AUTOMATION IN AN INDUSTRIAL RESEARCH LABORATORY


Mobil Research and Development Corporation
Research Department
Paulsboro, New Jersey  08066    U.S.A.

INTRODUCTION

The Paulsboro Laboratory of the Mobil Oil Corporation is responsible for research, development and technical service for refinery processes and related products. Most of these processes involve catalysis and an extensive experimental program is required to support this effort. The bulk of this experimental program takes place in small laboratory reactors ranging from a few cc's of catalyst to a liter. Figure 1 shows a typical set of laboratory pilot plants.

The key bottleneck in our process research and development activities has always been the rate at which experimental work could be performed and interpreted. To relieve this bottleneck, approximately eight years ago an automation effort involving minicomputers was started.

From the beginning it was decided to use an in-house approach to insure that the system would efficiently meet our current needs and be flexible enough to accomodate the inevitable changes which occur in research programs. To develop the basic skills required, training courses were held for our chemists and engineers as an off-hours activity. From these initial training courses, a small group of people were chosen to design and develop the automation system. Since all of these people had previously worked with the pilot plants, they readily understood the needs of an effective automation system. We found it much easier to train our chemical engineers and chemists in computer technology than trying to teach petroleum technology to a computer scientist. By designing, building, and maintaining the system ourselves, we also avoided
Figure 1

TYPICAL PILOT PLANTS