

A project report on  
**SIGN LANGUAGE DETECTION USING DEEP LEARNING  
AND YOLO MODELS FOR REAL – TIME RECOGNITION**

Submitted in partial fulfilment of the requirements for award of the degree of

**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE AND ENGINEERING WITH  
Specialization  
ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

By

**Pethakamsetti Teja Sree  
(21U41A4232)**

**Malla Sarishma  
(22U45A4215)**

**Konathala Pavani  
(21U41A4265)**

**Karri Syam Kumari  
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Under the Esteemed guidance of

**Mrs.G. Chandrika**

**Assistant Professor, Department of CSM & CSD**



**DEPARTMENT OF CSM & CSD**

**DADI INSTITUTE OF ENGINEERING & TECHNOLOGY  
AN AUTONOMOUS INSTITUTE**

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**NH-16, Anakapalle – 531002, Visakhapatnam, A.P.**

**(2021-2025)**



**DEPARTMENT OF CSM & CSD**

**CERTIFICATE**

This is to certify that the project report entitled “SIGN LANGUAGE DETECTION USING DEEP LEARNING AND YOLO MODELS FOR REAL – TIME RECOGNITION” submitted by P. Teja Sree (21U41A4232), M. Sarishma (22U45A4215), K. Pavani (21U41A4265), K. Syam Kumari(22U45A4210). In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology** in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

  
**Mrs. G. CHANDRIKA**  
(ASSISTANT PROFESSOR)  
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**Mr. A. VENKATESWARA RAO**  
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**EXTERNAL EXAMINER**

## **DECLARATION**

We hereby declare that the project entitled **“SIGN LANGUAGE DETECTION USING DEEP LEARNING AND YOLO MODELS FOR REAL – TIME RECOGNITION”** is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mrs. G. Chandrika, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### **PROJECT ASSOCIATES**

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## ABSTRACT

Sign language serves as a vital communication medium for individuals with hearing and speech impairments. This project addresses the limitations of existing sign language detection systems, which often suffer from limited accuracy under uncontrolled conditions, by proposing a real-time sign language detection system leveraging deep learning and YOLO (You Only Look Once) models. The system integrates YOLO for efficient and accurate hand gesture detection from webcam video inputs, capitalizing on its high-speed processing capabilities. Subsequently, a deep neural network classifies these detected gestures into predefined sign language categories. This integrated approach aims to enhance real-time object detection and classification, facilitating seamless interaction between individuals with hearing impairments and the general population. By providing an innovative and accessible tool for bridging communication gaps, this project promotes inclusivity across various sectors.

**Keywords:** Computer Vision, Sign language Detection, Deep learning, YOLO, Image Processing, Gesture Recognition

A project report on  
**Predictive Analytics For Heart Disease: Leveraging Machine Learning  
To Enhance Early Diagnosis And Risk Assessment**

Submitted in partial fulfilment of the requirements for award of the degree of

**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE AND ENGINEERING WITH  
Specialization  
ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

By

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**NH-16, Anakapalle – 531002, Visakhapatnam, A.P.**

**(2021-2025)**



## DEPARTMENT OF CSM & CSD

### CERTIFICATE

This is to certify that the project report entitled “**Predictive Analytics For Heart Disease: Leveraging Machine Learning To Enhance Early Diagnosis And Risk Assessment**” submitted by Anusha Yellapragada(21U41A4234), Jaya Prakash Seelam (21U41A4278), Uday Kiran Porapu(21U41A4277), Boddeda Teja(21U41A4248). In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

  
**PROJECT GUIDE**

  
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**EXTERNAL EXAMINER**

## **DECLARATION**

We hereby declare that the project entitled “**Predictive Analytics For Heart Disease: Leveraging Machine Learning To Enhance Early Diagnosis And Risk Assessment**” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mrs. P. MOUNIKA, Assistant Professor** of the Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### **PROJECT ASSOCIATES**

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## **ABSTRACT**

This research searches the use of ML procedure to forecast Cardiovascular disease, one of the main factor of mortality globally. The study leverages a public dataset containing patient health indicators and employs advanced preprocessing techniques, including SMOTE for addressing class imbalance and feature scaling for normalization. Multiple ML models were trained and evaluated, including Logit model, KNN, RF, Naive Bayes, SVM, & a Voting Classifier. The Voting Classifier exhibit superior performance, emphasizing the potential of ensemble learning methods in predictive healthcare. The results highlight the efficacy of machine learning in providing accurate & scalable diagnostic tools for heart disease prediction

### **Keywords:**

Heart Disease Prediction, ML, Logit model, Random Forest, Voting Classifier, SMOTE, Feature Scaling, Ensemble Learning, Predictive Healthcare.

**A Project report on**  
**TEXT TO IMAGE GENERATION USING AN INTERACTIVE**  
**PLATFORM**

Submitted in partial fulfillment of the requirements for award of the degree of

**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE ENGINEERING – ARTIFICIAL INTELLIGENCE**  
**AND MACHINE LEARNING**

By

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**(2021-2025)**



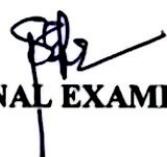
**DEPARTMENT OF  
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**CERTIFICATE**

This is to certify that the project report entitled "Text to image generation using an interactive platform." submitted by P.S.S.Harsha (21U41A4235), Ch.Sai Mahesh (21U41A4210) Ch.Bhuvan (21U41A4208), N.Raghavendra (21U41A4230). In partial fulfillment of the requirements for award of the Degree of **Bachelor of Technology in Computer Science Engineering – Artificial Intelligence & Machine Learning** from **Dadi Institute of Engineering & Technology-A, Anakapalle** affiliated to JNTU-GV, accredited by NAAC with 'A' grade is a record of Bonafide work carried out by them under my guidance and supervision.

  
**PROJECT GUIDE**

  
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## **DECLARATION**

We hereby declare that the project entitled “Text to image generation using an interactive platform” is submitted in partial fulfillment of the requirements for the award of Bachelor of Technology in **Computer Science & Engineering AIML** under esteemed supervision of **Mr. S. Syam Kumar, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

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## ABSTRACT

The impressive capacity of diffusion-based generative models to create realistic images from textual descriptions has attracted widespread interest in various fields. However, the intricate mechanisms behind these models often prove to be challenging for the general public. This project introduces an advanced system that employs the Foocus text-to-image generation model, integrating techniques such as ControlNet and Stable Diffusion, to convert text input into highly detailed facial images. The system is composed of four key components: a text enhancement module, foocus-driven image generation, a user-friendly interface, and a comprehensive database for image storage and organization. Designed to enhance accuracy and efficiency, this tool allows users to effortlessly produce visual content for applications in digital media, personalized avatars, and user engagement, serving both technically proficient and non-technical users.

**Keywords:**

*Generative models, text-to-image, foocus-driven image generation*

A project report on  
**REAL TIME EMERGENCY RESPONSE SYSTEM AND  
TRAFFIC MANAGEMENT**

Submitted in partial fulfillment of the requirements for award of the degree of

**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE AND ENGINEERING**

**With Specialization**

**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

Submitted By

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**B.Nikhil  
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**P.Yashwanth Sai Karthikeya  
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Under the Esteemed guidance of

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**(2021 – 2025)**



**DEPARTMENT OF CSM & CSD**

**CERTIFICATE**

This is to certify that the project report entitled “**Real Time Emergency Response System and Traffic Management**” submitted by G. Hima Varsha (21U41A4217), B. Nikhil (21U41A4247), P. Yashwanth Sai karthikeya (21U41A4272), K. Tharuni (21U41A4284). In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

  
**PROJECT GUIDE**

  
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**EXTERNAL EXAMINER**

## **DECLARATION**

We hereby declare that the project entitled “**Real Time Emergency Response System And Traffic Management**” is submitted in partial fulfillment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mrs. D. PADMA, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### **PROJECT ASSOCIATES**

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## ABSTRACT

Real time emergency response and traffic prevention is important for the public safety and traffic management. The system in this project introduce the real time emergency vehicle detection and traffic prevention model using OpenCV. OpenCV is a powerful computer vision library. The system is particularly designed to identify the emergency vehicles like ambulance, fire trucks and police vehicles in real time from video streams or feeds. Object detection algorithms are used with OpenCV's image processing capabilities then the system can detect the emergency vehicle pattern, identifies their presence and initiate response in the form of traffic signal adjustment or other preventive measures towards smooth passage for emergency vehicles. The emergency vehicles are detected by color detection method, shape detection, contour analysis and match features. Once the emergency vehicle is identified then the system can send signals to the traffic control system to alter traffic patterns, thereby reduce delays and improving response times for emergency services. The proposed system demonstrates a real- time, accurate, and efficient solution to emergency vehicle detection and traffic congestion management.

