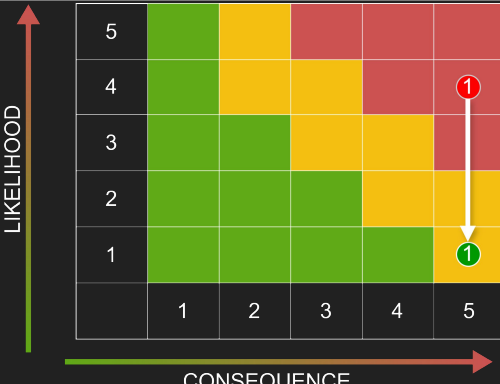
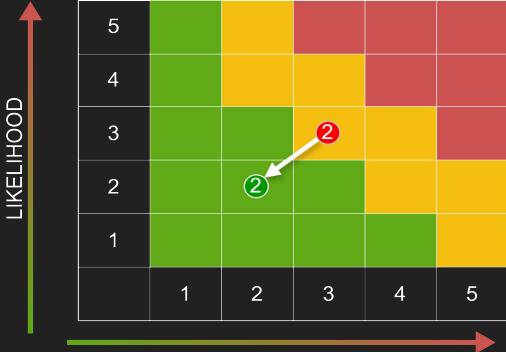


Risk Management

R.1 Wires break during aggressive firefighter motion				Consequence Matrix	
Risk Owner	Jerry Hou	Risk Type	Technical Programmatic	LIKELIHOOD  CONSEQUENCE	
Consequence	Unable to localize payload and map environment	Req.	N.F.R.2 N.F.R.9		
Mitigation					
Actions			Expected Outcome		
Replace USB with MIPI connector			Robust MIPI connection		
Redundant sensor			Redundant sensor support mechanism		
Use PCB to minimize wires present in payload			Robust connection with less wires		

Risk Management

R.2 Communication bandwidth insufficient for map update				Consequence Matrix	
Risk Owner	Robert Kerwin	Risk Type	Technical Programmatic		
Consequence	Slow map updates & decreased SLAM reliability	Req.	F.R.6 F.R.8		
Mitigation					
Actions			Expected Outcome		
Subsample and compress point cloud map			Minimize data size of Map Update		
Use tactical radio system			Able to transmit on multiple bandwidth channels		
Custom Radio with wide bandwidths			Maximize data capacity of Tx Channels		

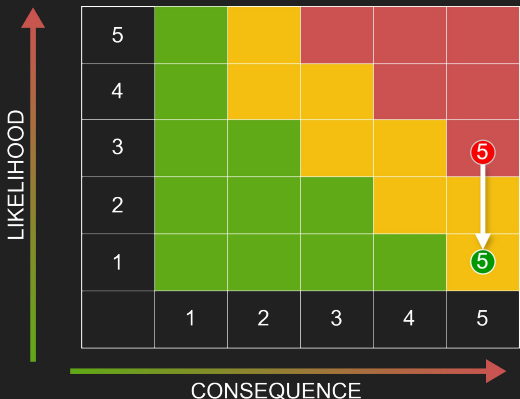
Risk Management

R.3 Thermal-Inertial SLAM not working in aggressive motion				Consequence Matrix	
Risk Owner	Prakhar Mishra	Risk Type	Technical Programmatic	LIKELIHOOD 5 4 3 2 1 1 2 3 4 5 CONSEQUENCE	
Consequence	Cannot localize the firefighter; inconsistent, low-quality map	Req.	F.R.4 F.R.5		
Mitigation					
Actions			Expected Outcome		
Research early on (in December) TIO methods from similar projects like DARPA SubT challenge			Robust Thermal-Inertial SLAM		
Secondary sensor like Radar			Robust sensor fusion strategy		

Risk Management

R.4 Testing facility (ACFA) is not available on demo days				Consequence Matrix																																					
Risk Owner	Tina Hsu	Risk Type	Schedule/ Resource	LIKELIHOOD ↑	<table><tr><td>5</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td></td><td></td><td></td><td></td><td>4</td></tr><tr><td>1</td><td></td><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr></table> CONSEQUENCE →	5						4						3						2					4	1					4		1	2	3	4	5
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Consequence	Unable to demo functionality in hot smoke and fire	Req.	F.R.2 F.R.10																																						
Mitigation																																									
Actions			Expected Outcome																																						
Book early			Removing scheduling conflicts																																						
Explore other Fire Academy			Establishes a confirmed alternative location																																						
Separate functionality tests			Allows specific subsystems to be validated in smaller, more accessible locations.																																						

Risk Management

R.5 Not enough budget left for replacement components				Consequence Matrix	
Risk Owner	Joy Yang	Risk Type	Financial/ Cost		
Consequence	Unable to replace critical failed components, leading to system inoperable	Req.	N.F.R.4 N.F.R.8		
Mitigation					
Actions			Expected Outcome		
Communicate with CMU & Sponsors for spare parts			Usable recycled components integrated		
Utilize grants from AirLab’s firefighter project			Receive more money		
Find more sponsor interested in our technology			Receive more money		

Risk Management (Post-mitigation)

