



KINEMATIC ANALYSIS ON ROBOTIC FINGER MECHANISM

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ABSTRACT

This project is on the kinematic analysis of a robotic finger mechanism. The goals for this project are to analyze the finger mechanism design using kinematic analysis and develop virtual experimental jig for simulation. The mechanism used in this project is Shape Memory Alloy (SMA) as an actuator. The preliminary testing on SMA consists of a simple kit testing from the supplier. The result of the preliminary testing showed that the SMA responded to change in open and closed air surrounding. The analysis process starts by drawing, simulating and analyzing the critical points on the robotic finger mechanism using CATIA software. The result from the analysis shows that the maximum critical point occurs at the fingertip and the knuckle of the finger. The problem detected in the robotic finger is frequently cracks at the hook. After properly analyzing the behaviour the SMA and taking care of some precaution action to avoid the robotic finger mechanism failure, a jig that is more efficient to use is designed. As a conclusion, the overall testing is to know the optimum design in the robotic finger and analyze it by using the application of SMA as actuators on robotic finger.

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