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Bryan A. Stanford

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# DEVELOPMENT OF A BILL OF MATERIALS FROM THE PDXI DATA MODELS

B. A. Stanford  
Department of Chemical Engineering

## ABSTRACT

The research on the development of a bill of materials has resulted in the construction of a portion of the working data model, as designed in theory by the Process Data Exchange Institute (PDXI). The theoretical object model can be found in *The PDXI Data Models* [1]. It was necessary to develop this working data model in order to be able to produce the bill of materials. The bill of materials was created with the help of the software package Paradox for Windows (version 4.0).

## INTRODUCTION

The bill of materials research was performed for the Process Data Exchange Institute, a group of thirty companies in the computer, chemical, oil, and manufacturing industries. The PDXI team at the University of Missouri-Rolla has developed an interface between the AutoCAD program and the Paradox database that lets information such as equipment size and performance parameters be changed automatically in the database when it is changed in AutoCAD. The next logical program to develop is one that will automatically place an order for new or replacement parts when an engineer changes his schematic in AutoCAD. Thus, the research of the generation of bills of materials was performed.

## PROJECT RESULTS

To accomplish the task of producing a bill of materials, the software program Paradox for Windows (version 4.0) was chosen because of its form designing capabilities and its inexpensive price. A working data model was programmed into the database. The model is based upon the object model created by PDXI [1]. However, due to its enormous size, only selected portions of the Planning Level Model [1] and the other equipment models [1] were developed into a working data model. Some revisions to the PDXI object model were also necessary to include manufacturer information for the equipment.

Once the working data model had been completed, research began on the creation the bill of materials. With the help of the *Paradox for Windows User's Guide* [2] and an example provided by Dr. Neil Book [3], a sample form (Fig. 1) was produced. The sample form describes the parts necessary to order from the manufacturer (Beckman Piping) if a section of pipe containing an orifice meter at Angeline's Los Angeles plant is to be replaced.

At this time, the program will perform a query for a piece of process equipment and retrieve the manufacturer and all parts indicated to be replaced

However, research is continuing on the integration of this program with the aforementioned AutoCAD- Paradox link developed by PDXI.

## DISCUSSION

Research is still continuing in this area. Besides the previously mentioned research into the compatability of this program with the AutoCAD- Paradox link, research into the expansion of the object model continues. Work continues on the working data model as well. There is additional research being performed on various other applications associated with the working data model.

Angeline, Inc.  
605 W. Alameda Dr.  
Los Angeles, CA 94321

Beckman Piping, Inc.  
811 Pine  
Westchester, VT 10233  
03/23/94

### Bill of Materials

Quantity	Description
1	1/2" Oriface Meter
2	5" Diameter Flanges
1	50 ft. Section Sched. 40 Steel Piping

Figure 1. Sample Bill of Materials

## ACKNOWLEDGEMENTS

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