

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/01/2025

(21) Application No.202541001007 A

(43) Publication Date : 10/01/2025

(54) Title of the invention : AI-Driven Crop Disease Prediction and Prevention System Using Multi-Spectral Imaging and Big Data Analytics

(51) International classification	:G16H0050200000, G06Q0050020000, G16H0050700000, G06N0005040000, G16H0050300000	(71) Name of Applicant : 1) Mrs. Prabha rani P Address of Applicant :Assistant Professor, Department of IT, Anand Institute of Higher Technology, Kalasalingam Nagar, IT Corridor, Old Mahablipuram Road, Kazhipattur, Chennai-603103, Tamil Nadu ----- 2) Dr. S. Appavu alias Balamurugan 3) Dr. S. Sasikala Name of Applicant : NA Address of Applicant : NA
(86) International Application No	:NA	
Filing Date	:NA	
(87) International Publication No	: NA	(72) Name of Inventor : 1) Mrs. Prabha rani P Address of Applicant :Assistant Professor, Department of IT, Anand Institute of Higher Technology, Kalasalingam Nagar, IT Corridor, Old Mahablipuram Road, Kazhipattur, Chennai-603103, Tamil Nadu ----- 2) Dr. S. Appavu alias Balamurugan Address of Applicant :Professor, Department of Computer Science and Engineering, Periyar Maniammai Institute of Science & Technology (Deemed to be University), Thanjavur-613403, Tamil Nadu ----- 3) Dr. S. Sasikala Address of Applicant :Professor and Head, Department of Artificial Intelligence and Data Science, Velammal College of Engineering and Technology, Madurai -09 -----
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :

The proposed invention is an AI-driven crop disease prediction and prevention system that integrates multi-spectral imaging and big data analytics to monitor and manage plant health in real-time. Using multi-spectral sensors mounted on drones or satellites, the system captures detailed images of crops across various wavelengths, detecting early signs of disease and plant stress before visible symptoms appear. Artificial intelligence algorithms process the imaging data alongside environmental factors, such as soil moisture, temperature, and weather, to generate accurate disease forecasts. The system continuously learns from new data, improving its predictive capabilities and adapting to different crop types and conditions. Through a user-friendly interface, farmers receive timely risk assessments, recommendations for disease prevention, and targeted treatment schedules, while automated systems can be employed to apply interventions. By minimizing pesticide use and optimizing resource allocation, the system promotes sustainable farming practices, improving crop yield and resilience while reducing environmental impact.

No. of Pages : 19 No. of Claims : 7