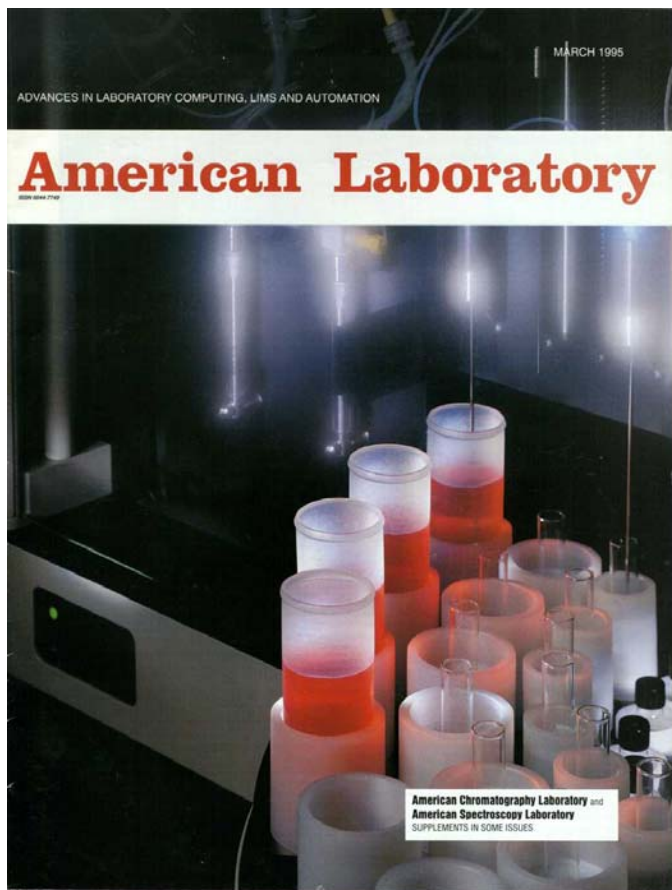


Automated Sample Preparation System

Background

Advent Design's client was a startup company whose founders had decades of marketing and sales experience in laboratory sample preparation automation. They saw a niche in the sample prep automation market for a product that is easy to program and use for the laboratory technician, and capable of semi-complex assays.



Project Description

The AutoChem product developed by Advent Design has two major components – A mechanical workstation which uses a rotary table to introduce samples to the fluid handling subsystems, and a PC based control architecture using PrepWare software. Advent developed PrepWare to make processing laboratory methods fast and easy using drag and drop icons to develop automated procedures for the workstation. Initially developed in 1995, PrepWare is a visual basic application that can easily be moved from one computer to another, and even programmed off-line.

The workstation used a rotary table which housed up to 96 samples per run. Above the sample vial locations in a given table index 4 needles mounted on individual vertical axes extracted and inserted fluid into the vials. Up to 4 individual piston pumps could be mounted to the system, each capable of moving fluid sample volumes as small as 50 microliters with an accuracy of +/- 1 microliter. The AutoChem workstation has up to 16 individual stepper controlled axes for moving the turntable, the extraction needles, pumps, and multi-position valves. The automation of these motions was controlled by the PrepWare application.

In addition to designing the AutoChem workstation, and developing the PrepWare software, Advent was the contract manufacturer for this product for our client for over two years.



Impact

Advent Design developed from initial concept through production units, an automated sample preparation system for laboratory applications. This enabled our client to focus their limited resources on developing the sales and marketing effort to launch the product.



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