DESIGN AND CONTROL OF MOBILE ROBOTIC NETWORKS USING DISTRIBUTED CONTROL TECHNIQUES

By

Hassan Ali Hassan Fouad

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of

MASTER OF SCIENCE
in
Aerospace Engineering

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Title of Thesis:

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Key Words:

Graph theory; Decentralized control; cooperative control; Distributed control;

Summary: In this work the main control techniques used for achieving formation control with mobile robots are investigated. CUSBOT, a robotic platform, was designed and built and and it was used to implement the proposed algorithms. The equations of motion are fully derived and the control design is presented. The results of applying the control algorithms are shown for both simulation and experimental results.

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Hassan Ali Hassan
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Table of Contents

List of Tables