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KEY WORD: FORCE SENSOR / 6-AXIS

TRAIWIT WONG-APHIWATTHANAKUL : A SYSTEMATIC DESIGN PROCEDURE FOR OPTIMUM PERFORMANCE OF ROBOT FORCE SENSORS. THESIS ADVISOR : ASSOC.PROF.VIBOON SANGVERAPHUNSIRI, Ph.D., 159 pp. ISBN 974-03-1163-6.

The main objective of this research is to design a 6 degree-of-freedom force sensor for robot applications. The finite element method is used as the design and analysis tool to help for obtaining a suitable structure. The Condition number is an important parameter used for comparing the structure performance. Other factors, natural frequency and stiffness of the sensor structure, also play the importance role for designing the force sensor.

From the experimental result, it is shown that the new force sensor developed in this work has better performance than the previous developed sensor. The condition number is 1.47 for the new sensor (Sensor III) comparing to the 7.03 of the previous sensor (Sensor II).