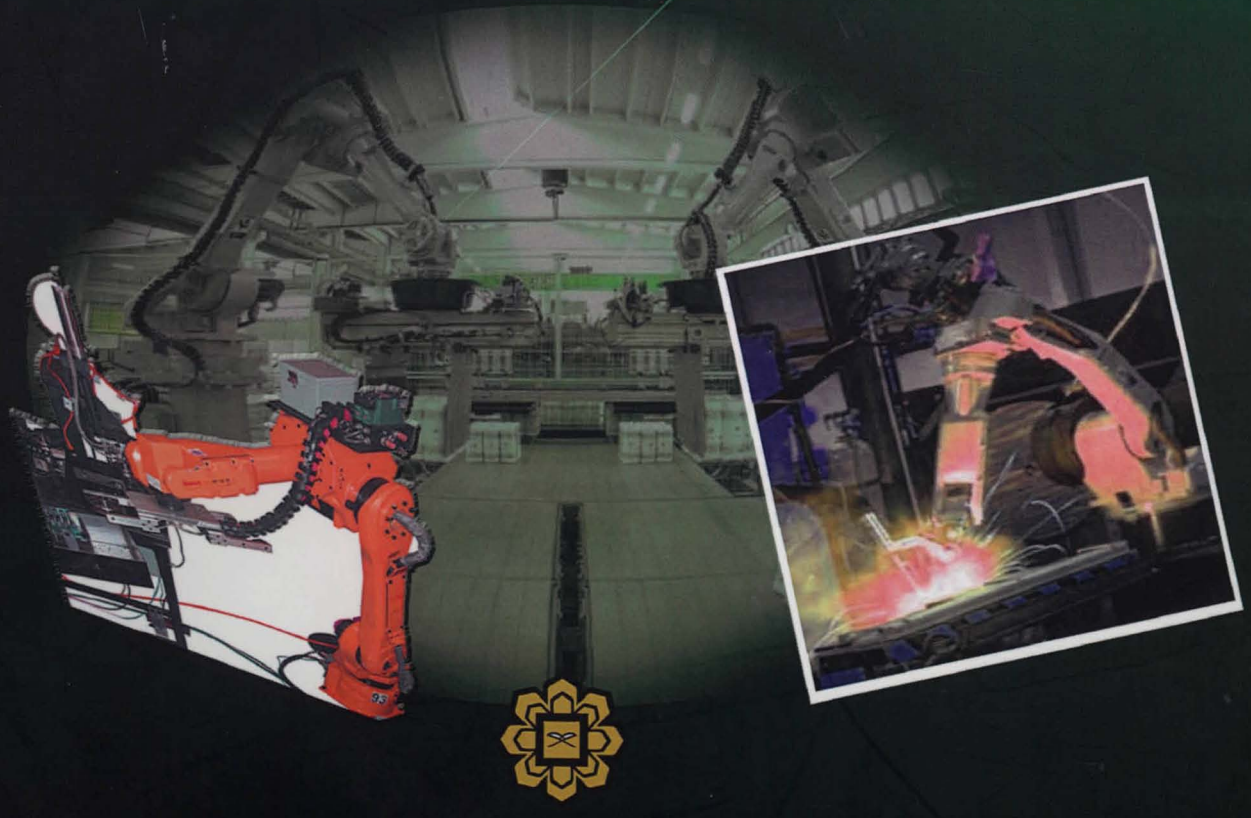
MECHATRONICS BOOK SERIES

ROBOTICS AND AUTOMATION

Rini Akmeliawati
Wahju Sediono
Nahrul Khair Alang Md. Rashid



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Editors

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CHAPTER 7

An Overview of Fuzzy Based Person Following Robot

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7.1 Introduction

Person tracking is a majorrequirement that requires must overwhelmed by a service robot whileneeds completing various human involved tasks. Such requirement has desires, which cannot be met pleasingly in conventional numerical process. Main remarkably, the robot has to maintain at a convinced safe distance as of the certain person is being tracked and simultaneously be in motion in a smooth way which does not seem to be frightening to the person. This chapter, consequently, introduced the person following robot with its overall system flowchart and dynamic modelingto providegreater idea onachieving smooth and safe person-following activities.

7.2 The Person Following Robot: An Overview

Person tracking is a invaluable potentiality for a movable robot which cooperates with person. Also, any robot that cooperates with a human needs to demonstrate desired movement besides actions, which is not threatening to a person who never had experience about the robot [1]. For example, a rapid movement of a robot might appear as an unsafe to a person not having earlier interaction with a mobile robotalike by someone who has earlier interaction could predict being an eminent movement of the robot. Referring to a position upon which an aged fellow outfitted with an automated wheelchair necessary to follow a nurse. A constant and uneven robot movement is particularly desired in this fact since the old person along for the ride might get hurt by an unintentional and prompt wheelchair movement. Therefore, this chapter discusses the method to develop a control system to control and smoothen out the movement of a robot while tracking a person and, at the same time, keeping it at a secure distance from the person that is being followed. This control ability has been implemented for the case of a three wheel car following particular person. The developed ability, however, has been modified here to accommodate the case of a robot following a human since the human motion is not always smooth as that of a car, and as an individual detecting and tracking of people is comparatively further difficult unless if the person is equipped with specialized tracking equipment, which is practically inconvenient and not always possible.

7.3 The Interaction between Human and Robot: An Overview

Interaction process has always been a necessary medium linking between different standard at different circumstances. In order to interface through a wireless network RFID (radio frequency identification)orIR(InfraRed) are the better solutions in using this technology. Primarily RFID is anidentification process which uses the radio waves forrepeatedly identify objects.RFID identification process is a succession to retrieve and store data using RFID tag or RFID transponder in combination of microprocessor and antenna. The antenna authorizes the chip to transmit the credentials information to a reader like radio waves. The reader exchanges the radio waves; reflected back from the RFID tag; into digital information. Thus this information is forwarded to processor for further use.