**KEYWORD:** Emergency vehicle detection, Traffic prevention, OpenCV, Image processing capabilities, Colour detection, Shape detection, Contour analysis, Traffic management, Public safety, Computer Vision.

**A Project report on**  
**RAINFALL INTENSITY PREDICTION SYSTEM**  
submitted in partial fulfilment of the requirements for the award of the Degree of  
**BACHELOR OF TECHNOLOGY**

**In**  
**COMPUTER SCIENCE AND ENGINEERING with**  
**Specialization**  
**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

***Submitted by***

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| P Jahnavi          | (21U41A4238) |
| K Krishnaveni      | (21U41A4258) |
| J D Prasanna Kumar | (21U41A4219) |
| S. Ravi Kumar      | (22U45A4219) |

Under the Esteemed guidance of

**Mrs. D PADMA**

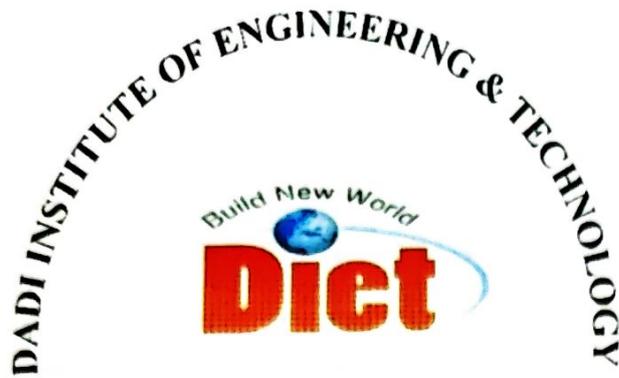
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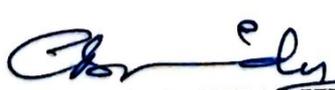
**DEPARTMENT OF CSM & CSD**

**CERTIFICATE**

This is to certify that the project report entitled “**Rainfall Intensity Prediction System**” submitted by P Jahnavi (21U41A4238), J Divya Prasanna Kumar (21U41A4219), K Krishnaveni (21U41A4258), S Ravi Kumar (22U45A4219). In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of Bonafide work carried out by them under my guidance and supervision.

  
**Mrs. D PADMA**  
**(Assistant Professor)**  
**PROJECT GUIDE**

  
**Mr. A. VENKATESWARA RAO**  
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**EXTERNAL EXAMINER**

## DECLARATION

We hereby declare that the project entitled “**Rainfall Intensity Prediction System**” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of Mrs. D. PADMA, Assistant Professor. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### PROJECT ASSOCIATES

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| <b>S Ravi Kumar</b>       | <b>22U45A4219</b> |
| <b>K Krishnaveni</b>      | <b>21U41A4258</b> |

## ABSTRACT

Predicting the amount of daily rainfall improves agricultural productivity and secures food and water supply to keep citizens healthy. To predict rainfall, several types of research have been conducted using data mining and machine learning techniques of different countries' environmental datasets. An erratic rainfall distribution in the country affects the agriculture on which the economy of the country depends on. Wise use of rainfall water should be planned and practiced in the country to minimize the problem of the drought and food occurred in the country. The main objective of this project is to identify the relevant atmospheric features that cause rainfall and predict the intensity of daily rainfall using machine learning techniques. The dataset was collected from the local meteorological office to measure the performance of three machine learning techniques (Multivariate Linear Regression, Random Forest, and Extreme Gradient Boost). Root mean squared error and Mean absolute Error methods were used to measure the performance of the machine learning model. The result of the study revealed that the Extreme Gradient Boosting machine learning algorithm performed better than others.

**KEYWORDS:** Extreme Gradient Boosting, XGRegressor, Hyper parameter Tuning, Feature Scaling, Multivariate Linear Regression.

**A project report on**

**PHISHNET: MACHINE LEARNING - POWERED  
DETECTION OF MALICIOUS WEBSITES**

Submitted in partial fulfillment of the requirements for the award of the degree of  
**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE & ENGINEERING**

**With Specialization**

**ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING**

By

**Suguna Syamala Gantla**  
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**Jampana Sri Naga Sai Srija**  
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**Jampani Kousikee Krishna Valli**  
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Under the esteemed guidance of

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**NH-16, Anakapalle – 531002, Visakhapatnam, A.P. (2021-2025)**

**(2021-2025)**



**DEPARTMENT OF CSM & CSD**

**CERTIFICATE**

This is to certify that the project report entitled “**phish-net: Machine Learning-Powered Detection of Malicious Websites**” submitted by Suguna Syamala Gantla (21U41A4215), Poojitha Kolaparathi (21U41A4274), Jampana Sri Naga Sai Srija (21U41A4255), Jampani Kousikee Krishna Valli (21U41A4256). In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

**Mr. SYAMKUMAR SAVARAM**  
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**HEAD OF THE DEPARTMENT**

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**Dadi Institute of Engg. & Tech.**  
**Autonomous**  
**Anakapalle - 531 002.**

  
**EXTERNAL EXAMINER**

## DECLARATION

We hereby declare that the project entitled “**phish-net: Machine Learning-Powered Detection of Malicious Websites**” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mr. SyamKumar Savaram, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

## PROJECT ASSOCIATES

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| <b>Poojitha Kolaparthi</b>            | <b>21U41A4274</b> |
| <b>Jampana Sri Naga Sai Srija</b>     | <b>21U41A4255</b> |
| <b>Jampani Kousikee Krishna Valli</b> | <b>21U41A4256</b> |

## ABSTRACT

Cyber risks have increased due to the exponential development in internet usage, especially through malicious URLs. Blacklisting is an example of a traditional security mechanism that is unable to keep up with changing threats. Through the analysis of many aspects, including lexical, host-based, and content-based characteristics, this study investigates a machine learning-based method for identifying malicious URLs. The study assesses various machine learning models to improve detection accuracy, such as support vector machines, decision trees, and deep learning approaches. When compared to traditional methods, the results show that machine learning techniques greatly increase the efficiency and accuracy of harmful URL identification.

**Keywords:** *Malicious URLs, Cyber threats, Machine learning, Detection accuracy, Blacklisting, Lexical characteristics, Host-based attributes, Content-based features, Decision trees, Support vector machines (SVM), Deep learning techniques, Security measures.*

**A Project Report On**

**PLANT RECOGNITION SYSTEM USING DEEP LEARNING**

Submitted in partial fulfilment of the requirements for the award of the Degree of

**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE AND ENGINEERING with Specialization  
ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING**

*Submitted by*

Y. JAHNAVI  
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**DEPARTMENT OF COMPUTER SCIENCE ENGINEERING – CSDM**

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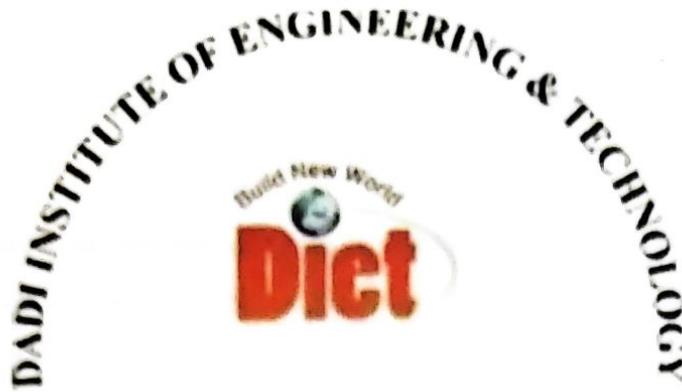
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**NH-16, Anakapalle – 531002, Visakhapatnam, A.P.**

**(2021-2025)**



DEPARTMENT OF  
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### CERTIFICATE

This is to certify that the project report entitled “PLANT RECOGNITION SYSTEM USING DEEP LEARNING” is being submitted by Y. JAHNAVI (21U41A4246), M. RAMYA (22U45A4213), M. SHARVANI(21U41A4227), and G. NAVEEN (22U45A4206). In partial fulfillment of the requirements for the award of the Degree of Bachelor’s in Engineering and Technology in **COMPUTER SCIENCE AND ENGINEERING with specialization ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING**, Dadi Institute of Engineering and Technology(A), Anakapalle affiliated to JNTU- GV, accredited by NAAC with ‘A’ grade is a record of Bonafide work carried out by them under my guidance and supervision.

*M. Kalyani*  
**M. KALYANI**  
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*A. Venkateswara Rao*  
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Dadi Institute of Engg. & Tech.  
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Anakapalle - 531 002.

