St. PETER'S ENGINEERING COLLEGE
UGC - AUTONOMOUS
Affiliated to JNTUH, Approved by AICTE, Accredited by NAAC with "A" Grade, NBA Programe Accredited (EEE, CSE, ECE)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CERTIFICATE

This is to certify that an Industry Oriented Mini Project entitled **"CROP RECOMMENDATION SYSTEM USING MACHINE LEARNING"** is carried out by MORTHAD RAJESH(22BK1A0481) in partial fulfilment for the award of the degree of **Bachelor of Technology in ELECTRONICS AND COMMUNICATION ENGINEERING** is a record of bonafide work done by him/her under my supervision during the academic year "2024 – 2025".

INTERNAL GUIDE
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Hyderabad

EXTERNAL EXAMINER

ACKNOWLEDGEMENT

I sincerely express my deep sense of gratitude to **Mrs.G Sravani,** for her valuable guidance, encouragement and cooperation during all phases of the project.

I am greatly indebted to my Project Coordinator **Dr. SaiTeja Chopparapu and Dr.B Kanaka Durga,** for providing valuable advice, constructive suggestions and encouragement without them it would not been possible to complete this project.

It is a great opportunity to render my sincere thanks to **Dr. K.Narender,** Head of the Department, Electronics and Communication Engineering for his timely guidance and highly interactive attitude which helped me a lot in successful execution of the Project.

I am extremely thankful to our Principal **Dr.N.Chandra Sekhar Reddy,** who stood as an inspiration behind this project and heartfelt for his endorsement and valuable suggestions.

I respect and thank our secretary **Sri.T.V.REDDY,** for providing the opportunity to do the project work at **ST.PETER'S ENGINEERING COLLEGE** and I am extremely thankful to him for providing such a nice support and guidance which made me to complete the project.

I also acknowledge with a deep sense of reverence, my gratitude towards my parents, who have always supported me morally as economically. I also express gratitude to all my friends who have directly or indirectly helped me to complete this project work. I hope that I can build upon the experience and knowledge that I have gained and make a valuable contribution towards the growth of the society in coming future.

INSTITUTE VISION

To be a renowned Educational Institution that moulds Students into Skilled Professionals fostering Technological Development, Research and Entrepreneurship meeting the societal needs.

INSTITUTE MISSION

IM1: Making students knowledgeable in the field of core and applied areas of Engineering to innovate Technological solutions to the problems in the Society.

IM2: Training the Students to impart the skills in cutting edge technologies, with the help of relevant stake holders.

IM3: Fostering conducive ambience that inculcates research attitude, identifying promising fields for entrepreneurship with ethical, moral and social responsibilities.

DEPARTMENT OF

ELECTRONICS AND COMMUNICATION ENGINEERING

DEPARTMENT VISION

To evolve the department as a center of excellence in Electronics and Communication Engineering education in the country, to train students in contemporary technologies to meet the needs of global industry and to develop them into skillful engineers imbued with knowledge of core as Ill as inter-disciplinary domains, human values, and professional ethics.

DEPARTMENT MISSION

DM1. To adopt pedagogical processes, facilities to meet the educational objectives and outcomes of emerging Technologies in the field of Electronics.

DM2. To prepare for higher education, employment, Intellectual professional attitude, Industrial research aptitude, lifelong learning, entrepreneurial practices, ethical values, and social concern.

DM3. To impart knowledge in the field of Electronics and its related areas with a focus on developing the required competencies and virtues to meet the requirements of society.

PROGRAM OUTCOMES (POs)

ENGINEERING GRADUATES WILL BE ABLE TO:

1: ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2: PROBLEM ANALYSIS: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using the first principles of mathematics, natural sciences, and engineering sciences.

3: DESIGN/DEVELOPMENT OF SOLUTIONS: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and the cultural, societal, and environmental considerations.

4: CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS: Use research-based knowledge and research methods including design of experiments, analysis, interpretation of data, and synthesis of the information to provide valid conclusions.

