

## Hybrid Reusable Launch Vehicle for Space Application A Naval Approach

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**Abstract :** In order to reduce the cost of launching satellite and payloads to the orbit this project envisages some immense combined technology. This new technology in space odyssey contains literally four concepts. The first mode in this innovation is flight mission characteristics which, says how the mission will induct. The conventional technique of magnetic levitation will help us to produce the initial thrust. The name states reusable launch vehicle shows its viability of reuseness. The flight consists miniature rocket which produces the required thrust and the two JATO (jet assisted takeoff) boosters which gives the initial boost for the vehicle. The vehicle ostensibly looks like an airplane design and will be located on the super conducting rail track. When the high power electric current given to the rail track, the vehicle starts floating as per the principle of magnetic levitation. If the flight reaches the particular takeoff distance the two boosters gets starts and will give the 48KN thrust each. Obviously it'll follow the vertical path up to the atmosphere end/start to space. As soon as it gets its speed the two boosters will cutoff. Once it reaches the space the inbuilt spacecraft keep the satellite in the desired orbit. When the work finishes, the apogee motors gives the initial kick to the vehicle to come in to the earth's atmosphere with 22N thrust and automatically comes to the ground by following the free fall, the help of gravitational force. After the flying region it makes the spiral flight mode then gets landing where the super conducting levitated rail track located. It will catch up the vehicle and keep it by changing the poles of magnets and varying the current. Initial cost for making this vehicle might be high but for the frequent usage this will reduce the launch cost exactly half than the now-a-days technology. The incorporation of such a mechanism gives `hybrid` and the reusability gives `reusable launch vehicle` and ultimately Hybrid reusable launch vehicle.

**Keywords :** the two JATO (jet assisted takeoff) boosters, magnetic levitation, 48KN thrust each, 22N thrust and automatically comes to the ground

**Conference Title :** ICAMAME 2015 : International Conference on Aerospace, Mechanical, Automotive and Materials Engineering

**Conference Location :** Prague, Czechia

**Conference Dates :** July 09-10, 2015