

# 基于单片机的智能输液监测系统设计

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## 摘 要

目前, 静脉输液仍然是我国应用最广泛的临床治疗手段, 每年我国因输液过程中产生不良反应而未及时处理导致死亡的事故频有发生。针对以上问题, 本文设计了一种基于单片机的智能输液监测系统, 单片机主控模块、输液速度检测模块、液尽检测模块、语音识别模块、心率监测模块、输液速度控制模块、报警模块、无线传输模块和上位机。该系统以STM32单片机为控制核心, 采用光电传感器实现输液速度以及液尽的检测, 采用血氧传感器检测患者心率, 通过电机控制齿轮的方式调节输液速度, 当患者出现异常情况时可透过语音模块主动呼叫医护人员, 输液过程中的数据将通过无线通信方式实时地传输到护士站和手机端显示。本设计不仅可以实时监测患者输液时的状态, 还能根据患者的输液情况自动调节输液速度, 提高了输液的安全性和可靠性。

## 关键词

STM32单片机, 光电传感器, 输液速度检测, 自动控制, 无线通信

# Design of Intelligent Infusion Monitoring System Based on Single Chip Microcomputer

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## Abstract

At present, intravenous infusion is still the most widely used clinical treatment method in our

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