A Pick and Place Robot: A Flexible Robot with Adjustable Rubber Hand

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 128
Number 8

Year of Publication: 2015

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10.5120/ijca2015906618
{bibtex}2015906618.bib{/bibtex}

Abstract

In this paper, we are going to proposed design of an intelligent robot having adjustable rubber hand to perform pick and place task. The proposed robot can pick any random shape of object with its flexible rubber hand this flexible hand is self adjusted according to the shape of the object. For that purpose we provide the pressure switches on the robots hand to judge the pressure required to pick the particular object. The proposed robot is wireless and for proper wireless communication we used zig bee. We can control all the movements of robot such that left movement, right movement, forward and backward movement, up down movement, pick the object and place that object at required place with the help of personal computer. We can successfully control the force and pressure required for picking the object through pressure switches. Due to use of adjustable rubber hand with spunj the friction between the object and hand of the robot is increased with great extent so we can achieve successful grip.

We performed many experiments on the objects like bottle, ball, soft toys, talcum powder container, conical objects, oil container and many more similar objects. These sets of
experiments were performed with an average success rate of 95% in pick-and-place tasks. In short, in this paper we will propose how the embedded system is created for making a small mechatronics system used for pick and place task. In future we implement this type of system in nuclear industries where hazardous nuclear rays can affect the human health severely. So we can replace the human workers by such system.[1][5]

References


Index Terms

Computer Science

Artificial Intelligence
Keywords

flexibility, pick and place, flexible rubber hand, Intelligent robot, pressure switches