
Brigham Young University

AUVSI Capstone Team (Team 45)

# UGV Requirements Matrix

| ID | Rev. | Date | Description | Author | Checked By |
|---|---|---|---|---|---|
| RM-001 | 0.1 | 10-23-2018 | Initial requirements | Jacob Willis | Brady Moon |
| RM-001 | 1.1 | 10-26-2018 | Better performance measures | Jacob Willis | Kameron Eves |
| RM-001 | 1.2 | 10-26-2018 | Edits after design review | Brady Moon & John Akagi | Kameron Eves |

Product: UAV
Subsystem: PAYLOAD/Unmanned Ground Vehicle (UGV)

Notes:
*normalized by the fusalage diameter cubed

| | Target Design Requirements | Importance | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|
| | **Subsystem Performance Measures** | | Drop mechanism mass | Weight mechanism can support | Aircraft internal volume consumed* | Stowed drop mechanism drag | Maximum landing velocity | UGV landing distance from target | Rule violations |
| | **Units** | | kg | N | % | N | m/s | m | cnt |
| 1 | Complies with competition rules | 5 | ● | | | | | | ● |
| 2 | Capable of lowering the payload to the ground | 5 | ● | ● | | | | | |
| 3 | Lands UGV within landing zone | 3 | | | | | ● | ● | |
| 5 | Delivers UGV without damage | 3 | | ● | | | ● | | ● |
| 6 | Deployable from airframe | 4 | | | ● | ● | | | |
| 7 | Does not interfere with takeoff/landing | 3 | ● | | | ● | | | |
| 8 | Causes minimal aerodynamic interference | 3 | | | | ● | | | |
| 9 | Drop mechanism does not interfere with UGV movement | 2 | | | | | ● | ● | |
| | **Lower Acceptable** | | 0 | 0.6 | - | 0 | 0 | - | - |
| | **Ideal** | | 0.1 | 1.3 | 0 | 0.3 | 1 | 0 | 0 |
| | **Upper Acceptable** | | 0.6 | - | 50 | 1.5 | 5 | 22 | 1 |

*Figure 1: Requirements matrix for the subsystem which will deliver the UGV to the ground.*