

## Brigham Young University AUVSI Capstone Team (Team 45)

## Airframe Subsystem Requirements Matrix

ID	Rev.	Date	Description	Author	Checked By
RM-002	0.1	10-23-18		J.	Derek Knowles
				& Ryan Anderson	



Storage Volume	21										0008	100001	12000
	20						•	Ť			0	0	0
Focus Group Ease of repair	19								•		g	10	10
Time to assemble from scratch	19								•		0	0	09
Number of Damaged Components on landing	19				•				•		0	0	0
Number of Damaged Components on crash landing	18				•	•			•		0	0	l
Number of components lost	17				•						0	0	0
Focus Group Coolness Rating	16									•	9	10	10
% of Payload Protruding from Airframe	15				•	•		•			0	0	100
Maximum Flight-Path Deviation	14			•							A/N	l	9
Cl,beta (Roll)	13			•							31.0-	1.0-	0
Cn,beta (Yaw)	12			•							90.0	1.0	0.15
Static Margin	11			•							0	١.0	2.0
Spiral Stability Eigenvalue	10			•							١.٥-	90.0-	10.0-
JugiaW emsihiA	6	•	•					•			0	Þ	90
suing Radius	∞			•							0	g	91
Total Motor/Prop Efficiency	7	•	•					•			2.0	ı	ı
Average Flight Speed	9		•					•			10	٩١	30
Stall Speed	5			•				•			A\N	10	20
Lift Coefficient	4							•			4.0	<b>3.0</b>	ı
Lift-to-Drag Ratio	3		•					•			g	20	∀/N
Battery Life	2	•	•								07	94	120
Flight Time	1	•	•								10	30	09
Performance Measures	Importance	6	6	6	6	6	6	3	3	_	eldstqəccA rəwoL	ldeal	Jpper Acceptable
UAS	Market Requirements	Capable of flight for extended period of time	Capable of traveling an extended distance	3 Minimize flight path deviation	Components are protected	5 Capable of surviving a crash	6 Complies with AMA safety code	Capable of carrying UGV and water bottle	Fast and cheap assembly/rebuild	9 Looks decent			
	Flight Time Battery Life Lift-Lo-Drag Ratio Lift Coefficient Stall Speed Average Flight Speed Total Motor/Prop Efficiency Turing Radius Airtame Weight Spiral Stability Eigenvalue Spiral Stability Eigenvalue Static Margin Ch.beta (Roll) Waximum Flight-Path Deviation Ch.beta (Roll) Waximum Flight-Path Deviation Mumber of Components lost Focus Group Coolness Rating Mumber of Damaged Components on crash landing Number of Damaged Components on crash landing Procus Group Ease of repair	Interpretation   Inte	Performance Measures    Flight Time   Battery Life   Luth-o-Drag Ratio   Luth-o-Drag R	Performance Measures  Definition of Battery Life  Battery Life  Lift Coefficient  Linning Radius  Linning Radius  Linning Radius  Linning Radius  Maximum Flight-Path Deviation  Maximum Flight-Path Deviation  Linning Radius  Minmber of Danaged Components on crash landing  Mumber of Maximum States  Mumber of Danaged Components on landing	Performance Measures   Performance Measures	Performance Measures   Performance Measures	Performance Measures   Performance Measures	the contract of the contract	Performance Measures   Performance Measures	The formance Measures  Light Time  Lift Coefficient  Lift Coeffici	The performance Measures  The performance Measures  Thing Radius  Thining Radi	Tower Acceptable  Local Accept	Ideal   Lower Acceptable   Control   Control

Figure 1: Airframe subsystem requirements matrix.