Brigham Young University

AUVSI Capstone Team (Team 45)

Autopilot and Path Planner Requirements Matrix

ID	Rev.	Date	Description	Author	Checked By
CT-005	0.1	02-28-2019	Initial requirements	Brady Moon	John Akagi
CT-005	1.0	02-28-2019	Requirements matrix added	John Akagi	Andrew Torgesen

Introduction

This artifact describes the requirements matrix for the autopilot subsystem (See Figure 1). The measured values are taken from 5 simulated tests which are described in CT-003, Path Planner Testing Procedures and Results. Measured values will be updated as further refinements are made to the system.

Product: UAV Autopilot			Units	Count	Meter	Seconds	Meter	Unitless
			Performance Measures	Number of Obstacles Hit	Average Waypoint Miss Distance	Path Planning Time	Root mean squared distance from desired path	Ratio of Planned Path to Total Waypoint Distance
	Market Requirements			1	2	3	4	5
1	The path planner avoids obstacles	9		■				
2	The path planner hits waypoints	6			■			
3	The path planner plans paths quickly	5				■		
4	The autopilot follows the planned path	10		■	■		■	
5	The path planner plans effective paths	9		■	■			■
			Importance	8	3	6	6	6
			Acceptable	0	0	0	0	1
			Ideal	0	2	20	0	1.5
			Upper Acceptable	3	7	45	20	5
			Target	0	3	20	10	2
			Predicted	0	3	20	10	5
			Measured	1	3.146	7	17	3.5

Figure 1: Requirements matrix for the subsystem which will control the UAV.