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EXTERNAL EXAMINER

## **DECLARATION**

We hereby declare that the project entitled "**PLANT RECOGNITION SYSTEM USING DEEP LEARNING**" is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **COMPUTER SCIENCE AND ENGINEERING with specialization ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING** under esteemed supervision of **Mrs.M. KALYANI, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

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**M.SHARVANI** (21U41A4227)

## ABSTRACT

The community of plant species that are available to mankind is vast, with many species still undiscovered. Unfortunately, numerous plant species are on the edge of extinction, largely due to deforestation driven by human activities, such as industrial expansion and many more. This destruction of natural habitats disturbs the survival of plants, which are important for ecological balance. Preserving plant species is crucial for future generation and public awareness is essential to prevent further loss. This project aims to develop a system that facilitates easy identification of plant species by reducing the dependence on research papers or books. By using Convolutional Neural Networks (CNNs), the system simplifies the recognition of similar-looking plants and enhances awareness about nature. The model's training process had traditional CNN techniques, with measures such as image augmentation to improve accuracy. The existing system achieved low accuracy in identifying plants. While this accuracy is promising, future improvements can be made by exploring alternative CNN architectures or increasing the dataset size. The project had a structured methodology.

**Key words:**

*Convolutional Neural Networks (CNNs), Image Augmentation, Deep Learning, Machine Learning, Pattern Recognition, Computer Vision, CNN Architectures.*

# **LEVERAGING WEATHER DATA FOR ACCURATE VISIBILITY PREDICTION**

*A Project Report submitted in partial fulfilment of the requirements for the award of the  
Degree of*

**BACHELOR OF TECHNOLOGY**

**IN**

**COMPUTER SCIENCE AND ENGINEERING with**

**Specialization**

**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

Submitted by

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| Damera. Anjan Sai Sri Vatsav   | 21U41A4211 |
| Palakollu. Eswar. Sai. Karthik | 21U41A4271 |
| Konathala. Nithin              | 22U45A4211 |

Under the Esteemed guidance of

**Mrs. M. KALYANI**

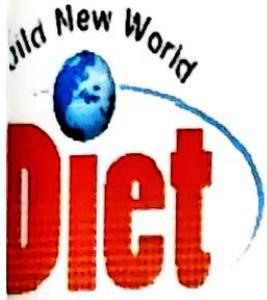
Assistant Professor, Department of CSMD



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Visakhapatnam, A.P. (2021-2025)**



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### **CERTIFICATE**

This is to certify that the project report entitled “Leveraging Weather Data For Accurate Visibility Prediction” is being submitted by V.YUVATEJA (21U41A4243), D. ANJAN SAI SRI VATSAV (21U41A4211), P.E.S.KARTHIK(21U41A4271), K.NITHIN(22U45A4211). In partial fulfilment of the requirements for award of the Degree of Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING with Specialization ARTIFICIAL INTELLIGENCE & MACHINE LEARNING, Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

*M. Kalyani*

**Mrs. M.KALYANI**

(ASSISTANT PROFESSOR)

(PROJECT GUIDE)

**Mr. A.VENKATESWARA RAO**

(ASSOCIATE PROFESSOR)

(HEAD OF THE DEPARTMENT)

Head of the Department  
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Dadi Institute of Engg. & Tech.  
Autonomous  
Anakapalle - 531 002

**EXTERNAL EXAMINER**

## **DECLARATION**

We hereby declare that the project entitled "**Leveraging Weather Data For Accurate Visibility Prediction**" is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning under esteemed supervision of **Mrs.M.Kalyani, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

**By**

### **PROJECT ASSOCIATES**

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| <b>K.NITHIN</b>               | <b>22U45A4211</b> |

## **Abstract**

Predicting visibility distance based on climatic indicators is essential for improving safety and operational decision-making across various sectors, particularly aviation. This project focuses on developing a machine learning-driven system that forecasts visibility distances using key meteorological parameters, such as temperature, humidity, wind speed, and atmospheric pressure. The system employs advanced algorithms, including Gradient boost regressor, CAT boost regressor and ensemble methods, to accurately model and predict visibility.

By capturing complex, non-linear relationships within the climatic data, the model provides robust and reliable predictions that enhance real-time visibility assessments. These predictions support informed decision-making and risk management, particularly in aviation and other safety-critical industries. The integration of these techniques aims to optimize operational efficiency while ensuring a high level of safety and risk mitigation.

To further enhance prediction accuracy, the model incorporates feature engineering techniques, such as data normalization, outlier detection, and principal component analysis (PCA). Additionally, historical weather patterns and real-time sensor data are integrated to improve forecasting precision. The system undergoes rigorous validation using cross-validation and error metrics like RMSE and MAE. Its deployment can aid air traffic management, ground transportation, and maritime operations by minimizing delays, preventing accidents, and ensuring smoother logistical planning in adverse weather conditions.

## **Keywords**

Visibility Prediction, Gradient Boost Regressor, Cat Boost Regressor, K-Means Clustering, Silhouette Score, Weather Data, Real-time Prediction, Flask, Transportation, Aviation.

**A project report on**  
**INTELLIGENT MACHINE FOR CYBER HARASSERS DETECTION**  
**ON SOCIAL MEDIA**

*submitted in partial fulfilment of the requirements for the award of the  
Degree of*

**BACHELOR OF TECHNOLOGY IN**  
**COMPUTER SCIENCE AND ENGINEERING**  
**With Specialization**  
**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

*Submitted by*

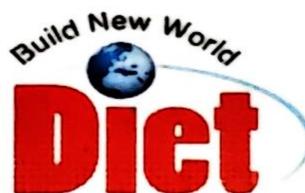
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*Under the Esteemed guidance of*

**Mrs . D . PADMA**

Assistant Professor, Department of CSDM



**DEPARTMENT OF CSDM**

**DADI INSTITUTE OF ENGINEERING & TECHNOLOGY**

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**CERTIFICATE**

This is to certify that the project report entitled "Intelligent machine for cyber harassers detection on social media" is being submitted by K. TEJA (21U41A4261), P. ROHIT MANI KIRAN(21U41A4273), V.DURGAPRASAD(21U41A4282), V.MADHUSUDHAN(21U41A4283). In partial fulfilment of the requirements for award of the Degree of Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING with Specialization ARTIFICIAL INTELLIGENCE & MACHINE LEARNING, Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

  
**Mrs .D. PADMA**  
**(ASSISTANT PROFESSOR)**  
**(PROJECT GUIDE)**

  
**Mr A. VENKATESWARA RAO**  
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**EXTERNAL EXAMINER**

## **DECLARATION**

We hereby declare that the project entitled “**Intelligent Machine for cyber harassers detection on social media**” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mrs. D. Padma, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### **PROJECT ASSOCIATES**

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## **ABSTRACT**

Cyber harassment on social media platforms is a growing concern, negatively impacting users' mental health and online safety. This project proposes a Cyber Harasser Detection System using Machine Learning (ML) and Natural Language Processing (NLP) techniques to automatically identify harassing behaviour on social media.

The system analyzes social media posts, comments, and messages to classify them as harassing or non-harassing. It employs supervised machine learning algorithms, such as Random Forests, trained on labelled datasets, alongside NLP techniques and text feature extraction. By leveraging linguistic patterns and context understanding, the system ensures accurate detection of harassment.

Real-time analysis enables the system to detect toxic language promptly, reducing the burden on human moderators and enhancing user safety by flagging harmful posts. This automated approach promotes safer online platforms, addressing a critical societal issue while showcasing the practical application of ML and NLP in combating cyber harassment.

**Keywords:** *Online harassment, cyber bullying, machine learning*

**A project report on**  
**INTELLIGENT MACHINE FOR ANOMALOUS  
TRANSACTION OF CREDIT CARD**

*submitted in partial fulfilment of the requirements for the  
award of the Degree of*

**BACHELOR OF TECHNOLOGY IN**  
**COMPUTER SCIENCE AND ENGINEERING**  
**With Specialization**  
*ARTIFICIAL INTELLIGENCE & MACHINE LEARNING*

*Submitted by*

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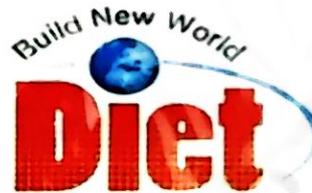
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B. Tharun Kumar  
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*Under the Esteemed guidance of*

**Mr. A. VENKATESWARA RAO**

Associate Professor, Department of CSM



**DEPARTMENT OF CSM & CSD**

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NH-16, Anakapalle – 531002, Visakhapatnam, A.P.

(2021-2025)



**DEPARTMENT OF CSM & CSD**

**CERTIFICATE**

This is to certify that the project report entitled “**INTELLIGENT MACHINE FOR ANOMALOUS TRANSACTION OF CREDIT CARD**” is submitted by T. VAMSI (21U41A4241), P. SAI (21U41A4237), P. LOHITH (21U41A4236), B. THARUN KUMAR (22U45A4203). In partial fulfilment of the requirements for award of the Degree of Bachelor of Technology in **COMPUTER SCIENCE AND ENGINEERING with Specialization ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**, Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of Bonafide work carried out by them under my guidance and supervision.

