Crop Advisor System Using IoT and ML

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Abstract: *Sustainability and global food security are deeply dependent on the agricultural sector. To meet these critical needs, it is essential to adopt modern technologies such as Machine Learning (ML) and the Internet of Things (IoT), which can optimize resource utilization and enhance agricultural productivity. This abstract presents an overview of an integrated Crop Advisor System that harnesses the capabilities of IoT and ML to assist farmers in making informed crop selection decisions. Data Collection: IoT sensors continuously monitor and gather environmental data from the agricultural field, ensuring that the recommendations are based on up-to-date information.*

The core components of the Crop Advisor System include:

1. Data Collection: IoT sensors continuously monitor field conditions, providing up-to-date environmental data to ensure accurate recommendations.

2. Data Processing: Collected data from IoT devices and external sources is cleaned and pre-processed to make it suitable for analysis.

3. Machine Learning Models: Algorithms such as decision trees, support vector machines, and neural networks are trained on historical and current data to predict crop yields and determine the most suitable crops for a given environment.

4. Recommendation Engine: The processed data is used to generate crop advisor tailored to specific plots or regions, based on soil quality, weather conditions, and past outcomes.

5. User Interface: A user-friendly web and mobile application allows farmers to access recommendations, monitor crop progress, and receive timely alerts or crop management tips.

6. Feedback Loop: Farmers can provide feedback on the performance of the recommended crops, which helps refine and improve the system's accuracy over time.

Keywords: Internet of Things