
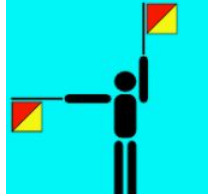



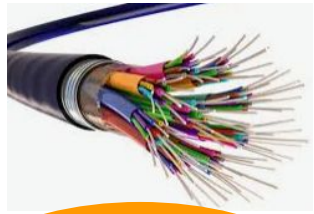

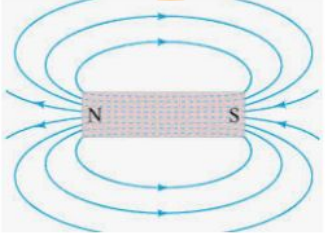
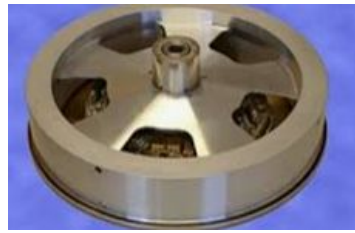






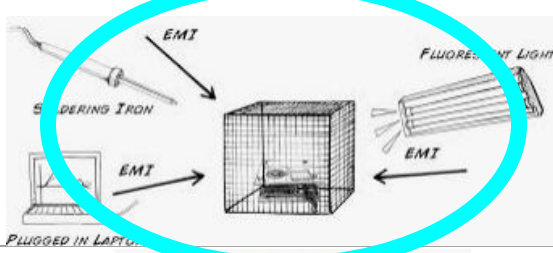
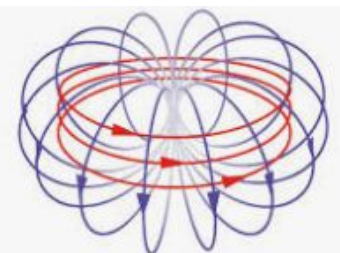
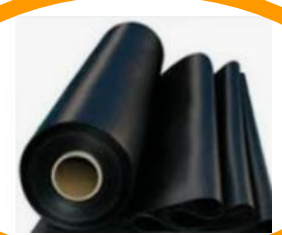





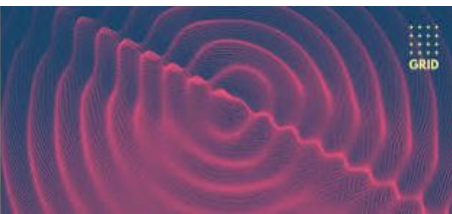
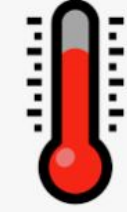




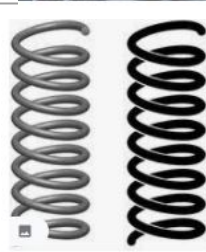

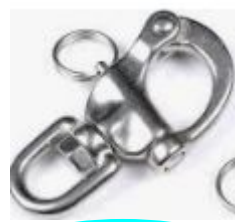

















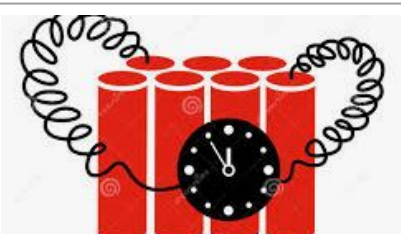










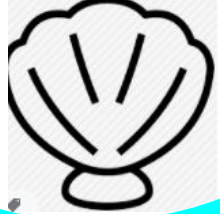




<div>Solutions</div> <div>Sub Functions</div>	1	2	3	4	5	6	7	8	9
Communicate with Earth									
Protect Payload from Impact									
Protect Payload from Electrical Charges									
Avoid Collisions									
Sever Mechanical / Electrical Connections									
Detect Safe Landing Site (Texture & Gradient)	LiDAR								
Detect Surface Temperature									
Measure Position and Velocity									
Landing Equipment									
Releasing Payload									

Method 1:

- standard RF transmission seems to be the most feasible design at the moment for communication
- a suspension system had well understood and easily documented system responses compared to the other options
- shock resistant tarp/bags would be able to compensate for having harpoons in landing
- flywheels would be able to maneuver angles for the lander to avoid any close call impacts. This is the scenario type where debris is not seen earlier and cannot be accounted
- explosions have been used on rockets to remove mechanical connections and safety for payload deployment in the aerospace industry.
- performing topographical mapping for terrain and texture using a surface terrain model allows for an algorithm to be made on earth that allows the lander to select a site to land should communications be interrupted during this process
- A Thermal imaging camera seems to be the most feasible as no equipment is needed to be on the surface at this time
- Harpoons were used in comet missions in the past help with touchdown on low gravity bodies with no atmosphere
- Using the SKycrane with the Harpoon idea allows for a greater number of constraints on the descent.

Method 2:

- Use XBand, Current PSYCHE communication method
- Use a slurry to absorb and protect impact force and shock
- Use a Faraday cage to isolate the payload from electrical discharge
- Use a flywheel for on the go orientation changes
- Chemical reactions can be used to break bonds of landing system from spacecraft
- A LiDAR sensor would be useful for terrain mapping
- Thermal imaging camera to observe surface temperature of PSYCHE landing sites
- Star Tracker for position and velocity calculations
- Goo/slurry to be used for leveling landing site
- clamshell tactic where lander will break open in half to release payload after landing.