**A. VENKATESWARA RAO**  
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**EXTERNAL EXAMINER**

## DECLARATION

We hereby declare that the project entitled "**Intelligent Machine For Anomalous Transaction Of Credit Card**" is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mrs. A. VENKATESWARA RAO, Associate Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### PROJECT ASSOCIATES

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| B. THARUN KUMAR | 22U45A4203 |

## **ABSTRACT**

The aim of this project is to develop a machine learning model for detecting fraudulent transactions on credit cards. By analyzing patterns and behaviors from historical transaction data, the model is designed to identify anomalies indicative of potential fraud. The project involves preprocessing raw data, addressing class imbalances using the techniques like Random Under Sampling and inherent in fraud detection, and selecting relevant features to enhance the model's performance. Various machine learning algorithms are employed and compared to find the most effective solution, with performance evaluated using metrics such as Accuracy, precision, recall, and F1-score.

The resulting model enables real-time detection of suspicious transactions, aiding in the prevention of unauthorized credit card use and minimizing financial losses for both cardholders and issuers. This project highlights the practical application of machine learning in combating fraud, providing a secure and efficient approach to safeguarding financial transactions.

### **Keywords:**

*Fraudulent transactions, Historical transaction data, Anomalies, Random Under Sampling, Machine Learning.*

**A project report on  
FAKE NEWS DETECTION USING NATURAL LANGUAGE  
PROCESSING**

**Project**

Submitted in partial fulfilment of the requirements for award of the degree of  
**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE ENGINEERING WITH SPECIALIZATION  
ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING**

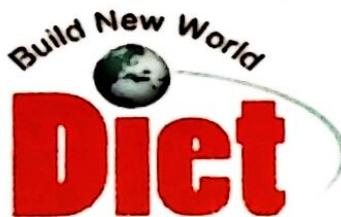
Submitted By

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| <b>M.PRASANNA</b> | <b>21U41A4254</b> |
| <b>V.DEVASISH</b> | <b>21U41A4244</b> |
| <b>B.MONICA</b>   | <b>21U41A4250</b> |

**Under the Esteemed guidance of**

**Mrs. Polinati Mounika**

**Assistant Professor, Department of CSM & CSD**



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**NH-16, Anakapalle – 531002, Visakhapatnam, A.P.**

**(2021-2025)**



**DEPARTMENT OF CSM & CSD**

**CERTIFICATE**

This is to certify that the project report entitled “**FAKE NEWS DETECTION USING NATURAL LANGUAGE PROCESSING**” submitted by M.Likhitha (21U41A4226), M.Prasanna (21U41A4254), V.devasish (21U41A4244), B.Monica (21U41A4250) .In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology in Computer Science Engineering**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

**MRS.P. MOUNIKA  
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PROJECT GUIDE**

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Autonomous  
Anakapalle - 531 002.**

**EXTERNAL EXAMINER**

## **DECLARATION**

We hereby declare that the project entitled "**FAKE NEWS DETECTION USING NATURAL LANGUAGE PROCESSING**" is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science Engineering with specialization artificial intelligence & machine learning** under esteemed supervision of **MRS.P. Mounica, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### **PROJECT ASSOCIATES**

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## ABSTRACT

In today's digital era, the rapid dissemination of misinformation poses a significant challenge to media credibility and public trust. This project, "Neural Networks for Detecting Misinformation in Modern Media," aims to develop an advanced AI-driven fake news detection system using Artificial Neural Networks (ANN), Long Short-Term Memory (LSTM) networks, and ensemble learning models. The goal is to identify and mitigate the spread of false information by analyzing linguistic, contextual, and stylistic patterns in textual data. The system is trained on large datasets sourced from social media, news websites, and online forums, leveraging Natural Language Processing (NLP) techniques like TF-IDF vectorization and word embeddings to extract meaningful insights. Multiple classifiers, including Logistic Regression, Random Forest, ANN, and LSTM, work together to enhance detection accuracy. Additionally, external AI services like CHATGPT models provide enhanced analysis and interpretability, enabling dual-layer validation and detailed explanations for predictions. A user-friendly Gradio-based web interface allows users to input news content and receive real-time predictions. The system undergoes rigorous testing on fresh datasets to evaluate its real-world effectiveness. By integrating deep learning techniques with explainable AI, this project supports media organizations, journalists, and the public in combating misinformation, promoting critical media literacy, and ensuring the consumption of credible information.

**Keyword:** Machine learning, Social media, Natural language process, CHATGPT Models, Deep learning, Misinformation Detection, Neural Networks, Fake News Identification, AI- Powered Analysis, Digital Media Trust, Credible Information

A project report on  
**Handwritten Digit Recognition Using Convolutional  
Neural Networks**

Submitted in partial fulfilment of the requirements forward of the degree of  
**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE AND ENGINEERING With  
specialization  
ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

By

D Jahnavi  
(21U41A4213)

B Akash  
(22U45A4202)

Md Farhaan Sahil  
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K Ganesh  
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Under the Esteemed guidance of

**Mrs.CH.Usha**

Assistant Professor, Department of CSM & CSD



**DEPARTMENT OF CSM & CSD**

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NH-16, Anakapalle - 531002, Visakhapatnam, A.P.

(2021-2025)



**DEPARTMENT OF CSM & CSD**

**CERTIFICATE**

This is to certify that the project report entitled “**Handwritten Digit Recognition using Convolutional Neural Networks**” submitted by D Jahnavi (21U41A4213), Md Farhaan Sahil (21U41A4228), B Akash (22U45A4202), K Ganesh (21U41A4264). In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

  
**PROJECT GUIDE**

  
**HEAD OF DEPARTMENT**  
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Anakapalle - 531 002.

  
**EXTERNAL EXAMINER**

## **DECLARATION**

We hereby declare that the project entitled "**Handwritten Digit Recognition using Convolutional Neural Networks**" is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of Mrs.CH.Usha, **Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### **PROJECT ASSOCIATES**

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**B Akash (22U45A4202)**

**K Ganesh (21U41A4264)**

## ABSTRACT

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Handwritten digit recognition is a fundamental problem in the field of computer vision, with applications in automated postal sorting, bank check processing, and more. This paper presents an approach to recognizing handwritten digits using Convolutional Neural Networks (CNNs), a powerful deep learning technique known for its ability to automatically learn spatial hierarchies of features. We employ a CNN architecture that includes multiple layers of convolution, pooling, and fully connected layers to achieve high accuracy in digit classification. The model is trained on the MNIST dataset, a well-established benchmark in the machine learning community. The effectiveness of the CNN model is evaluated through various performance metrics, including accuracy, precision, and recall, demonstrating its superiority over traditional machine learning methods. Our results show that CNNs significantly outperform other classifiers in terms of accuracy, achieving near-human-level recognition rates. This study highlights the potential of deep learning techniques in automated handwritten digit recognition tasks.

**KEYWORDS :** Computer vision, Feature Extraction, Pre-process, Dataset, Handwriting Recognition, Deep Learning.

**A project report on**  
**Data-Driven Fraud Detection In Medical Insurance System**

Submitted in partial fulfilment of the requirements for award of the  
degree of

**BACHELOR OF TECHNOLOGY**  
In  
**COMPUTER SCIENCE AND ENGINEERING WITH**  
**Specialization**  
**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

By  
Udayagiri Lakshmi Sailaja  
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Kosireddi Alekya  
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Under the Esteemed guidance of

**Mrs.M.Kalyani**

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**DEPARTMENT OF CSM & CSD**  
**DADI INSTITUTE OF ENGINEERING AND TECHNOLOGY**  
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**NH-16, Anakapalle – 531002, Visakhapatnam, A.P.**

**(2021-2025)**



## CERTIFICATE

This is to certify that the project report entitled “**Data-Driven Fraud Detection In Medical Insurance System**” submitted by Udayagiri Lakshmi Sailaja (21U41A4242), Kari Sushanth Kumar (21U41A4259), Kosireddi Alekya (21U41A4266), Vegi Kumar Sankar Naidu (21U41A4267). In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

*M. Kalyani*  
Mrs.M.KALYANI

(ASSISTANT PROFESSOR)

(PROJECT GUIDE)

*Mr. A. Venkateswara Rao*  
Mr.A. VENKATESWARA RAO

(ASSOCIATE PROFESSOR)

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CSD & CSM  
Dadi Institute of Engg. & Tech.  
Autonomous  
Anakapalle - 531 002.

