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TECHNICAL SPECIFICATION

NETRAv3 UAV

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Sr. No.	Parameters	Specification
	Aerial Vehicle (AV) Characteristics	
a	UAV Weight with battery and standard payloads	<3.5 kg
b	UAV Size with Propeller	< 1m x 1m
c	Endurance/ Flight time (upto 1000m AMSL)	60 minutes
d	Range for live transmission (Radius)	5 km (10km in diameter)
e	Typical Cruise Speed	7 m/s
f	Propulsion	Powered by Battery
g	Maximum operating altitude (AGL)	400m AGL (Above Ground Level)
h	Maximum launch altitude (AMSL)	3000m AMSL (Above Mean Sea Level)
i	Functional Temperature Range	-10°C to +55°C (Third Party Govt. Accredited Lab Certified)
j	Dust & Drizzle Resistance	IP53 rating (Third Party Govt. Accredited Lab Certified)
k	Aural Signature	<40 Db @300 meters AGL
l	Wind Resistance	Minimum 12.5m/s (45kmph or 24.3knots)
m	Technical Life of AV	Minimum 500 landings
n	Launch & Recovery	Autonomous Vertical Take-Off & Landing (VTOL)
o	Maximum space required for recovery	25m x 25m open area
p	Autonomy	Fully autonomous from Take-off to Landing without using any R/C controller
q	Operating Crew	Maximum 2
r	Deployment Time	< 10 minutes
s	Packaging and Storage	Waterproof Backpack that houses all the sub-systems which allows the complete system to be carried and operated on field by the crew, should have IP66 rating or better for dust and drizzle protection
t	Failsafe features	Return to Home on communication failure
		Return to Home/Land on low battery
		Multiple GPS on-board for GPS failure redundancy
		Return to home on high winds (more than 12.5m/s)
		Return home on battery imbalance
2	**Payload Characteristics**	
a	Payload Options	
	Day Payload	HD (1280 x 720) quality with 10x optical zoom video payload , 1 axis gimbal Live transmission of HD (1280 x 720) quality video
	Night Payload	Thermal 320 x 240p, 19 mm, 1 axis gimbal, 4x Digital zoom Thermal 640 x 480p, 25mm, 1 axis gimbal, 4x Digital zoom

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b	Payload Characteristics (For Gimbal Stabilized Payloads)	Gyro based Stabilization
c	Payload Replacement Time	< 2 minutes
d	Payload Freedom/ Control (in flight)	Pan: 360° continuous Tilt: 90°
e	Target Detection Slant Range (Human Size Target)	Daylight: Minimum 600m Thermal: Minimum 300m
f	Night Recovery Beacon	Switchable (from GCS) LED light when operating with Night Payload
g	Ground Control Station (GCS) Software Features	
3	**Flight Modes**	Altitude Hold
		Hover at a defined waypoint
		Autonomous Waypoint Navigation (pre-defined as well as dynamically adjustable waypoints during flight)
		Remotely Piloted mode for video-based navigation (RPV Mode)
		Real-time Target Tracking of designated static and moving targets
4	**3D Maps**	Switchable between 2D/3D map views, capability to tilt/rotate 3D map as per user input
5	**Electronic Stabilization of Video**	Electronic stabilization of video output at all zoom levels in real-time (SD video payload)
6	**GUI Display parameters**	Geographic Map along with UAV location, UAV trajectory, camera view polygon, waypoints and flight plan
		Real-time video from the UAV with on-screen display of important parameters like UAV co-ordinates, target (payload) co-ordinates and range from UAV, true North indication, Distance from HOME, etc.
		Real-time video displayed at all times during the flight
		Artificial Horizon indicating UAV attitude
7	**Maps**	Capability of working with Google Maps and/or other available open-source maps. Application has the capability to download maps automatically after specifying location GPS co-ordinates
		Capability to integrate geo-referenced raster maps provided in at least one of the commonly used digital map formats (gif, tiff etc.)
8	**User Controls**	One-click Take-off/Land/Hover
		Set altitude of the UAV
		Waypoint navigation
		Dynamic flight plan adjustment
		Point payload to ground co-ordinate function
		RPV Mode which allows UAV to be flown in semi-autonomous mode by looking at the on-board video
9	**Joystick Controls**	Full camera controls Pan/Tilt & Zoom In/Out
		RPV mode
		Altitude control
10	**Video**	Video recorded in commonly portable video format (AVI/MP4 etc.) on the GCS. The UAV does not do any on-board recording.

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		Video of the full flight is recorded by default with option to turn recording off
		Capability of taking image snapshots with on-screen display parameters at any time during flight
11	**Pre-flight checks**	Capability to perform pre-flight checks of the complete system before every flight for confirming the suitability of flightworthiness
12	**Others**	Essential telemetry data logging
		Export of flight path in .kml format for reviewing in Google Earth
13	**GCS Hardware Characteristics**	
		Ruggedized Laptop/Tablet (IP 65 rugged)
		Port for data/video transfer to external storage devices
14	**Communication link Characteristics**	
a	Communication link capabilities	Transmit control commands from GCS to UAV
		Transmit telemetry data from UAV GCS
		Transmit day and night video from UAV to GCS
b	Data Link	Secure Communication link between UAV and GCS with minimum 128 bit encryption
c	Video Link	Digital and Encrypted
d	Frequency Band	2.4 GHz or 5.8 GHz up-link and down-link
15	**Remote Video Terminal (RVT) Characteristics (Optional)**	
a	Remote Video Terminal (RVT) (Optional)	Ability to overlap Ground video data with Geospatial Data
		Capable to record, instantaneous playback and freeze the imagery received from UAV
		Antiglare, sunlight readable and touch screen based RVT
16	**Carrying case**	Waterproof (Third Party Govt. Accredited Lab Certified) backpacks + Hard case
17	**Charger**	Dual Charger Box