



Technoholics

Domain: Agriculture, FoodTech & Rural Development

PSID: SIH1293

Problem Statement Title: Automatic regulation of valves for release of water based upon soil moisture availability in the root zone of the crop, using artificial intelligence, in a piped and micro irrigation network of irrigation system.

Organization Name: Ministry of Jal Shakti

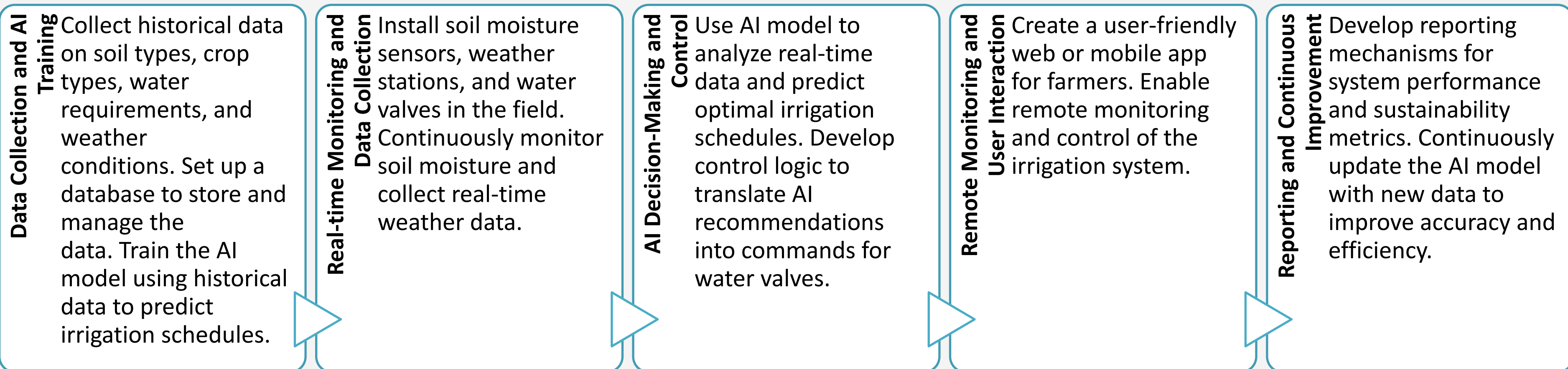
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Solution to that given problem

Our project introduces an AI-powered Smart Irrigation System poised to revolutionize modern agriculture. Implementing an AI-driven irrigation system with capacitive soil moisture sensors, microcontroller, solenoid valves, and Wi-Fi module ensures precise water delivery. Weather sensors offer contextual data. Reliable power sources and safety components guarantee uninterrupted operation, while data storage and analysis provide valuable insights for efficient crop cultivation.

Process Flow Chart



Future scope and Optimization

Optimization :

- Integration of various sensors like Relative Humidity sensors, Temperature sensor etc..
- A decade long climatological data to optimize precise irrigation.
- Realtime monitoring through user friendly application.
- Based on real time data the project can handle fluctuations in whether condition.

Scope :

- Drought contingency though selective irrigation in critical stage.
- Self train model using monitoring data to optimize it self.
- Disease and disorder identification through advance image detection tools like Yolo v 8.
- Drone based monitoring system can be further used to optimized the project based on growth stages.

