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بالرسالة صفحات

لم ترد بالاصل

BENHA UNIVERSITY

FACULTY OF ENGINEERING-SHOUBRA

AN ULTRASONIC ROBOT LOCALIZATION SYSTEM FOR INDOOR APPLICATIONS

BY

ENG.GEHAN SAMI ABBASS

B.Sc. in Electronic Engineering

**A THESIS SUBMITTED
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE IN
ELECTRICAL ENGINEERING
ELECTRONIC & COMMUNICATION DEPARTMENT**

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Cairo, 2005

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ABSTRACT

This thesis develops a positioning system for mobile robot based on the difference in the time-of-flights (DTOF) from a single transmitter to various receivers fixed in 2D and 3D space. The DTOF equations are very sensitive to their variables errors so we introduce a solution to this sensitivity problem based on finding the optimal positions of the receivers using genetic algorithm. These positions also overcome the singularity problem in the DTOF equations. This system can be implemented using poor accuracy ultrasonic ranging hardware.

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