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.

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

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.

8: ETHICS: Apply ethical principles and commit to professional ethics and, responsibilities and norms of the engineering practice.

9: INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams, and multidisciplinary settings.

10: COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and draft effective reports and design documentation, make an effective presentation, give, and receive clear instructions.

11: PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's work, as a member and leader in a team, to manage projects and in a multidisciplinary environment.

12: LIFE-LONG LEARNING: Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadcast context of technological changes.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Graduate shall have a solid foundation and in-depth knowledge in engineering science and technology for a successful career in Electronics & Communication Engineering.

PEO2: Graduates shall become effective collaboration/innovators in efforts to address social, technical, and engineering challenges with continuous learning.

PEO3: Graduates shall engage in professional development through self-study, post-graduation, and research.

PEO4: Graduates shall have integrity, professional and ethical values, team spirit and ethical values, team spirit, and effective communication skills.

PROGRAM SPECIFIC OBJECTIVES (PSOs)

PSO1: Ability to use electronic modern IT tools for the design and analysis of complex electronic systems for additional research activities.

PSO2: Should be able to clearly understand the concepts and applications in the field of communication/network signal processing, embedded systems, and semiconductor technology for excellent adaptability, good interpersonal skills with professional ethics and social responsibilities.

DEPARTMENT OF

ELECTRONICS AND COMMUNICATION ENGINEERING

DECLARATION

I declare that an Industry Oriented Mini Project entitled "CROP RECOMMENDATION SYSTEM USING MACHINE LEARNING" is an Original Work submitted by me.I have actively contributed and submitted in partial fulfilment for the award of degree in "Bachelor of Technology in ECE", at St. Peter's Engineering College, Hyderabad, and this project work has not been submitted by me to any other college or university for the award of any kind of degree.

Group No: B - 14

Program: B. Tech

Branch: ECE

Industrial Oriented Mini Project Title: CROP RECOMMENDATION SYSTEM USING MACHINE LEARNING

Date Submitted:

Name	Roll Number	Signature
MORTHAD RAJESH	22BK1A0481	

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Industry Oriented Mini Project Title: CROP RECOMMENDATION SYSTEM USING MACHINE LEARNING

Guide Name: **Mrs.G Sravani**

STUDENT MORTHAD RAJESH

ROLL NUMBER 22BK1A0481

Academic Year: 2024-2025 (SEM-II)

Name of the course from which the principles are applied in the project	**Description of the Applications**	**Attained POs**
MACHINE LEARNING ALGORITHM	CROPRECOMMENDATION SYSTEM USING MACHINE LEARNING	PO1, PO4, PO5, PO6, PO7, PO8, PO9, PO11, PO12

SIGNATURE OF THE GUIDE

SIGNATURE OF THE HOD

ABSTRACT

Crop Recommendation System for agriculture is based on various input parameters. This proposes a hybrid model for recommending crops to south Indian states by considering various attributes such as Nitrogen, Phosphorus, Potassium, Temperature, Humidity, pH value, Rainfall and location. The recommender model is built as a hybrid model using the classifier machine learning algorithm. Based on the appropriate parameters, the system will recommend the crop. Technology based crop recommendation system for agriculture helps the farmers to increase the crop yield by recommending a suitable crop for their land with the help of geographic and the climatic parameters. The proposed hybrid recommender model is found to be effective in recommending a suitable crop. Crop yield production value updation has a positive practical significance for guiding agricultural production and for notifying the change in market rate of crop to the farmer. The concept of this project is to implement the crop selection method so that this method helps in solving many agriculture and farmers problems. This improves our Indian economy by maximizing the yield rate of crop production. Different types of land condition. So the quality of the crops are identified using ranking process. By this process the rate of the low quality and high quality crop is also notified.

Keywords *- Machine learning,Crop yield production, Crop recommendation, Climatic parameters, Hybrid model*.

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