

ROBOTICS
IN SERVICE

Also by Joseph F Engelberger

**Robotics in Practice: Management and Applications of
Industrial Robots**

ROBOTICS IN SERVICE

JOSEPH F ENGELBERGER



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PREFACE

When my publishers, Kogan Page, goaded me into reviewing *Robotics In Practice* with a view to producing a revised edition of that 1980 book, I balked. It would have been an enervating exercise because the industrial robot scene had really not advanced very much in eight years. Sure, more robots were installed worldwide (the population had risen to about 200,000 by 1988), but they were doing pretty much the same kind of work. The equipment on the market was not taking advantage of the technology available.

At this writing the industrial robot has become a “ho-hum” product. To some a robot is no more than a mechanical computer peripheral; some articulated hardware that might be useful to CIM, Computer Integrated Manufacturing. The ranks of robot manufacturers have been thinned by bankruptcy and merger. Profitability is almost nonexistent and annual sales have plateaued, or even declined.

Attendance at robot symposia is down and exhibition space greatly curtailed. “Me-too” products vie for attention in shows that accept industrial robots as commercial commodities on a par with conveyors, lift tables and forklift trucks. Hoo boy! Why would a founding father of robotics want to worry about that scene in writing?

The Society of Manufacturing Engineers, SME, sponsored a Delphi Study in 1985 with the objective of forecasting robot applications, and robot sales volume for the decade through 1995. That study became part of the inspiration for this book. The “expert” participants considered only proven factory jobs. The class of “other” in the 1995 forecast amounted to less than 1% of total sales!

The premise of this book, in contrast, is that the “other” class will by 1995 be the *largest* class of robot applications. And that is because

much greater opportunities exist in service activities than in manufacturing and because the pace of technology has made *Robotics In Service* feasible.

Today, robots can be mobile, sensate and artificially intelligent. The science-fiction role of personal servitude is no longer far-fetched. Stand-alone robots that could pump gas, fill prescriptions, cook and serve fast food, clean commercial buildings, or aid the handicapped and elderly are real prospects. They will bring the magic back to robotics. Once again engineers will come to the exhibits with their kids on their shoulders. Who knows, even the disenchanting venture capital community may begin to salivate again!

Robotics In Service was not born of field research. It is a rumination on the part of a career roboticist who has tried to stay steeped in the lore. Credits are few and far between. The database in the author's personal random access memory is the product of myriad conferences, papers, conversations and prejudiced convictions. The bibliography has been assembled after the fact, not to support the arguments or to credit sources, but to aid the reader who would delve deeper.

It is hoped that the discussion of capabilities is exhaustive and that the discussion of applications is representative. However, one must go elsewhere for specific design information, perhaps even to my talented colleagues in Transitions Research Corporation, TRC, a *Robotics In Service* think tank.

The goal has been to prod robotics out of the doldrums with a tutorial on robot capabilities and with a prognostication on robot destiny. Most of the excitement lies ahead of us in this still embryonic discipline.