



TOPIC # - TDC-29-S12

AUTONOMOUS DELIVERY & DEPLOYMENT SYSTEM OF COMMUNICATION & NAVIGATION BEACONS

Statement of Work:

Communication and navigation across the surface of a celestial body can be improved if aides are seeded along the surface prior to arrival or need. Assuming the sensors are located at a single drop point, the devices need to be spread along the desired path or within a defined area such that adequate communication and navigation coverage is obtained throughout the mission cycle.

Disbursement in some areas – e.g. along smooth topological surfaces – may be sparse and evenly spaced while other areas may require a more dense or seemly random pattern – e.g. near craters, boulders, or in mountain regions.

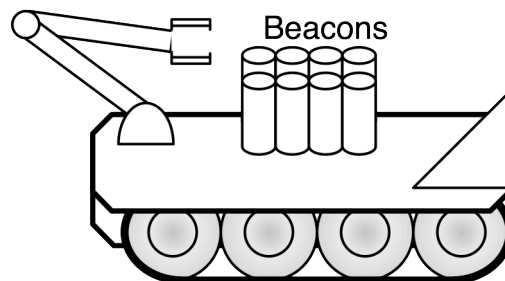


Figure 1: Possible surface beacon distribution mechanism.

Final Product:

The product of this design would be detailed analysis of a novel distribution system. The analysis should contain: i) a report comparing possible delivery methods and the strengths/weaknesses of each, ii) the CAD drawings of the chosen method, and iii) a mission outline where the method could be employed.

DESIGN TEAM PROFILE:

- Level: JR/SR
- Major: Any relevant
- Teams: Mentor may accept more than one team for this project

Design project topic offered by:
NASA Johnson Space Center
Engineering Directorate