*External Examiner*  
EXTERNAL EXAMINER

## **DECLARATION**

We hereby declare that the project entitled “**Data-Driven Fraud Detection In Medical Insurance System**” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mrs.M.Kalyani, Assistant professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree

## **PROJECT ASSOCIATES**

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| <b>K.Sushanth Kumar</b>     | <b>(21U41A4259)</b> |
| <b>K.Alekya</b>             | <b>(21U41A4266)</b> |
| <b>V.Kumar Sankar Naidu</b> | <b>(21U41A4267)</b> |

## **ABSTRACT**

Medical insurance fraud is a significant concern for insurance providers, leading to financial losses and increased premiums for policyholders. To combat this issue, this project proposes a Fraud Detection System for medical insurance claims using Machine Learning (ML) algorithms to identify potentially fraudulent claims. The system analyzes historical claim data to detect anomalies and patterns indicative of fraud by leveraging advanced machine learning techniques, such as classification algorithms (e.g., Logistic Regression, XGBoost, CatBoost). These models are trained on historical insurance claims data to discern patterns and predict the likelihood of fraud in new or ongoing claims.

The system will use key features like claim amount, claim frequency, policyholder demographics, and diagnosis codes to identify outliers or patterns of behavior suggestive of fraud. By employing data preprocessing, feature selection, and ML model optimization, the system improves its ability to detect fraudulent activities with accuracy, while ensuring computational efficiency. This fraud detection system can reduce false claims, minimize financial losses for insurance companies, and strengthen policyholder trust by identifying and preventing fraudulent activity.

**Keywords:** Machine Learning, Fraud Detection, Logistic Regression, XGBoost, CatBoost, Medical Insurance.

**A project report on**  
**EMOTION RECOGNITION USING SPEECH**  
**PROCESSING**

Submitted in partial fulfillment of the requirements for the award of the degree of  
**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE & ENGINEERING WITH SPECIALIZATION**  
**ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING**

BY

|                         |                   |
|-------------------------|-------------------|
| <b>A.Priya Varshini</b> | <b>21U41A4202</b> |
| <b>M.Lavanya</b>        | <b>21U41A4268</b> |
| <b>M.Joshmitha</b>      | <b>21U41A4270</b> |
| <b>V.Tejaswi</b>        | <b>21U41A4281</b> |

**Under the Esteemed guidance of**

**Mrs.REDDI SWAPNA**

**Assistant Professor**

**Department of CSM&CSD**



**DEPARTMENT OF CSM & CSD**

**DADI INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**AN AUTONOMOUS INSTITUTE**

(Approved by A.I.C.T.E., New Delhi & Permanently Affiliated to JNTU GV)

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An ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified institute

**NH-16 Anakapalle - 531002, Visakhapatnam (2021-2025)**



**DEPARTMENT OF**  
**COMPUTER SCIENCE ENGINEERING WITH SPECIALIZATION**  
**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

**CERTIFICATE**

This is to certify that the project report entitled "Emotion recognition using speech processing" is being submitted A.Priya Varshini(21U41A4202),M.Lavanya(21U41A4268),M.Joshmitha (21U41A4270), V.Tejaswi(21U41A4281). In Partial fulfilment of the requirements for award of Degree of Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING with Specialization ARTIFICIAL INTELLIGENCE & MACHINE LEARNING,Dadi Institute of Engineering & Technology(A),Anakapalle affiliated to JNTUGV,Accredited by NAAC with 'A'grade is a record of Bonafide work carried out by them under my guidance and supervision

  
R.SWAPNA

**(ASSISTANT PROFESSOR)**

**PROJECT GUIDE**

  
A.VENKATESWARA RAO

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**HEAD OF THE DEPARTEMENT**

  
EXTERNAL EXAMINER

Head of the Department  
CSD & CSM  
Dadi Institute of Engg. & Tech,  
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Anakapalle - 531 002.

## DECLARATION

We hereby declare that the Project entitled "EMOTION RECOGNITION USING SPEECH PROCESSING" has been carried out by us and contents have been presented in the form are for the award of the degree of BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING with Specialization ARTIFICIAL INTELLIGENCE & MACHINE LEARNING under the esteemed supervision of Mrs.R.SWAPNA,Assistant Professor.This is a record of work carried out by us and results embodied in this project report have not been submitted to other university for the award of any Degree.

## PROJECT ASSOCIATES

|                  |            |
|------------------|------------|
| A.PRIYA VARSHINI | 21U41A4202 |
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## ABSTRACT

Emotion recognition from speech is an essential task in human computer interaction, with applications in mental health monitoring, virtual assistants, and customer service automation. This project, "Emotion Recognition Using Speech Processing," aims to enhance the accuracy of emotion classification by leveraging advanced speech signal processing techniques and deep learning models. The system utilizes Mel-Frequency Cepstral Coefficients (MFCCs) to extract meaningful features from speech signals, as MFCCs effectively capture the timbral and phonetic characteristics of human voice. To improve the robustness of the feature set, Principal Component Analysis (PCA) is applied to reduce dimensionality and remove redundant information, ensuring computational efficiency while retaining critical data. Additionally, an Isolation Forest algorithm is employed for anomaly detection and noise reduction, enhancing the quality of input features. For classification, a Convolutional Neural Network (CNN) is designed to learn spatial hierarchies of features, capturing intricate patterns in speech signals that are indicative of different emotional states. This technology has significant applications in human computer interaction, mental health monitoring, virtual assistants, customer service, and psychological assessments.

**Keywords:** Emotion recognition, speech processing, Mel Frequency Cepstral Coefficients (MFCC), Principal Component Analysis (PCA), Isolation Forest, Convolutional Neural Network (CNN).

A project report on  
**Exam Cheating Detection Using Roboflow:  
A Computer Vision Approach to Ensuring -  
Academic Integrity**

Submitted in partial fulfilment of the requirements for award of the degree of

**BACHELOR OF TECHNOLOGY**

In  
**COMPUTER SCIENCE AND ENGINEERING  
With Specialization  
ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

By

**E.Mounika Priya  
(21U41A4214)**

**A. Ramesh Kumar  
(21U41A4204)**

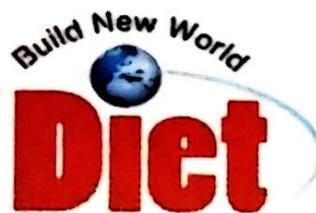
**K.Veditha  
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Under the Esteemed guidance of

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Assistant Professor, Department of CSM & CSD



**DEPARTMENT OF CSM & CSD**

**DADI INSTITUTE OF ENGINEERING & TECHNOLOGY  
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An ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Institute.

NH-16, Anakapalle - 531002, Visakhapatnam, A.P.

**(2021-2025)**



**DEPARTMENT OF CSM & CSD**

**CERTIFICATE**

This is to certify that the project report entitled “**EXAM CHEATING DETECTION USING ROBOFLOW**” submitted by E.Mounika Priya (21U41A4214), In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

  
**Mrs. CH.USHA**  
**(ASSISTANT PROFESSOR)**  
**PROJECT GUIDE**

  
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**(ASSOCIATE PROFESSOR)**  
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**EXTERNAL EXAMINER**

## **DECLARATION**

We hereby declare that the project entitled “**Exam Cheating Detection Using Roflow**” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mrs. CH. USHA, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### **PROJECT ASSOCIATES**

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| <b>E.MOUNIKA PRIYA</b> | <b>21U41A4214</b> |
| <b>A.RAMESH KUMAR</b>  | <b>21U41A4204</b> |
| <b>K.VEDITHA</b>       | <b>21U41A4262</b> |
| <b>B.HEMANTH NAIDU</b> | <b>21U41A4205</b> |

## ABSTRACT

Cheating during examinations poses a significant threat to the fairness and integrity of academic assessments. This project presents an innovative solution: an Exam Cheating Detection System developed using Roboflow, a computer vision platform. The system employs object detection models to identify potential cheating behaviors, such as the use of unauthorized devices, signaling gestures, or communication between students, during exams. The proposed system utilizes pre-trained Convolutional Neural Network (CNN) models to process and analyze image data captured during examinations. Training is performed on labeled datasets containing annotated examples of cheating behaviors, leveraging Roboflow's powerful annotation tools and integration with advanced object detection frameworks like YOLOv5 or TensorFlow Object Detection

**Keywords:** Exam Cheating Detection, Roboflow, Computer Vision, Object Detection, YOLOv5, TensorFlow, Monitoring, Convolutional Neural Networks (CNN), Automated Surveillance, Exam Integrity, Cheating Behavior Detection, Deep Learning, Analysis, Education Technology.

**A project report on**  
**Exploring Image-Text Alignment with Flickr Data : A Deep  
Learning Approach**

Submitted in partial fulfilment of the requirements for award of the degree of

**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE AND ENGINEERING WITH  
Specialization  
ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

By

Geetha Arsha Surisetty

(21U41A4216)

Kodukula Satya Gopal

(21U41A4257)

Sumith Kumar Poddar

(21U41A4280)

Mathurthi Pavani

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Under the Esteemed guidance of

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Assistant Professor, Department of CSM & CSD



DEPARTMENT OF CSM & CSD

**DADI INSTITUTE OF ENGINEERING &  
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An ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Institute.

