

Development of Low Cost Wireless Soil Moisture Sensor Based Automation System for Drip Irrigation

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ABSTRACT

The rapid expansion of irrigation and drainage infrastructure has been one of India's major achievements. Agriculture is the source of livelihood of majority Indians and also has a great impact on economy of the country. The automatic irrigation system is designed to optimize the water use for agriculture crops. The farmers have been using irrigation technique in rural areas through the manual control in which the farmers irrigate the land at the regular intervals, and also in some rural areas are severely affected by droughts or floods. New technologies are coming for the assured supply of water but they are too expensive for the common farmer. Wireless soil moisture sensor and their application for precision agriculture with automated system used to enhance the use of water for agriculture crops. This system consists of a wireless soil moisture sensor, 8051 microcontroller, LCD display, relay and motor, GSM. By using an android application which helps the farmer to on or off the motor without his physical presence in the field. A software application was developed by predetermining the threshold values of soil moisture, was programmed into an 8051 microcontroller by using keil u vision 3 software. This system provides uniform and required water level for the agriculture field and it avoids water wastage.

Keywords: GSM, Keil u vision 3, LCD, Microcontroller, Wireless Soil Moisture Sensor,