摘　要

很长时间过去，在城镇居民用水的系统中，高层建筑水箱大范围运用到高层住宅，用来解决城镇供水给水时间性不规律的问题。因为城市建筑高位水箱比较简单、实用便捷而且可以有效地调节高峰供水量和水压，使其最后达到节水节电的目的，故这种供水的模式被大范围的推广运用。但是，高层楼高位水箱的水质间接污染的问题逐步得到大多数居民的重视。正是因为这个问题，而备受社会舆论和新闻媒体的追踪调查。怎么节约并且合理的解决城市住宅高位水箱的间接污染是一个亟待解决的问题。

本设计利用 51 单片机进行整体设计，对住宅高位水箱水位，pH 值和浊度等信息进行检测。经过处理器分析处理，控制水泵调节水位和水质，上位机显示当前水箱检测数据和控制阀门状态。利用三个不同种类传感器检测水位、酸碱度和浊度信息。水位传感器：当水位高或者低于设定值时，开启水泵进行排水和注水。浊度传感器：当水质过于污浊时，开启水泵进行消毒液注入。pH 值传感器：当水质 pH 值异常时，开启水泵进行注入液体酸碱平衡。上位机显示当前水质和水位，及设备工作状态。上位机设置水位阈值，pH 值和水质阈值。

关 键 词：水 位；pH 值；浊 度；上 位 机

Abstract

For a long time, in the urban water supply system, high-level water tank is widely used in multi-storey residential under a certain building height, which is used to overcome the problem of the periodic shortage of water pressure to municipal pipe network. Because the high water tank system is simple, easy to operate and manage and can effectively adjust the peak water supply and water pressure, and ultimately achieve the goal of energy saving, therefore, this water supply model has been widely adopted in various places.

It is because of the pollution problem that it has been questioned by the public. How to solve the secondary pollution of high water tank in an economical and reasonable way is an urgent problem to be solved. This design uses STC89C51 microcontroller for the overall design, the residential high water tank water level, P value and sediment, plankton and other turbidity and other information to detect. After processor analysis and processing, control the water level and water quality of the water pump, the upper machine developed by QT to display the current water tank detection data and control valve status.

Keywords: Water tank ; pH value ; Turbidity ; Upper machine