NH-16, Anakapalle – 531002, Visakhapatnam, A.P.

(2021-2025)



DEPARTMENT OF CSM & CSD

**CERTIFICATE**

This is to certify that the project report entitled “Exploring Image-Text Alignment with Flickr Data : A Deep Learning Approach” submitted by Geetha Arsha Surisetty (21U41A4216), Kodukula Satya Gopal (21U41A4257), Sumith Kumar Poddar (21U41A4280), Mathurthi Pavani (21U41A4285). In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning**, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.

**Mrs. CH. USHA**  
**PROJECT GUIDE**

**Mr. A. VENKATESWARA RAO**  
**HEAD OF THE DEPARTMENT,**  
**Head of the Department**  
**CSD & CSM**  
**Dadi Institute of Engg. & Tech.**  
**Autonomous**  
**Anakapalle - 531 002.**

**EXTERNAL EXAMINER**

## **DECLARATION**

We hereby declare that the project entitled “**Exploring Image-Text Alignment with Flickr Data : A Deep Learning Approach**” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of Mrs. CH. USHA, Assistant Professor of the **Computer Science and Engineering With Specialization Artificial Intelligence & Machine Learning**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### **PROJECT ASSOCIATES**

|                               |                   |
|-------------------------------|-------------------|
| <b>Geetha Arsha Surisetty</b> | <b>21U41A4216</b> |
| <b>Kodukula Satya Gopal</b>   | <b>21U41A4257</b> |
| <b>Sumith Kumar Poddar</b>    | <b>21U41A4280</b> |
| <b>Mathurthi Pavani</b>       | <b>21U41A4285</b> |

## ABSTRACT

The Image Caption Generator project aims to bridge the gap between visual data and natural language by automatically generating descriptive captions for images. The model architecture combines the powerful capabilities of convolutional neural networks (CNNs) and long short-term memory (LSTM) networks. The proposed model employs VGG16, a pre-trained CNN architecture, to extract deep features from input images. These features are then fed into an LSTM network to generate descriptive captions. To evaluate the performance of the trained model, the BLEU score is used as a metric. This metric measures the n-gram overlap between the generated captions and the ground truth captions. The Flickr 8k dataset from Kaggle, consisting of 8k images with 5 captions each, is utilized for training and evaluation. The end-to-end pipeline is implemented using Python, Jupyter Notebook, and Google Colab, ensuring a flexible and scalable solution that can be adapted to various applications. This project has significant implications across several domains.

**Keywords :** Image Captioning, DL, CNN-(Vgg-16), LSTM, Flickr8k Dataset, BLEU Score, Automated Caption Generator, Image Features Extraction.

**A project report on**  
**FACE MASK DETECTION USING A DEEP LEARNING APPROACH**

Submitted in partial fulfilment of the requirements for award of the degree of

**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE AND ENGINEERING WITH**

**Specialization**

**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

By

**E. HEMALATHA**

**(22U45A4205)**

**M.SOWMYA**

**(22U45A4214)**

**B. PALLAVI PARIMALA**

**(22U45A4201)**

**P.B.S.D. GANESH**

**(22U45A4216)**

Under the Esteemed guidance of

**Mrs.K. LAVANYA**

Assistant Professor, Department of CSM



**DADI INSTITUTE OF ENGINEERING & TECHNOLOGY**

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with 'A' Grade and Inclusion u/s 2(f) & 12(B) of UGC Act An**

**ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Institute. NH-16, Anakapalle – 531002,  
Visakhapatnam, A.P.**

**(2021-2025)**



## CERTIFICATE

This is to certify that the project report entitled "FACE MASK DETECTION USING A DEEP LEARNING APPROACH" submitted by E.Hemalatha (22U45A4205), M.Sowmya (22U45A4214), B.Pallavi Parimala (22U45A4201), P.B.S.D.GANESH (22U45A4216). In partial fulfilment of the requirements for award of the Degree of Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning, from Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of Bonafide work carried out by them under my guidance and supervision.

*K. Lavanya*

**S.K.LAVANYA**  
(ASSISTANT PROFESSOR)  
(PROJECT GUIDE)

*A. Venkateswara Rao*

**A.VENKATESWARA RAO**  
(ASSOCIATE PROFESSOR)  
(HEAD OF THE DEPARTMENT)

Head of the Department  
CSD & CSM  
Dadi Institute of Engg. & Tech.  
Autonomous  
Anakapalle - 531 002.

*[Signature]*

**EXTERNAL EXAMINER**

## **DECLARATION**

We hereby declare that the project entitled "**Face Mask Detection Using A Deep Learning Approach**" is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mrs.K.Lavanya, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### **PROJECT ASSOCIATES**

|                           |                     |
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| <b>E.Hemalatha</b>        | <b>(22U45A4205)</b> |
| <b>M.Sowmya</b>           | <b>(22U45A4214)</b> |
| <b>B.Pallavi Parimala</b> | <b>(22U45A4201)</b> |
| <b>P.B.S.D. Ganesh</b>    | <b>(22U45A4216)</b> |

## **ABSTRACT**

Face mask detection has become an essential application in several domains, including healthcare, workplace safety, public security, and environmental pollution control. In the wake of global pandemics and increasing health concerns, ensuring individuals comply with face mask mandates has become a priority for governments and organizations. Traditional face mask detection techniques, while useful, often face challenges such as varying lighting conditions, partial occlusions (e.g., hands or hair covering part of the face), and the wide variety of mask types (cloth, surgical, N95, etc.) used by individuals. These factors significantly impact the accuracy and reliability of conventional models.

To address these limitations, this project introduces a Hybrid ViT-CNN model, a deep learning architecture that combines the strengths of Convolutional Neural Networks (CNNs) and Vision Transformers (ViTs). CNNs are renowned for their ability to effectively extract local spatial features, such as edges, textures, and patterns, from images. On the other hand, ViTs utilize self-attention mechanisms to capture longrange dependencies and global contextual information across the entire image. By integrating these two models, the proposed hybrid approach leverages both local and global feature representations, resulting in improved detection accuracy and robustness.

## **KEYWORDS:**

★ Face Mask Detection, Hybrid ViT -CNN Model, Vision Transformers (ViT) , Convolutional Neural Networks (CNNs), EfficientNetB0 , Binary Classification.

**A project report on**  
**CONTENT BASED IMAGE RETRIEVAL SYSTEM USING**  
**MACHINE LEARNING**

Submitted in partial fulfilment of the requirements for award of the degree of

**BACHELOR OF TECHNOLOGY**

In

**COMPUTER SCIENCE AND ENGINEERING WITH SPECIALIZATION**  
**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

By

V KRISHNA INDU

(21U41A4245)

M.CHARMILA

(21U41A4225)

A. SWAROOP

(21U41A4201)

Ch.L.SUCHARITHA

(21U41A4251)

Under the Esteemed guidance of

**MRS. R. SWAPNA**

**Department of CSDM**



**DEPARTMENT OF CSM & CSD**

**DADI INSTITUTE OF ENGINEERING & TECHNOLOGY**  
**AN AUTONOMOUS INSTITUTE**

(Approved by A.I.C.T.E., New Delhi & Permanently Affiliated to JNTU GV)  
**Accredited by NAAC with 'A' Grade and Inclusion u/s 2(f) & 12(B) of UGC Act**  
An ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Institute.

**NH-16, Anakapalle - 531002, Visakhapatnam, A.P.(2021-2025)**

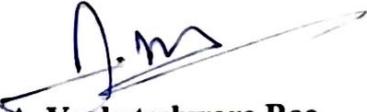


## DEPARTMENT OF CSM & CSD

### CERTIFICATE

This is to certify that the project report entitled "Content-Based Image Retrieval System using Machine Learning" submitted by V. Krishna Indu(21U41A4245), M.Charmila (21U41A4225), A.Swaroop (21U41A4201), Ch.L.Sucharitha (21U41A4251). In partial fulfilment of the requirements for award of the Degree of Bachelor of Technology in Computer Science and Engineer with Specialization Artificial Intelligence & Machine Learning, from Dadi Institute of Engineering Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of Bonafide work carried out by them under my guidance and supervision.

  
**Mrs.R. Swapna**  
( Project guide, Assistant  
professor of CSDM)

  
**Mr. A. Venkateshwara Rao**  
(Associate Professor & Head of the  
Department of CSDM)  
Head of the Department  
CSD & CSM  
Dadi Institute of Engg. & Tech.  
Autonomous  
Anakapalle - 531 002.

