

Automatic Microcontroller Based Drip Irrigation System Using PID Controller

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Abstract

This paper presents the application of “Automatic Microcontroller Based Drip Irrigation System Using PID Controller”. A Proportional Integral and Derivative (PID) control algorithm is used for the control of almost all loops in the process industries, and is also the basis for many advanced control algorithms and strategies. In the field of agriculture, use of proper method of irrigation is important and it is well known that drip irrigation is very economical and efficient. In the conventional drip irrigation system, the farmer has to continuously monitor the soil moisture conditions in favor of growth of crops. In this system, moisture sensors are used to measure the soil moisture conditions of the field in real time. The moisture values from the sensors are sensed to the Arduino microcontroller and thus the current moisture are compared with predefined values. According to the moisture value, required amount of water is supplied to the crops. The sensed moisture values and motor speed control (PWM) values will be displayed in the liquid crystal display (LCD). The reason of using Arduino is an open-source electronic prototyping platform based on flexible easy to use hardware and software. This system will focus on designing PID control the desired speed and drive with PWM function of Arduino to the DC motor pump.