

STEUSLOFF84

Steusloff, H.U.;

Advanced Real-time Languages for Distributed Industrial
Process Control;

Computer, IEEE, (February 1984) pp. 37-46

In his article, Dr. Steusloff outlines the requirements of programming languages suitable for distributed industrial process control, and gives an example of one such language.

The article begins by presenting a general distributed computer control model. Programming considerations of the model are discussed, as well as with interprocess communication and fault tolerance requirements. The requirements are (1) process declarations, (2) interprocess communication and synchronization primitives, (3) data transfer facilities, (4) explicit fault-handling features, and (5) distributed system component definitions.

Having defined language requirements, the author comments on the scarcity of real-time industrial process control language, and presents PEARL (process and experiment automation real-time language) as one such language. An application is then discussed in which PEARL is used successfully to control 28 soaking pit furnaces in a large steel production plant.

The article ends with conclusions and indications for future research. The article tackles some very interesting issues in industrial process computer control. However, its terminology is not very clear and neither are its goals. The selection of real-time language requirements is, in our opinion, incomplete and not very well justified. Furthermore, although the article does rightfully criticize a number of so-called real-time languages for not really being real-time, the language of author's choice, PEARL, is not quite suitable for real-time programming either. We feel, nevertheless, that despite its weaknesses, the article contains a number of interesting ideas, and a good discussion of a very successful industrial real-time process control application.