

MECHATRONICS BOOK SERIES

CONTROL AND INTELLIGENT SYSTEMS

Momoh Jimoh E. Salami
Abiodun Musa Aibinu
Yasir Mohd Mustafah



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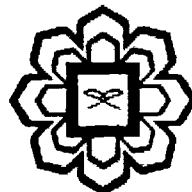
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EDITOR

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Automatic Storage and Retrieval System

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10.1 Introduction

The topic of relative capabilities of the human and the machines has been in the literature for over 4 decades, but the topic was an idle one in the early years because machines were absolutely poor competitors of human functions. That is not the case today. The digital computers, and the field of artificial intelligence and robotics nurtured by it, have developed machines that are competitors with some human's functions; the topic is no longer idle. The 21st century is indeed the era of the powerful working machines. Artificial intelligence is a discipline that develops machines which simulate functions that we associate with intelligent human behavior. Some references and scholars defines industrial robots as "reprogrammable, multi-functional manipulators designed to move parts, tools or specialized devices through variable programmed motions for the performance of a variety of tasks." [1].

Introduction of new automation has shifted human role to monitoring exception handler, and manager of automated resources. But only some of these anticipated benefits of automation have, in fact, materialized- primarily those related to the improved precision and economy of operations- i.e., those aspects of system operation that do not involve much interaction between human and machine [2]. Other expectations were not met, and unanticipated difficulties were observed These problems are primarily associated with the fact that even highly automated systems still require operator involvement and therefore communication and coordination between human and machine. It is a primary object of the present project to provide an automatic intelligent mail-processing device with full function. The operations thereof are completely computerized and adapted to cooperate with peripheral equipments such as RFID (Radio Frequency Identification) readers and tags, remote controlled robot, and key board assembly, etc. beside the mail receiving operation, the present device can sort the mails according to its destination and type, which enables the post officers to easily identify the location of a particular mail at the mail storage as well as trace any missing or lost mails.

The present project relates to the post office retrieving and restoring system that performs, in succession, the task of quickly identifying then retrieving individual mails desired by post office staff from among many mails arranged on the mail conveyor at the post office, and then sorting them in mail storage locations according to its destination and type one at a time, securely placing each mail in its proper section location. This project also relates to an intelligent automatic post office system incorporating such a robotic arm in a configuration that is fully compatible with the existing mail stores most commonly used in post offices today.