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Reinventing Indian agriculture - How farmers can benefit from IOT and AI

Smart Agriculture that enables transparent traceability of origin and ensures better connected farm-to-market supply chain is also the need of the hour. Such innovations brings market transparency for farmers and empower them with decision-making capability.

S Sandeep Sabharwal · ETEnergyWorld
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For long the Indian agriculture industry has been working with primitive methods of farming. Given the diversity and complexity of the industry, any reforms must prioritise maintaining farmers at the forefront of the industry. The advent of technology introduced the farmers to benefits of using modern equipment and ultimately increasing crop yield, leading to better income and a better life.

Agri Tech organizations are investing in digital initiatives and sensitizing farmers with numerous solutions for farming operations. These innovations have the potential to revolutionise food management by reducing losses along the whole value chain, from the farm to the consumer. From increasing agricultural yield to minimising water, fertiliser, and pesticide use, as well as improving farm labour conditions, there are tech based solutions for Pre Harvest, Harvest and Post-Harvest stages.

Agriculture is impacted by a multitude of factors such as biodiversity loss, climate change, dead zones, irrigation problems, soil degradation, pollutants, deforestation, waste etc. But since we live in an age where the world is heading towards smart devices, the Indian agriculture industry is also not far behind. AI and IoT integration in agriculture pave the way for IoT-enabled Agricultural Monitoring (IoTAg) that revolutionizing various fields including soil monitoring, predictive analytics, livestock traceability, quality checks and real-time surveillance of warehouses and much more.

Given the rising trend of climate change and the need to increase agricultural production, Soil Monitoring using AI can empower farmers to decide on the optimal planning in the agricultural sector. From gaining insights on crop yield, optimizing crop growth, early disease detection to efficient water management can be achieved with AI implementation in Soil monitoring techniques.

A major problem faced by farmers is intrusion of animals in the fields, as it usually leads to loss of crop. To prevent such eventualities, drones for field monitoring can be utilised for Livestock Traceability. Geo-fencing powered by wireless IoT sensors is also a great way to protect the fields from such incidence. It can be used for livestock tracking as well, enabling farmers to keep a track of their domestic animals that are being reared in the farms.

Smart technology further helps the farmers by making them aware of climate change through predictive analytics, ensuring that they are prepared well in advance for a time when the weather plays spoilsport. Such data-driven agriculture with the help of AI can empower the farmers, as they will not be dependent on unpredictable circumstances. As the farmers obtain meticulous insights into every detail of the farming process, from understanding each acre of a field to monitoring the entire produce supply chain to gaining deep inputs on yields generation process, the Agri industry will grow in unprecedented ways.

Furthermore, there are many ways in which AI and ML based technologies can be adopted in post-harvesting stage. While predicting yield will ensure that farmers put ample effort to get best results, quality assessment helps the farmers to get the best value for their crop. Earlier done manually, today one can get instant Quality Check of their crop through AI-powered 'Agri-Reach' the NABL certified mobile application. The detailed certificate thus ensures that the farmer knows the right value of the crop. Therefore, smart harvesting and pricing decisions are key factors that have the potential to revolutionize the Agri industry.

Farmers can also benefit from AI and ML-based technologies to mitigate post-harvest losses during storage. Surveillance-enabled warehouses has started transforming food grain safety. These "secured" warehouses ensure round-the-clock monitoring of food grains and centralized command center with defined standard operating procedures (SOPs) between operators and on-ground employees. With smart entry cards and time stamps, monitoring the in- and out-going grains is now effortless. Predictive techniques can ensure longevity of storage of crop and machine learning based quality assessment can ensure transparent pricing benefitting both consumers as well as farmers.

Smart Agriculture that enables transparent traceability of origin and ensures better connected farm-to-market supply chain is also the need of the hour. Such innovations brings market transparency for farmers and empower them with decision-making capability. Ultimately, this will create an enabling environment for them to monetise crop and quickly gain profits from their produce. As the farming process is streamlined with the help of technology, it will securitise the crop and give comfort to lending institutions to treat crops as reliable assets.

[This piece was written by Sandeep Sabharwal, CEO, Sohan Lal Commodity Management]

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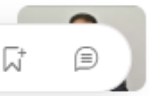

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