Requirement Title	Requirement Definition	Challenge Requirement
Maximum Gross Takeoff Weight	The Maximum Gross Takeoff Weight (MGTW) is the maximum allowable takeoff weight for the UAS. This includes everything that is on-board or otherwise attached to the aircraft.	The UAS must have a MGTW less than 55 pounds.
Total System Weight	Total System Weight is the weight of the entire system (to include UAS, Ground Control Station, spares, fuel, sensor, and storage).	Total System Weight shall not exceed 120 pounds.
System Cost	System cost is the total cost of all components of the system to include (software, hardware, sensor, spares, and custom-made items), with exception of the RTK-GPS. All components are listed in the BOM.	The system cost shall not exceed $20,000.
Degraded Takeoff/ Landing Capability	A degraded takeoff/landing area is an area that is typically unsuited for standard flight operations. The area can be small, uneven, and does not have a conventional runway.	The UAS shall be capable of vertical takeoff and landing (VTOL) and must be able to operate in a degraded takeoff/landing area.
Loiter	Loiter is the ability of the UAS to fly in a specified sphere to a defined position in the air.	The UAS shall be able to loiter within a small defined box (750 ft x 750 ft x 20 ft) centered around a defined position and altitude.
Level of Autonomy	Level of Autonomy refers to the spectrum of independence that the UAS can operate.	The UAS must be capable of complete auto takeoff/landing and waypoint navigation.
Real-Time Video	Real-time video is the ability to provide full motion video to the ground control station during anticipated mission operations.	The UAS shall provide real time full motion video to the ground control station at a minimum resolution of 1280 X 720 progressive (720p).
GPS	GPS is a global navigation satellite system (GNSS) providing geolocation and time information to a GPS receiver.	The UAS shall be equipped with a Global Position System.
RTK-GPS	A real-time kinematic (RTK) global positioning system (GPS) enhances the accuracy of satellite-based positioning using corrections broadcast in real-time to a roving GPS receiver from a ground-based stable GPS receiver.	The UAS shall be equipped with an RTK-GPS, and stable ground station that is broadcasting the differential GPS corrections. Note that the cost of the RTK-GPS will not be factored into scoring nor will it be factored into the minimum system cost requirement.
UAS Insurance	UAS (liability) insurance covers damage to third party property and injury to other people.	The team shall have UAS (liability) insurance or demonstrate financial responsibility with a minimum coverage of $1M prior to conducting any flights outside of an enclosed test facility.
Flight termination system (FTS)	The FTS is a subsystem that is able to immediately cut power to all of the UAS motors at once when activated or initiates an inverted dive for a horizontal flight aircraft. Activation shall be possible for the following: 1. If the UAS passes a geofence set by the Contestant. 2. If the UAS is disconnected from the flight controller for a set amount of time. 3. To allow for a “kill” command to be sent to the UAS via the controller.	The UAS shall be equipped with an FTS (i.e., a Kill Switch) that when activated cuts power to all motors. Specific configuration for the FTS and geofence will be defined by the NIST Challenge team.