of Principal

**Dr.Narendra Viswanath** M.E., Ph.D., MIE, MISTE, MIM  
Principal,  
SIET, Tumakuru.



Name of the Examiners

1. *Dr. Mang Kumar DP*
2. *MERLIN. B*

Signature with date

1. *[Signature]* 24/5/23
2. *[Signature]* 24/5/23





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ESTD: 2002



## DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

### DECLARATION

We, H RANJITHA [1SV19IS005], VAISHNAVI C S [1SV19IS024], JOSHNI P S [1SV19IS007], ABHISHEK V [1SV19IS001] student of VIII semester B.E in Information Science & Engineering, at Shridevi Institute of Engineering & Technology, Tumakuru, hereby declare that, the Project work entitled "EPILEPTIC SEIZURE DETECTION USING DEEP LEARNING", embodies the report of our Project work carried out under the guidance of Mr. Girish L, Assistant Professor, Department of CSE, SIET, Tumakuru as partial fulfillment of requirements for the Project report in Bachelor of Engineering in Information 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

Student Name & Signature

Date:

H RANJITHA	[1SV19IS005]	<i>H Ranjitha</i>
VAISHNAVI C S	[1SV19IS024]	<i>Vaishnavi</i>
JOSHNI P S	[1SV19IS007]	<i>Joshni P.S</i>
ABHISHEK V	[1SV19IS001]	<i>Abhishek</i>

*Girish L*

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✉ : shritekinnovations@gmail.com

Date: 22/05/2023

## TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. H RANJITHA** bearing USN **1SV19IS005** Student of **Shridevi Institute of Engineering & Technology** has successfully completed her Project Work titled "Epileptic Seizure Detection Using Deep Learning".

We wish every success in her career.

For ShriTEK Innovations

*Geet*  
Authorized Signature



*Manjunath*  
PRINCIPAL  
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TUMKUR - 572106



Date: 22/05/2023

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. JOSHNI P S** bearing USN **1SV19IS007** Student of **Shridevi Institute of Engineering & Technology** has successfully completed her Project Work titled "Epileptic Seizure Detection Using Deep Learning".

We wish every success in her career.

For ShriTEK Innovations

*Geeta*  
Authorized Signature



*Manish Kumar*

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Date: 22/05/2023

## TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. ABHISHEK V** bearing USN **1SV19IS001** Student of **Shridevi Institute of Engineering & Technology** has successfully completed his Project Work titled **"Epileptic Seizure Detection Using Deep Learning"**.

1.5 Th

CHAPTER

We wish every success in his career.

2.1

2.2 (1)

For ShriTEK Innovations

Machine Learning

Types of

Deep Learning

*Geetu*  
Authorized Signature



*Manjunath Channappa*

**PRINCIPAL**  
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# Epileptic Seizures Detection Using Deep Learning

## CHAPTER 1

### Abstract

By examining the brain signals generated by brain neurons, epilepsy can be identified as a dangerous chronic neurological illness. In order to create messages and interact with bodily organs, neurons are intricately coupled to one another. Electrocorticography (ECoG) and Electroencephalogram (EEG) media are frequently used to detect these brain impulses. These signals generate a large amount of data and are complicated, noisy, non-linear, and non-stationary. As a result, it is difficult to identify seizures and learn about knowledge relating to the brain. Without sacrificing performance, machine learning classifiers can classify EEG data, detect seizures, and highlight pertinent meaningful patterns. As a result, several researchers have created a variety of methods for seizure detection utilizing statistical characteristics and machine learning classifiers. The biggest difficulties lie in choosing the right classifiers and characteristics. This paper's goal is to provide an overview of the many different variations of these approaches over the past several years based on the taxonomy of statistical features and "black-box" and "non-black-box" machine learning classifiers. The cutting-edge techniques and concepts discussed will provide a thorough grasp of seizure detection, categorization, and future research prospects.

*Manish Chougale*

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