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ANALYSIS OF A ZIPLINER ROBOTIC SYSTEM TO ASSIST ASTRONAUTS ON LUNAR AND MARTIAN TERRAINS

Abstract

In the realm of drones and probes, this paper proposes a subsequent derivative idea of ziplining automated mobile systems to assist astronauts on Lunar and Martian surfaces. Although the conventional human like robotic systems alleviate many challenges to astronauts on the moon and the mars, one particular challenge of reaching farther on land is left to the technology of drones. Drones however are more efficient in overviewing the area and is lesser effective in transporting samples or astronauts to the target. This paper discusses an idea of a ziplining robotic system that can achieve ranging to farther places from the base camp in a secure and safe way. The system comprises of multiple support poles, a subsystem of ziplining and a mobility subsystem to traverse the contents from point to point. This paper describes the overall design of the robotic system, it's operations and possible advancements for the future scope. The future applications of such an idea involves the support for constructing a settlement

for our Martian outposts. The paper explores these domains of applications and the effectiveness of such a mobility system in various situations. The paper investigates the proposed design on Lunar and Martian surfaces but can be optimized for other planetary bodies as well.