Design and Implementation of Hybrid Arm for the Climbing Robot

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Abstract

The great development of the robotics design and production make the robots be an important part in the achievement of many of the difficult or dangerous applications to humans, one of these robots are the climbing robots. The design of climbing robots is a major challenge, because the robot has to stick to the walls while the walls are different in terms of roughness. In this paper, the arm of climbing robot has been designed to help robot climbs on coarse surfaces where a gecko arm model is used to achieve linear movement while clinging to the rough wall achieved by using limb has claws as the limbs of cats. A mathematical model has been derived and simulated by MATLAB while the mechanical parts were constructed using plastic materials and motion has been achieved by servo motors, also microcontroller kit used to control the arm and achieving motion synchronization. Several experiments have been performed in order to test the success of the arm of climbing robot.

References

Index Terms

Computer Science                Automated Systems

Keywords

Climbing robot, hybrid arm, gripper device, claws