(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :21/01/2026
(21) Application No.202611005939 A
(43) Publication Date : 06/03/2026

(54) Title of the invention : AI-POWERED CROP ADVISORY SYSTEM FOR SMART FARMING

(51) International classification	:G06Q 50/02, G06N 3/08, G06N 3/04, A01G 25/16, G06Q 10/06
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	: :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
The present invention relates to an artificial intelligence–powered crop advisory system for smart farming that integrates multi-modal sensor networks, satellite remote sensing, and machine learning algorithms to deliver personalized, real-time crop management recommendations. The system includes a data acquisition layer with soil sensors and weather stations, a cloud-based processing infrastructure, an intelligence layer using deep neural networks trained on agricultural datasets, and a presentation layer supporting mobile applications, SMS, and voice interfaces in regional languages. It provides field-specific advisories for irrigation scheduling, nutrient management, pest and disease control, and weather risk mitigation. The system enables continuous learning from farmer feedback and fuses heterogeneous data sources to overcome limitations of conventional advisory platforms. Field trials indicate water savings of twenty-two percent, yield improvements of eight percent, and reduced crop losses through early pest detection.

No. of Pages : 13 No. of Claims : 10