CONCEPTUAL DESIGN OF A VIRTUAL PICK AND PLACE OPERATION USING AN ARTICULATED ROBOT ARMS

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ABSTRACT

With the development of rising technology every year, automation and robotics is essential to meet the needs of modern life. Nowadays, the technology of virtual design is considered as one of the most important thing for the process of overall design in engineering. In this paper, an articulated robot arms was virtually design for a virtual pick and place operations. 3D-CAD system software has been used. SolidWorks software has been introduced. In this project, each of every part of the robot and whole system has been created. Then, all of it has simulated in the software. Motion and force has created to make an appropriate system. The six axes articulated robot arms was created which using a concept of industrial automation robot. Simulation results of the articulated robot arms are presented to demonstrate the assembly robot in the system.

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CHAPTER 1

INTRODUCTION

1.0 BACKGROUND OF STUDY

The power of technology is dramatically change the design world today. As combining the technology of design and technology of robotic, the process of making a robot will be easier. Furthermore, the industrial robots are important components of today's factory and even more in the future, beside, the demand of using robot is high lately. According to specialty of robot which is has potential for flexibility and intelligent in performing tasks in repetitive manner, and at acceptable cost and level of quality [1]. According to specialty of robot and automation, the system is virtually design to model a real-world object into three dimensions model design. A virtual design can be simply defined as 'design in the computer' [1]. It is due to appropriate and economical aspect and the important thing is everything can be done on the computer before build it to the real one [1, 2]. This paper proposes a 3D-CAD robot and automation design based on SolidWorks software. A virtual pick and place operation system was assembled after each of all part has been created by defining all the parameter for well-matched combination to make the whole system may be assembled correctly. This system was developed for picking bottles and placing it into a box and then palletizing the boxes.