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(57) Abstract :
The invention discloses an AI-powered sensor framework for predictive maintenance in agriculture, including a sensor array (101), edge-based analytics module (102), and wireless communication unit (106). The system monitors real-time vibration, temperature, and load metrics using sensors (101a, 101b, 101c) and applies machine learning algorithms to detect early-stage faults in agricultural machinery. Alerts are transmitted to a user interface (105), enabling proactive maintenance and reducing downtime. The invention offers scalable, energy-efficient monitoring, adaptable to rural applications, enhancing farm productivity and equipment lifespan.

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