A Study on the Foot Structure of the Robot for Improvement of Harsh Driving Capacity through the Analysis of Foot Structure in Alpine Ibex

Jung, Young Min (School: Incheon Jinsan Science High School)

This paper is about the foot structure that can improve the harsh driving capacity of walking robot by utilizing the foot structure of Alpine Ibex. Walking robots are used to help transport supplies to the rough terrain and explore inaccessible areas of human access. However, there are some problems like stability and efficiency, in extreme environments, such as sloping and slippery areas. To solve these problems, this paper tries to make a foot structure which has the characteristics of Alpine Ibex, which has a foot structure suitable for rough terrain driving. The foot structure was made using 3d printer and spring, and the experimental value was analyzed based on the evaluation criteria through the high speed camera and the high speed camera analysis program. This study suggested the possibility of improving the robot's driving capacity through changes in the foot structure rather than changes in programming elements such as walking algorithms, which accounted for the bulk of the robot's research on improving driving capacity.