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Abstract
Because of widely usages of embedded system, more and more embedded systems are developed for applications without considering the costs for construction to achieve the purposes of high performance for processing instant message from sensors and multi-tasks. For the purpose of accomplishing multi-tasks and real time on software processing, an architecture, MTRT, for multi-tasks and real-time is proposed in this thesis. The main concepts are: responding the events by judging the priority of sensors. The events with higher priority can be immediately processed by their corresponding handlers and the events with normal priority are processed by the method of time sharing; processing the events efficiently for handlers by the deduction of fuzzy logic; preventing data lost by using the buffer of priority queues; the functions are designed with modules to easily modify and extend the system. Finally, an escalator control system with MTRT structure is constructed to see if it can efficiently evacuate the crowd people by automatically control the escalator speed. The experience for applying MTRT embedded system to escalator control system shows that it can really reach the purpose of efficiently evacuate the crowd people.
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