Minimal Functionality Requirements Checklist
Drone Tracker Project

Fall 2024

	Requirement was met	Requirement was partially met	Requirement was not met	Notes
RECEIVER SYSTEM				
The arduino receives RID signals from the drone.				
Will inform when a signal is received by printing the unpacked message.				
Be able to send a simulated message.	✓ 11/13			
POWER SYSTEM- RECEIVER				
The Waveshare module will output 5 V with a tolerance of ± 5 % at a maximum load of 250 mA and a minimum load of 3 mA.	✓ 11/1			min tested is 10 mA due to electronic load limitation
The Waveshare module will output 3.3 V with a tolerance of ± 5 % at a maximum of 215 mA and a minimum load of 15 mA.	✓ 11/1			
The solar panel will induce a current and charge the system's battery.	✓ 11/13	✓ 11/5 (Youtube)		DMM incorrectly connected for current. 11/13 tested in lab – small current increase – need sunny day for proper test
POWER SYSTEM- CAMERA				
The LRS-50-5 power supply will output 5V with a tolerance of ± 2 % at a maximum load of 3.6 A and a minimum load of 8 mA.	11/5 (Youtube) ✓	✓ 11/1 tolerance not met		Tolerance was incorrect (too tight) – ok when updated.
The Raspberry Pi 15 W power supply will output 5 V with a tolerance of ± 5 % at a maximum load of 3 A and a minimum load of 2.5 A.	✓ 11/1			in spec @ 0.5 A – cannot easily test at other currents now
WEBSITE SYSTEM				

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Send/Receive data to/from the database	✓ 11/13			
Display detected drones in their detected position on the Google Maps map.	✓ 11/13			
a panel to the side of the map and allow users to select a drone to view all necessary data	✓ 11/13			
Allow users to authorize a drone for flight	✓ 11/13			
Toggle to view authorized/unauthorized drones on the map.	✓ 11/13			
DATABASE SYSTEM				
Be able to receive and unpack RID package to extract the necessary information.	✓ 11/13			
Store the extracted information into the database.	✓ 11/13			
Compare the drone location with the pre-marked geographical location.	✓ 11/13			
Be able to forward data package over the network. ↑ to camera subsystem	✓ 11/13			
CAMERA SYSTEM- HARDWARE				
Must transmit/receive image/location data with less than 2% packet loss.	RCV LOC ✓ 11/13 TX IMAGE ✓ 11/13			
Be capable of capturing images of in-flight UAS or pilots with minimum 1080p x 720p image quality in a RAW, PNG, or JPG image format.	✓ 11/13			
Be capable of tracking UAS or pilot while in motion with a ± 10° range of accuracy.	✓ 11/13			
CAMERA SYSTEM- SOFTWARE				
Receive information from the database.	✓ 11/13			

Send information to the database.	✓ 11/13			
Calculate the pointing angles within 2% accuracy given the location of the camera and location of the object.	✓ 11/13			
Given a desired pulse width, generate an equivalent PWM signal within a 5% accuracy margin.	✓ 11/13			