



TOPIC # - TDC - 111

PLATFORM FOR LUNAR FOLLOW-ME CAMERA DRONE

BACKGROUND

Lunar landings are expensive, and missions that carry crew to the moon's surface and back are even more expensive. So video of astronauts working on the moon is a hard-won prize. But astronauts have even more important work to do besides just managing a video camera. Is it possible to translate the camera drone concept to the lunar environment? This is first a mechanical mobility problem.

PROBLEM/DESCRIPTION

What is a feasible station-keeping solution for a camera drone for lunar gravity, lunar atmosphere, and lunar resources? Plainly fans aren't going to work in a vacuum. Lunar gravity is less, that helps. Gaseous propellants are heavy and exotic, but locally available (on the moon) material can be proposed as propellant. Is there a technically feasible solution for a platform that could stay aloft for at least 20 minutes, carrying enough payload to support a follow-me camera drone capability?

DELIVERABLES

Analysis and prototype exploring at least one concept to determine whether the concept is feasible or infeasible. If feasible, is it safe? If infeasible, what technology advances would be necessary—at what point would it become feasible? Multiple concepts can be analyzed to select a promising candidate. Analysis can be supported by prototyping and demonstration, for example to show how much thrust can be developed.

DESIGN TEAM PROFILE

NASA MENTOR:	Chatwin Lansdowne (chatwin.lansdowne-1@nasa.gov)
LEVEL:	Sophomore, Junior, or Senior
MAJOR/DISCIPLINE:	Aerospace Engineering, Engineering Physics, Mechanical Engineering, Physics, Math
TEAMS:	1
DURATION:	One Semester

