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UTTAR-"AN EMPOWERED LANDING INSTRUMENT"

Abstract

Mars has always been a planet of "CURIOSITY". Being very similar to Earth in multiple ways, humanity has always seen Mars as our second home. Exploration of the planet becomes necessary to understand Mars properly. Safe landing on the Martian surface is always the beginning of the exploration. To ensure the landing to be more reliable, efficient, and safer this paper proposes a novel landing mechanism that will even be efficient when it comes to the surface to surface travel on mars. The motivation of putting this idea on paper comes from the difficulties a conventional landing mechanism possesses while landing on the Martian surface. The proposed landing mechanism consists of deployable rotary wings that will open after a cut-off time of entry into the atmosphere. Rotary wings will also be used in surface-to-surface travel of the lander. Rotary wings are aimed to be made of carbon fiber-reinforced polymer. Once the back shell is removed, the landing legs gear down. After scanning the surface, done using the Descent-Imager, the lander lands at a suitable site on the surface. The lander is also equipped with a crash prevention system; a combination of airbags having a tendency of multiple inflations and deflations which will ensure safer surface-to-surface travel. This system fetches the data from the camera and the wind speed sensor and decides the usage of the system autonomously. This concept will not only help in making the landing more efficient on the surface but will also ensure a more reliable, convenient way of intra-planetary travel in comparison to the conventional system of using wheels to rove. This small vision can help us in improving Mars Exploration.'