  
**EXTERNAL EXAMINER**

## DECLARATION

We hereby declare that the project entitled “**Content based image retrieval system using machine learning**” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of Mrs. R. Swapna, Assistant Professor of the **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### PROJECT ASSOCIATES

|                  |              |
|------------------|--------------|
| V. Krishna Indu  | (21U41A4245) |
| M. Charmila      | (21U41A4225) |
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| CH.L. Sucharitha | (21U41A4251) |

## ABSTRACT

Content-Based Image Retrieval (CBIR) systems address the growing challenge of retrieving relevant images from vast datasets based on their visual content rather than textual metadata. This paper proposes a CBIR system leveraging advanced machine learning techniques to extract and analyze image features, including color, texture, shape, and deep representations. Convolutional Neural Networks (CNNs), specifically ResNet-50, are utilized for high-level feature extraction, while clustering techniques like K-means organize features for efficient retrieval. The system employs similarity metrics such as cosine distance and Euclidean distance to ensure accurate results. Evaluated on benchmark datasets, the proposed system achieves an average precision of 88% and recall exceeding 85%, significantly outperforming traditional approaches. Applications of this system include medical imaging, e-commerce, and digital asset management, showcasing its scalability and accuracy.

**Keywords:** Content-Based Image Retrieval (CBIR), Convolutional Neural Networks (CNNs), ResNet-50, K-means Clustering, Image Query System, Real-Time Retrieval.

**A project report on**  
**DETECTION AND CLASSIFICATION OF RED LESIONS FROM**  
**RETINAL IMAGES FOR DIABETIC RETINOPATHY DETECTION**

*submitted in partial fulfilment of the requirements for the award  
of the Degree of*

**BACHELOR OF TECHNOLOGY IN**  
**COMPUTER SCIENCE AND ENGINEERING**  
**With Specialization**  
**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

*Submitted by*

B. Manohar  
(21U41A4206)

S. Kamal Praneeth  
(21U41A4240)

K. T. S. S. Abhiram  
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*Under the Esteemed guidance of*

Mrs. REDDI SWAPNA

Assistant Professor, Department of CSM



**DEPARTMENT OF CSM & CSD**  
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NH-16, Anakapalle – 531002, Visakhapatnam, A.P.

(2021-2025)



**DEPARTMENT OF CSM & CSD**

**CERTIFICATE**

This is to certify that the project report entitled “DETECTION AND CLASSIFICATION OF RED LESIONS FROM RETINAL IMAGES FOR DIABETIC RETINOPATHY DETECTION” is submitted by B. MANOHAR (21U41A4206), S. KAMAL PRANEETH (21U41A4240), K.T.S.S. ABHIRAM (21U41A4220), U. MOHAN SAI (20U41A4240). In partial fulfilment of the requirements for award of the Degree of Bachelor of Technology in **COMPUTER SCIENCE AND ENGINEERING with Specialization ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**, Dadi Institute of Engineering & Technology(A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of Bonafide work carried out by them under my guidance and supervision.

  
**R. SWAPNA**  
**(ASSISTANT PROFESSOR)**  
**(PROJECT GUIDE)**

  
**A. VENKATESWARA RAO**  
**(ASSOCIATE PROFESSOR)**  
**(HEAD OF THE DEPARTMENT)**  
Head of the Department  
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**EXTERNAL EXAMINER**

## DECLARATION

We hereby declare that the project entitled “**Detection and Classification of red Lesions from Retinal Images for Diabetic Retinopathy Detection**” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mrs. R. SWAPNA, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### PROJECT ASSOCIATES

|                     |            |
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| B. MANOHAR          | 21U41A4206 |
| S. KAMAL PRANEETH   | 21U41A4240 |
| K. T. S. S. ABHIRAM | 21U41A4220 |
| U. MOHAN SAI        | 20U41A4240 |

## **ABSTRACT**

This project presents a comprehensive study and implementation of an automated system for the detection and classification of red lesions in retinal images, specifically aimed at enhancing the diagnostic process for diabetic retinopathy (DR). Diabetic retinopathy is one of the leading causes of preventable vision impairment and blindness worldwide, particularly among individuals with long-standing diabetes mellitus. Early detection and timely treatment of DR are critical to mitigating its adverse effects on vision and improving the quality of life for patients. Red lesions, such as microaneurysms and haemorrhages, are among the earliest clinical signs of diabetic retinopathy and serve as crucial biomarkers in identifying the onset and progression of this disease. The project focuses on developing an automated diagnostic tool capable of accurately detecting and classifying these red lesions from retinal fundus images using state-of-the-art deep learning techniques. Specifically, the system utilizes Convolutional Neural Networks (CNNs), which have demonstrated exceptional performance in image recognition tasks due to their ability to learn hierarchical features and patterns directly from raw image data. The proposed model processes high-resolution retinal images by first applying a series of preprocessing steps aimed at enhancing image quality and standardizing variations caused by differences in imaging equipment, lighting conditions, and patient demographics. These preprocessing techniques include normalization, resize and blood vessel segmentation to highlight relevant features and improve lesion visibility. Once pre-processed, the images are fed into a CNN-based architecture designed to extract meaningful features indicative of red lesions and other pathological signs associated with diabetic retinopathy.

**Keywords:** *Convolutional Neural Networks (CNNs), Deep Learning, TensorFlow, Diabetic Retinopathy (DR), Machine Learning*

**A Project Report on**  
**DETOXIFY-TOXIC COMMENT CLASSIFICATION USING**  
**MACHINE LEARNING**

*A Project Report submitted in partial fulfilment of the requirements for award of the Degree of*  
**BACHELOR OF TECHNOLOGY IN**  
**COMPUTER SCIENCE AND ENGINEERING with**  
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**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

*Submitted by*

**K. HARITEJ**  
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NH-16, Anakapalle – 531002, Visakhapatnam, A.P.

**(2021-2025)**



## DEPARTMENT OF CSM & CSD

### CERTIFICATE

This is to certify that the project report entitled “DETOXIFY – TOXIC COMMENT CLASSIFICATION USING MACHINE LEARNING” is submitted by K. HARITEJ (21U41A4221), V.G.A.S. HEMANTH (22U45A4221), R. ADITYA SAI KRISHNA (22U45A4217), A. LAKSHMAN KUMAR (21U41A203). In partial fulfilment of the requirements for award of the Degree of Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING with Specialization ARTIFICIAL INTELLIGENCE & MACHINE LEARNING, Dadi Institute of Engineering & Technology (A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of Bonafide work carried out by them under my guidance and supervision.

  
Mr. A. VENKATESWARA RAO  
(ASSOCIATE PROFESSOR)  
(PROJECT GUIDE)

  
Mr. A. VENKATESWARA RAO  
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Head of the Department  
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Anakapalle - 531 002.

  
EXTERNAL EXAMINER

## **DECLARATION**

We hereby declare that the project entitled **“Detoxify – Toxic Comment Classification using Machine Learning”** is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mr. A. VENKATESWARA RAO, Associate Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### **PROJECT ASSOCIATES**

|                              |                   |
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| <b>R.ADITHYA SAI KRISHNA</b> | <b>22U45A4217</b> |
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## **ABSTRACT**

With the rapid growth of social media platforms, the incidence of toxic and harmful comments has increased significantly, posing a threat to online safety and mental well-being. The "Detoxify - Toxic Comment Classification using Machine Learning" project aims to develop an automated system for detecting and classifying toxic comments in online discussions. By leveraging advanced machine learning and natural language processing (NLP) techniques, such as MultinomialNB , A Binary Classifier, the system is designed to classify comments as either toxic or non-toxic. This system helps in mitigating issues like hate speech, cyberbullying, and harassment that are prevalent across various online platforms. The project utilizes a labelled dataset of toxic and non-toxic comments, performing essential preprocessing tasks like tokenization, stemming, and stopword removal, followed by training Machine Learning Models. The trained models are evaluated based on standard performance metrics like accuracy, precision, recall, and F1-score, ensuring robust and reliable classification. The proposed solution offers an efficient and scalable way to automatically flag toxic comments, allowing moderators to focus on critical issues and maintain a safer online environment. In the future, the system could be expanded to support multilingual detection and real-time monitoring.

**Keywords:** Toxic Comment Classification, Natural Language Processing(NLP), MultinomialNB, Hate Speech Detection, Cyberbullying Detection, SMOTE, Evaluation Metrics, Exactness

A Project Report on  
**DESIGN AND IMPLEMENTATION OF A REAL-TIME  
FACE SPOOFING DETECTION SYSTEM**

*A Project Report submitted in partial fulfilment of the  
requirements for the award of the Degree of*

**BACHELOR OF TECHNOLOGY**

**IN**

**COMPUTER SCIENCE AND ENGINEERING with  
Specialization**

**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

*Submitted by*

|                      |            |
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| Y. VAMSI GANGA ARJUN | 22U45A4223 |

*Under the Esteemed guidance of*

**Mrs. K. LAVANYA**

Assistant Professor, Department of CSM & CSD



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NH-16, Anakapalle – 531002, Visakhapatnam, A.P.

