HOPS SPACE APPS SOLUTION

H.O.P.S. stands for Hydrogen Oxygen Propulsion System. It is a portable four-thruster jet pack​ that can be used to efficiently and safely navigate Mars. Thrust will be produced by the combustion of hydrogen in oxygen, stored in pressurized Kevlar tanks, one in the back and one in the front. The hydrogen tank is twice the size of the oxygen tank as hydrogen and oxygen react in a 2 to 1 ratio. The pilot will have a belt attached to him, which will be supported by crotch and shoulder straps. It will connect to an outer ring using springs of high young modulus. The thruster arms will be attached to this outer ring. A gyroscopic version of H.O.P.S. (G.H.O.P.S.) can also be used. (G.H.O.P.S. is explained later)