

Advanced Embedded System for Monitoring and controlling of Soil Moisture data using IoT

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Abstract

Agriculture plays vital role in the development of country. In India the population depends upon farming and one third of the nation's capital comes from farming. Agriculture issues concerning have been always hindering the development of the any country. Monitoring agricultural environment for various factors such as soil moisture, temperature and humidity along with other factors can be of great significance. The soil moisture level is one of the critical parameter of the agriculture parameters, which control the quality of the crops grown in farms. A traditional approach to measure these factors in an agricultural environment meant taking measurements at various times manually. The main objective of this research is to investigate the development of a low cost and remote soil moisture monitoring system by deploying sensors. These nodes send data wirelessly to a central server, which collects the data and stores it. This data can be displayed on the monitor and can also be sent to the client android mobile. The motor will be automatically ON and OFF through solid state relay, based on the data of soil moisture sensor in the field. The present system saves the water, time and reduces manual presence of the farmer. The plants can get optimum level of water, so increasing productivity of crop. A routing algorithm is used for the network of smart devices, thereby allowing the Internet of Things and its enabling technologies to provide high reliability while the transmitting the data.

Keywords: Particle Photon Microcontroller with Wi-Fi module, EC-5 Soil Moisture Sensor, Solid State Relay, AC Motor