

MECHATRONICS BOOK SERIES

ROBOTICS AND AUTOMATION

Rini Akmeliawati
Wahju Sediono
Nahrul Khair Alang Md. Rashid



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MECHATRONICS BOOK SERIES: ROBOTICS AND AUTOMATION

Editors

Rini Akmeliawati
Wahju Sediono
Nahrul Khair Alang Md. Rashid



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Glass Wall Cleaning Robot: A Review

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23.1 Introduction

Glass wall cleaning robots are robotic systems that can move on glass walls, ceilings, roofs to clean the surfaces. The robot consist of two different systems: climbing robot system and cleaning system. Idea of climbing robot came to protect human operator from hazardous work like, cleaning and inspection of high-rise buildings, evaluation and diagnosis of storage tanks in nuclear power plants and petrochemical facilities, welding and maintenance of ship hulls etc. Because these type of work cannot be performed directly by human operators because of difficulties in accessing the operating positions in a safe manner. Therefore, climbing robots can be great alternatives that increase operational efficiency and protect human health and safety. Climbing robots become a very attractive research topic since there are a great number of potential applications. Glass cleaning system may consists of fluid tank in addition with cleaning mechanis and sensor. Cleaning Robot typically needs more support and increase load capacity and safety as the cleaning mechanism attached with the climbing robot.

23.2 History of Wall Climbing and Cleaning Robot

Various types of existing wall climbing robots nowadays are using various types of mechanisms to stick to the wall, such as adhesion mechanism, vacuum suction, and magnetic attraction. These types of mechanisms have their own advantages and disadvantages.

23.3 Wall Climbing Robots

BIGGALO (BIG uGly And LOud)

BIGGALO (BIG uGly And LOud) is a pneumatics based robot that is designed to climb relatively smooth vertical surfaces [3].

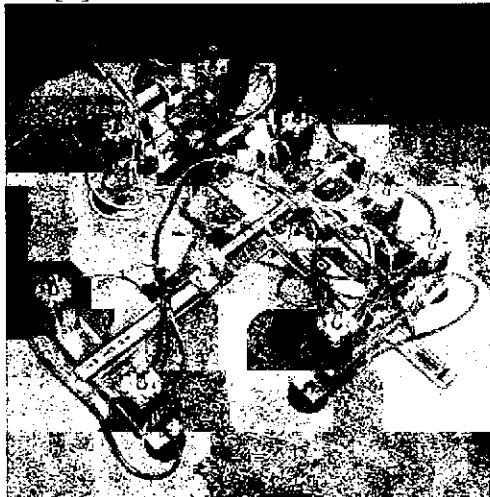


Fig. 1 BIGGALO