

Remote Sensing of The Martian Surface: Observation Techniques and Microsatellite Design

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Abstract: *This paper provides a detailed review of methods for remote sensing of the Martian surface and outlines a design for a microsatellite aimed at Mars exploration. By combining past findings from both orbital and Earth-based observations with a new microsatellite structure, we pinpoint key challenges and strategies for understanding planetary surfaces. The study highlights the importance of interpreting thermal, radar, and reflectance data. It also suggests a strong, budget-friendly microsatellite platform that uses commercial off-the-shelf (COTS) technologies for collecting scientific data in Martian orbit.*

Keywords: Mars, remote sensing, microsatellite, thermal inertia, spectral reflectance, radar scattering, deep space communications, attitude control, structural optimization

