PID Controlled Real Time Liquid Level Detection and Filling System

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Abstract

Nowadays, automatic control has played a vital role in advance of engineering and science. The accurate real-time control system is essential for non-stop running industries and production. In this paper, Proportional Integral Derivative (PID) based microcontroller is applied in the integrated circuit to fill the liquid. Arduino, an open-source electronic prototyping platform is used for this system. It supports PID function to drive DC motor by changing its voltage with Pulse Width Modulation (PWM) signal. Ultrasonic sensor is used to detect the liquid level. It can be filled both level and amount of liquid according to the desired input. By using Stepper Motor, the place of the sensors and liquid-tap are reached at necessary location. Proportional gain (Kp), Integral gain (Ki) and Derivative gain (Kd) in PID controller are calculated and compared for this system. According to the experimentation, PID Controller provides the effectiveness in controlling thisliquid filling system.