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(57) Abstract :
Exemplary embodiments of the present disclosure are directed towards a system and method for managing crop water resources. The system incorporates modern technologies such as soil moisture sensors, data analysis, and automation to optimize water usage, increase crop yield, and conserve water resources. The soil moisture sensors are positioned within the soil, whereby, the soil moisture sensors are configured to measure gauge moisture content and deliver immediate data on soil moisture levels. Monitoring water flow rates to detect leaks or inefficiencies in the irrigation system, preventing water loss and ensuring even distribution. Integrating the system with crop models and growth simulations for predicting water requirements based on factors such as crop type, planting density, and local climate conditions. Issuing alerts and notifications to farmers in the event of anomalies, such as sudden drops in soil moisture or equipment malfunctions resulting in automated irrigation system using sensor technology to efficiently utilize water for irrigation. Fig. 1 and Fig. 2

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