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INNOVATIVE APPROACHES TO EXPLORING MARS

Abstract

This paper provides a summary of former and present-day missions to Mars with an emphasis on improving systems and handling issues caused during missions. Part 1, Previous and Current Mars Missions, The missions to Mars in the past, like the Viking missions in the 1970s, the Mars Pathfinder mission in 1997, and the Mars Exploration Rover missions in the 2000s, are outlined in this part. It goes over the scientific outcomes made by these expeditions, including evidence of water on Mars and the planet's geological past. Also an overview of the current Mars missions is provided in this part, including the Mars Science Laboratory mission, which in 2012 successfully landed the Curiosity rover on Mars, and the Mars 2020 mission , which landed the Perseverance rover on Mars to search the indications of old life, and the Mars Atmosphere and Volatile Evolution (MAVEN) mission, which is investigating the Martian atmosphere. Part 2, Problems of Curiosity Mission The Curiosity Mars rover mission has encountered several technical, operational, and environmental difficulties since its landing on Mars in 2012. Technical issues included problems with the wheels, drill, and communication system, while operational challenges involved leading experiments and planning rover motion several days beforehand. Although these obstacles, the mission has accomplished numerous scientific milestones and provided beneficial understandings into robotic exploration of other planets. Part 3, Some Solutions to Problems on Curiosity Mission Changing the drill design: Developing a tougher and stable drill construction that takes the conditions into consideration on Mars. For instance, materials that are better fitted to extremely high temperatures and vibration could be used. Using new technologies: For example, using a laser drill that can rapidly and precisely cut rock and soil examples without wearing out the parts. Developing drill autonomy: Building a more autonomous drill control system that allows it to work separately without consistent operator control. Improving the sample gathering and processing system and changing wheel sorts for more work time. In summary, the importance of Mars missions for scientific exploration and technological development is highlighted in this paper's conclusion. It makes the case that continuing to fund Martian missions will enhance society by introducing new resources and technologies besides strengthening our information of the Red Planet.