A SUMMARY

Most resource-limited scheduling problems, in the construction industry, exhibit NP-complete characteristics. The combinatorial nature of such problems renders them insusceptible to resolution by mathematical programming techniques. Scheduling of such projects is traditionally solved through the application of heuristics embedded in procedural languages.

Using a new generation Artificial Intelligence (AI) constraint programming language (CONDOR), the author has developed a project scheduler called COPS (Constraint Programming Scheduler). COPS is used to solve a 46-task multiple resource-limited project. The project includes a variety of unique lead and lag relations.

The prolog syntax of this language enhances project knowledge representation. Procedural rules and heuristics are easily represented in this language. Different scheduling heuristics are implemented with ease and their efficacy compared. Built-in numeric and symbolic constraint manipulation techniques expedite problem solution.

In addition, the declarative power of the language makes possible the quick prototyping of very concise AI problem solvers. Formulation of the scheduling problem and results are presented.