Intelligent Infusion Detection and Accompanying System for Children

Hu, Chuqi (School: Xian Gao Xin No 1 High School)

Intravenous infusion therapy is a common medical treatment method. However, this treatment method takes a long time, and the entire infusion process is often tedious. In order to ensure safety, it always requires the medical staff to pay attention. Parents and medical staff are required to accompany the children throughout the infusion therapy, since children are featured by mental immaturity, hyperactivity, and distraction. This long and boring process undoubtedly increases the pressure and time cost. In order to solve the above problems, this project designs an intelligent detection system for safe care of children's infusion treatment. It mainly solves the following three important parts: 1) I designed one intelligent medical infusion detection program, which can monitor the infusion process online, especially for some abnormal conditions, such as infusion needle out of its way, thus ensuring safety while greatly saving labor cost; 2) In the system, I use stepper motor and infrared detector to measure the droplet speed and thus assist the medical staff to precisely regulate the infusion speed and control the infusion time; 3) I also utilize the IOT (Internet of Things) technology to integrate multiple intelligent modules into the system, such as the music application and some online course for children, which makes the infusion process full of fun and boasts characteristics of entertainment and knowledge acquisition. At the same time, after a large number of interviews and investigation in the Children's Hospital, I found that parents do have such requirements and are willing to pay for this service. Therefore, this intelligent medical infusion detection system will become an important demand in the field of medical equipment, which will embrace a bright future.

Awards Won: