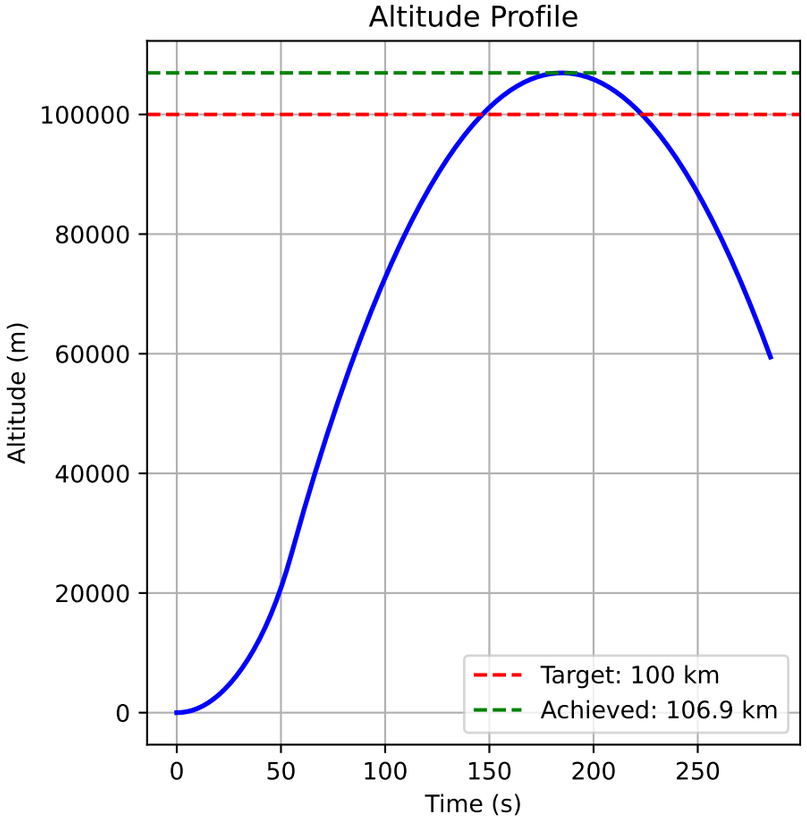

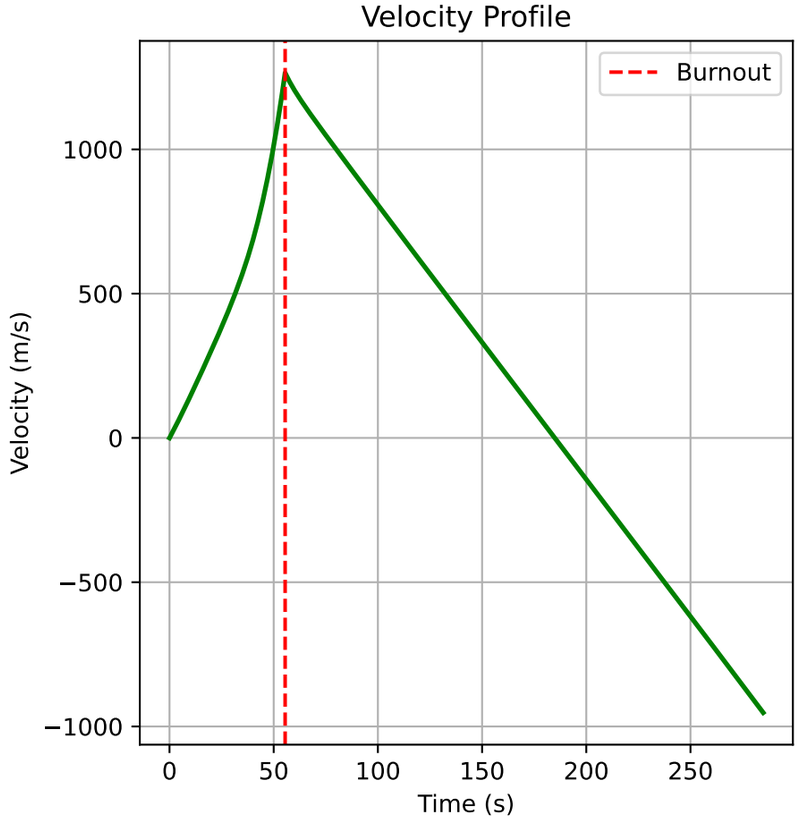

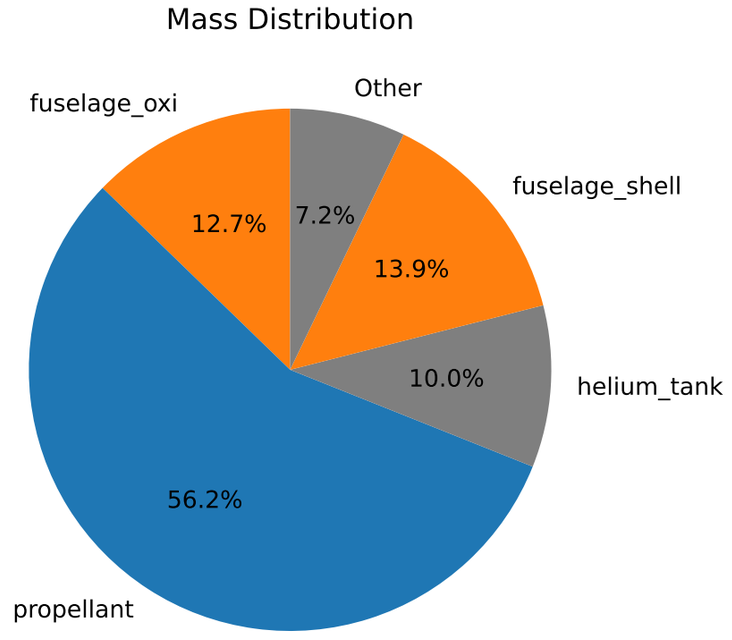

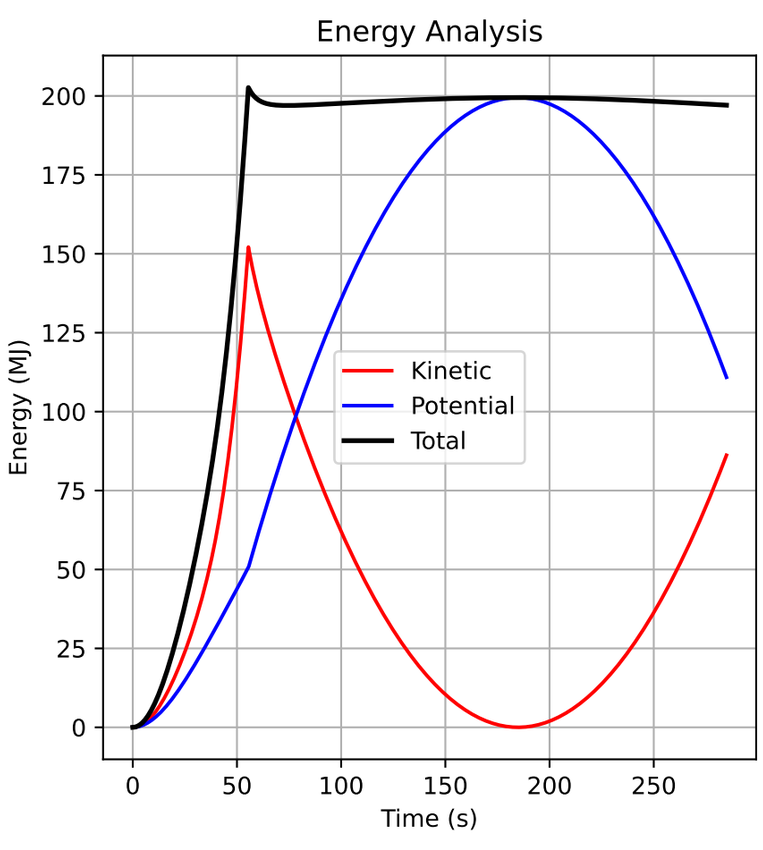

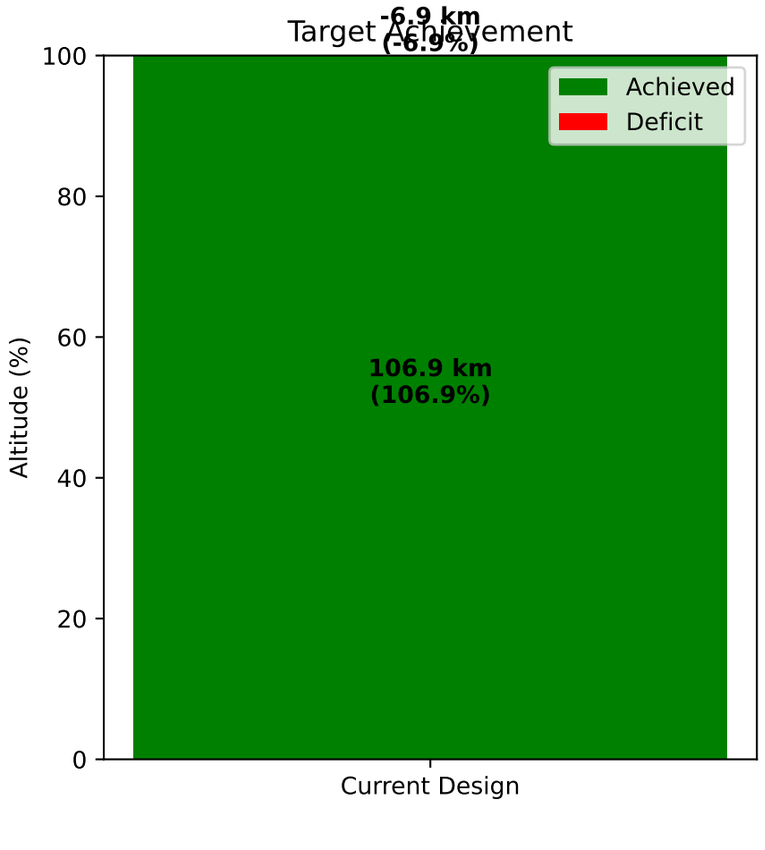


```
TOP OPTIMIZATION SUGGESTIONS:

1. Success:
   Target altitude of 100 km already achieved!
   Impact: Current max altitude: 106.9 km
```

INITIAL CONDITIONS AND PARAMETERS
TRAJECTORY SIMULATION

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```
======================================================================
TRAJECTORY OPTIMIZATION PARAMETERS
======================================================================
Target Altitude:            100 km (100000 m)
Analysis Type:              Trajectory optimization

======================================================================
OPTIMIZATION ANALYSIS CATEGORIES
======================================================================
1. Mass Reduction Analysis
2. Aerodynamic Improvements
3. Propellant Optimization
4. Staging Considerations
5. Trajectory Shape Optimization

======================================================================
BASELINE SIMULATION PARAMETERS
======================================================================
Material Used:              Titanium Ti-6Al-4V
Fast Mode:                  True
Time Step (dt):             0.01 s
Max Dynamic Pressure:       82800.0 Pa

======================================================================
CURRENT ROCKET CONFIGURATION
======================================================================
Total Mass:                 442.375 kg
Dry Mass:                   198.295 kg
Propellant Mass:            244.080 kg
Mass Ratio:                 2.231

Component Breakdown:
------------------------------
propellant            244.080 kg ( 55.2%)
fuselage_shell         60.250 kg ( 13.6%)
fuselage_oxi           55.330 kg ( 12.5%)
helium_tank            43.500 kg (  9.8%)
combustion_chamber     12.830 kg (  2.9%)
nose cone              10.230 kg (  2.3%)
fins (calculated)       8.162 kg (  1.8%)
nozzle                  7.993 kg (  1.8%)
```