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**Project Title:** Modeling and Analysis of Mars Glider Concept  

**Abstract:** Unmanned aerial vehicles (UAV) have potential for exploration of Mars. A UAV can be flown over the proposed landing sites as a scout mission for future astronaut mission as well as for science missions. The scout mission includes mapping the martian terrain and sending the high resolution images of proposed landing sites to earth. The science mission can range from magnetic field measurement to methane sensing. The goal of this project is designing, building, modeling, simulating, and flying a Mars concept aircraft. The project is a collaboration between NASA Armstrong and Cal Poly Pomona. The project includes design and analysis of the UAV, computational fluid dynamics (CFD) analysis, design of control system/autopilot, structural analysis, trajectory analysis for high altitude drop testing, and flight testing of prototypes. The project involves many groups working together for the achievement of overall goal. The CFD group is in charge of determining aerodynamic characteristics of the airplane. The trajectory analysis group is using MATLAB and Simulink software to determine the flight path of the UAV after it is released from the balloon at an altitude of 110,000 feet. The stability and control group is in charge of determining stability and control characteristic of the airplane and developing an autopilot for the airplane. Simulation results are presented.