

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
GURU NANAK INSTITUTE OF TECHNOLOGY

(Affiliated to JNTUH-Hyderabad)

Ranga Reddy District -501506



CERTIFICATE

This is to certify that the major project entitled "**TOMATO LEAF DISEASE IDENTIFICATION BY RESTRUCTURED DEEP RESIDUAL DENSE NETWORK**" is being presented with a report by **K. MAHESH BABU (18831A0578)**, **K. RITHIKA (18831A0567)**, **K. MAHIKSHIT (18831A0583)** in partial fulfilment for the award of Degree of Bachelor of Technology in Computer Science and Engineering, to Jawaharlal Nehru Technological University, Hyderabad.

INTERNAL GUIDE

(Mr. A. RAJESH)

PROJECT COORDINATOR

(Mr. A. BHARATH)

HEAD OF DEPARTMENT

(Dr. B. SANTHOSH KUMAR)

PRINCIPAL

(Dr. S. SREENATHA REDDY)



GURU NANAK INSTITUTE OF TECHNOLOGY

Ibrahimpatnam, R.R. Dist. – 501506.

VISION OF GNIT

To be a world-class educational and research institution in the service of humanity by promoting high-quality Engineering and Management Education.

MISSION OF GNIT

M1: Imbibe soft skills and technical skills.

M2: Develop the faculty to reach international standards.

M3: Maintain high academic standards and teaching quality that promotes analytical thinking and independent judgment.

M4: Promote research, innovation and Product development by collaboration with reputed foreign universities.

M5: Offer collaborative industry programs in emerging areas and the spirit of enterprise.



GURU NANAK INSTITUTE OF TECHNOLOGY

Ibrahimpatnam, R.R. Dist. – 501506.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

VISION

To be a premier department of Computer Science and Engineering in the region.

MISSION

- Nurture young individuals into knowledgeable, skill-full and ethical professionals in their pursuit of Computer Science and Engineering.
- Nurture the faculty to expose them to world-class infrastructure.
- Sustain high performance by excellence in teaching, research and innovations.
- Extensive partnerships and collaborations with foreign universities for technology upgradation.
- Develop Industry-Interaction for innovation and product development



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DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

Program Educational Objectives (PEO's)

PEO-1: Graduates shall have the ability to apply knowledge and technical skills in emerging areas of Computer Science and Engineering for higher studies, research, employability, product development and handle realistic problems.

PEO-2: Graduates shall maintain ethical conduct, a sense of responsibility to serve the society and protect the environment.

PEO-3: Graduates shall possess academic excellence with innovative insight, soft skills, managerial skills, leadership qualities, knowledge of contemporary issues for successful professional career.

Program Outcomes (PO's)

PO-1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO-2: Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO-3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, and the cultural, societal, and environmental consideration

PO-4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO-5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO-6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO-7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO-8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO-9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO-10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO-11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in a multidisciplinary environment.

PO-12: Life-long learning: Recognize the need for, and have the preparation and ability to Engage in independent and life-long learning in the broadest context of technological change.



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MAPPING WITH PO'S AND PEO'S

S.NO	CONTENT	PO'S	PEO'S
1	Introduction	PO1, PO2	PEO1
2	Abstract	PO1, PO2	PEO1
3	System Specifications	PO3, PO5	PEO1
4	Architecture Design	PO3, PO4	PEO1, PEO2
5	HDFS CLI Commands	PO1	PEO3
6	Implementation	P09, PO10, PO11	PEO2, PEO3
7	Results	PO4, PO11, PO12	PEO2, PEO3

DECLARATION

We hereby declare that major project report entitled "**Tomato Leaf Disease Identification by Restructured Deep Residual Dense Network**" is the work done by **K.MAHESH BABU, K.RITHIKA, K.MAHIKSHIT** bearing the roll number 18831A0578, 18831A0567, 18831A0583 towards the fulfilment of the requirement for the award of the Degree of **Bachelor of Technology in Computer Science and Engineering**, to **Jawaharlal Nehru Technological University, Hyderabad**, is the result of the work carried out under the guidance **Mr. A. RAJESH, Associate Professor**, Guru Nanak Institute of Technology, Hyderabad.

We further declare that this project report has not been previously submitted before either in part or full for the award of any degree or any diploma by any organization or any universities.

K. MAHESH BABU (18831A0578)

K. RITHIKA (18831A0567)

K. MAHIKSHIT (18831A0583)

ACKNOWLEDGEMENT

“**Task successful**” makes everyone happy. But the happiness will be gold without glitter if I didn’t state the persons who have supported us to make it a success.

We would like to express my sincere thanks and gratitude to our Principal, **Dr. S. SREENATHA REDDY**, and Head of the Department **Dr. B. SANTHOSH KUMAR**, Department of Computer Science and Engineering, Guru Nanak Institute of Technology for having guided me in developing the requisite capabilities for taking up this Technical Seminar.

We thank our MAJOR Project Coordinator **Mr. A BHARATH, Assistant professor**, GNIT for providing seamless support, and the right suggestions that are given in the development of the technical seminar.

We especially thank our internal guide **Mr. A. RAJESH, Associate professor** for his constant guidance in every stage of the project. We would also like to thank all our lecturers for helping me in every possible way whenever the need arose.

On a more personal note, we thank my beloved parents and friends for their moral support during the course of my project.

ABSTRACT

As COVID-19 spread worldwide; many major grain-producing countries have adopted measures to restrict their grain exports; food security has aroused great concern from various parties. How to improve grain production has become one of the most important issues facing all countries. However, crop diseases are a difficult problem for many farmers so it is important to master the severity of crop diseases timely and accurately to help staff take further intervention measures to minimize plants being further infected. A restructured residual dense network was proposed for tomato leaf disease identification; this hybrid deep learning model combines the advantages of deep residual networks and dense networks, which can reduce the number of training process parameters to improve calculation accuracy as well as enhance the flow of information and gradients. The original RDN model was first used in image super resolution, so we need to restructure the network architecture for classification tasks through adjusted input image features and hyper parameters. The restructured residual dense network model can obtain significant improvements over most of the state-of-the-art models in crop leaf identification, as well as requiring less computation to achieve high performance.

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