**(2021 – 2025)**



## DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

### CERTIFICATE

This is to certify that the project report entitled “**Design and Implementation of a Real-Time Face Spoofing Detection System**” is being submitted by KOTIPALLI ABHISHEK (21U41A4222), PANDIRI SAI DURGA RAO (21U41A4231), JANAPAREDDY GIRI SAI DURGA (21U41A4218), YEGI VAMSI GANGA ARJUN (22U45A4223). In partial fulfilment of the requirements for the award of the Degree of Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING with Specialization ARTIFICIAL INTELLIGENCE & MACHINE LEARNING, Dadi Institute of Engineering & Technology (A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of Bonafide work carried out by them under my guidance and supervision.

*K. Lavanya*

MRS. K. LAVANYA

(ASSISTANT PROFESSOR) (PROJECT  
GUIDE)

MR. A. VENKATESWARA RAO

(ASSOCIATE PROFESSOR)  
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EXTERNAL EXAMINER

## DECLARATION

We hereby declare that the project entitled “ **Design and Implementation of a Real-Time Face Spoofing Detection System** ” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **Mrs. K. LAVANYA, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### PROJECT ASSOCIATES

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## **ABSTRACT**

Face recognition technology has gained widespread adoption in various security and authentication systems. However, these systems are vulnerable to spoofing attacks, where an attacker presents a fake representation of a legitimate user's face using printed photos, digital screens, or masks. To mitigate such threats, this project presents the **Design and Implementation of a Real-Time Face Spoofing Detection System using Convolutional Neural Networks (CNN) with MobileNetV2**.

Our system leverages deep learning techniques to differentiate between real and fake faces by analyzing image features such as texture, depth, and reflectance properties. The model is trained on publicly available datasets containing both genuine and spoofed face images, ensuring robustness against various types of spoofing attempts.

The proposed system follows a structured pipeline involving **image preprocessing, feature extraction, model training, and real-time classification**. The CNN-based architecture, particularly **MobileNetV2**, is employed due to its high accuracy and ability to capture intricate facial patterns. Experimental results demonstrate that our model achieves significant accuracy in distinguishing real faces from spoofed ones, making it a reliable approach for real-world applications such as biometric authentication and access control systems.

This project contributes to enhancing the security of face recognition systems, reducing vulnerability to fraudulent access attempts, and paving the way for further improvements in anti-spoofing mechanisms.

**Keywords:** Face Spoofing Detection, Convolutional Neural Networks (CNN), MobileNetV2, Biometric Security, Deep Learning, Anti-Spoofing.

**A Project Report on**  
**DESIGN AND IMPLEMENTATION OF AN INTEGRATED**  
**SYSTEM FOR CROP RECOMMENDATION AND**  
**LEAF DISEASE DETECTION**

*A Project Report submitted in partial fulfilment of the requirements for the award of the Degree of*

**BACHELOR OF TECHNOLOGY**

**IN**

**COMPUTER SCIENCE AND ENGINEERING with**

**Specialization**

**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

**Submitted by**

**PILLA DIVYA VIDHYASREE**

**(21U41A4233)**

**SUBHADIP MOHANTA**

**(21U41A4279)**

**LALAMBHAVANA**

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**GORJA GOVARDHAN**

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**Under the Esteemed guidance of**

**MRS. G. CHANDRIKA**

**Assistant Professor, Department of CSMD**



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**NH-16, Anakapalle – 531002, Visakhapatnam, A.P.**

**(2021 – 2025)**



**DEPARTMENT OF CSM & CSD**

**CERTIFICATE**

This is to certify that the project report entitled “**Design and Implementation of an Integrated System for crop recommendation and Leaf Disease Detection**” is being submitted by PILLA DIVYA VIDHYASREE (21U41A4233), LALAM BHAVANA (21U41A4223), SUBHADIP MOHANTA (21U41A4279), GORJA GOVARDHAN (21U41A4252). In partial fulfilment of the requirements for the award of the Degree of Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING with Specialization ARTIFICIAL INTELLIGENCE & MACHINE LEARNING, Dadi Institute of Engineering & Technology (A), Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of Bonafide work carried out by them under my guidance and supervision.

**MRS. G. CHANDRIKA**

**(ASSISTANT PROFESSOR)**

**(PROJECT GUIDE)**

**MR. A. VENKATESWARA RAO**

**(ASSOCIATE PROFESSOR)**

**(HEAD OF THE DEPARTMENT)**

**EXTERNAL EXAMINER**

**Head of the Department  
CSD & CSM**

**Dadi Institute of Engg. & Tech.  
Autonomous**

**Anakapalle - 581 002.**

## **DECLARATION**

We hereby declare that the project entitled “**Design and Implementation of an Integrated System for crop recommendation and Leaf Disease Detection**” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning under esteemed supervision of **Mrs. G. Chandrika, Assistant Professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree.

### **PROJECT ASSOCIATES**

P. DIVYA VIDHYA SREE (21U41A4233)

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## **ABSTRACT**

This project introduces an integrated system that combines **Crop Recommendation** and **Leaf Disease Detection** using advanced machine learning and deep learning techniques. The crop recommendation module analyses environmental factors such as soil properties, climate data, and geographical location to suggest optimal crops for a region. Simultaneously, the leaf disease detection module employs an ensemble of **DenseNet201** , **VGG19** , and **InceptionV3** models to accurately diagnose plant diseases from leaf images. By integrating these functionalities into a unified platform, the system empowers farmers with actionable insights to enhance productivity, reduce crop losses, and promote sustainable agricultural practices. Comprehensive evaluations demonstrate high accuracy in both crop recommendation (99.8%) and disease detection (98.3%), making it a robust solution for real-world agricultural challenges.

### **Keywords:**

Smart Agriculture, Crop Recommendation, Plant Disease Detection, Ensemble Learning, Deep Learning, DenseNet201, VGG19, InceptionV3, Gaussian Naive Bayes, Flask, OpenCV.

**A project report on**  
**Advanced Sentiment Analysis of Social Media for Trend Monitoring and**  
**Brand Management**

Submitted in partial fulfilment of the requirements for award of the  
degree of

**BACHELOR OF TECHNOLOGY**  
In  
**COMPUTER SCIENCE AND ENGINEERING WITH**  
**Specialization**  
**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

By

**Rajana Veera Satya Vani**  
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**DEPARTMENT OF CSM & CSD**  
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**(2021-2025)**



## CERTIFICATE

This is to certify that the project report entitled “**Advanced Sentiment Analysis of Social Media for Trend Monitoring and Brand Management**” submitted by Rajana Veera Satya Vani (21U41A4275), Karri Jayasree (21U41A4260), Boddi Lakshmi Lohitha (21U41A4249), Salapu Sai Teja (22U45A4218). In partial fulfilment of the requirements for award of the Degree of **Bachelor of Technology in Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning**, from **Dadi Institute of Engineering & Technology(A)**, Anakapalle affiliated to JNTUGV, accredited by NAAC with 'A' grade is a record of bonafide work carried out by them under my guidance and supervision.



A. Venkateswara Rao

**PROJECT GUIDE**



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**EXTERNAL EXAMINER**

## DECLARATION

We hereby declare that the project entitled “**Advanced Sentiment Analysis of Social Media for Trend Monitoring and Brand Management**” is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology in **Computer Science and Engineering with Specialization Artificial Intelligence & Machine Learning** under esteemed supervision of **A.Venkateswara Rao, Associative professor**. This is a record of work carried out by us and results embodied in this project report have not been submitted to any other university for the award of any Degree

## PROJECT ASSOCIATES

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## ABSTRACT

Sentiment analysis is a vital natural language processing (NLP) technique that identifies, analyzes, and categorizes opinions, emotions, and attitudes within text data. In the realm of social media, where platforms like Twitter, Facebook, and Instagram generate vast amounts of unstructured data daily, sentiment analysis plays a crucial role in monitoring trends, predicting public opinion, tracking brand reputation, and analyzing consumer behavior. This paper explores existing sentiment analysis systems applied to social media and proposes a novel system aimed at enhancing the accuracy and efficiency of sentiment detection. It discusses the design, key modules, and implementation methodology of the proposed system, which integrates advanced machine learning algorithms and natural language processing techniques. The system's architecture is designed to effectively handle the nuances of social media language, including slang, abbreviations, and emoticons. The implementation of this system aims to provide deeper insights into user sentiments expressed across social media posts, comments, and reviews, thereby offering valuable information for market analysis and public relations strategies.

**Keywords:** Sentiment analysis, Natural language processing (NLP), Social media, Unstructured data, Public opinion, Sentiment detection