

Thesis Title Design and Construction of a Real Time Distributed Control
System Network

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Abstract

Modern manufacturing industries make use of a large number of high-speed machines centrally controlled and capable of flexible manufacturing. In this thesis, a real-time distributed control system which combines polling and interrupt modes of operation is presented. Such a system can respond readily to emergencies. The system supports complicated functions by means of a microcontroller at each slave station. In this case a network connects Intel MCS-96 microcontroller to a personal computer. The system can overcome problems arising from CPU hang-up by using a *call-and-reply* procedure. RS-485 is chosen as the protocol for network communication. The system was tested with three kinds of test devices viz. a printer, a model pill counter and a lighting control unit. It was found that the system can control these devices according to the set objectives.