Abstract

The conventional irrigation systems tend to waste irrigation water by not considering the upcoming precipitation. The precipitation in India being erratic in nature calls for the use of efficient forecasting methods. This paper proposes a design of irrigation system that employs a weather forecasting algorithm to calculate the water requirement and control irrigation based on soil moisture for the sustainable irrigation of crops. Statistical forecasting methods are most suitable for this application as they can predict extreme weather conditions that could have occurred previously and needs negligible time to deploy the algorithm. Here a modified version of the sliding window algorithm has been used to fit the requirements of the irrigation system [4]. However, the design can work with other forecasting methods due to implementation of modularity.

References
1. Rural Infrastructure chapter-6, India Infrastructure Report 2007
9. Atmel 8-bit Microcontroller with 32KBytes In-System Programmable Flash (ATmega32 ATmega32L) http://www.atmel.com/avr
10. Atmel 32-Bit AVR Microcontroller (AT32UC3Axxxx, AT32UC3A1128B) (http://www.atmel.com/avr

Index Terms

Computer Science

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Keywords

PID control, Max-min normalization, Variation trend Matching, Euclidean distance.