IDEAFORGE
SWITCH

AERIAL VEHICLE CHARACTERISTICS

UAV Weight with battery and max. payload	< 7 Kg
UAV Size with Propeller	<2.6m x 1.8m
Endurance (upto 1000m AMSL Take-Off)	>120 minutes with either payload (upto 1000m AMSL Takeoff)
Range of live transmission (LOS)	15 km (un-obstructed & interference free)
Typical Cruise Speed	~13 m/s @ MSL
Propulsion	Battery Powered Electric Propulsion
Maximum operating altitude	1000m AGL (Above Ground Level)
Maximum launch altitude (AMSL)	4000m AMSL (Above Mean Sea Level)
Functional Temperature Range	-15°C to +55°C (Any Govt Lab/DRDO/ NABL accredited Lab certified)
Dust & Drizzle Resistance	IP53 rating (Any Govt Lab/DRDO/ NABL accredited Lab certified)
Aural Signature	<40 Db @300 meters AGL (Any Govt Lab/DRDO / NABL accredited Lab certified)
Wind Resistance	Upto 20kmph(Take-off/Landing); Upto 40kmph (In-flight)
Technical Life of UAV (Landings)	Minimum 500 landings (OEM Certification)
Launch & Recovery	Autonomous Vertical Take-Off & Landing (VTOL)
Maximum space required for recovery	25m x 25m open area for Takeoff and Landing with 500m Radius clear over 50m AGL
Autonomy	Fully autonomous Take-off and Landing without using any R/C controller
Flight Modes	Altitude Hold Loiter 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
Operating Crew	Maximum 2
Deployment Time	< 15 minutes

Ground Control Station (GCS) Software Features

3D Maps	Switchable between 2D/3D map views, capability to tilt/rotate 3D maps as per user input
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
Maps	Capability of working with some publicly available open-source maps. Application has the capability to download maps automatically after specifying location GPS co-ordinates 2D Maps: Capability to integrate geo-referenced raster maps provided in at least one of the commonly used digital map formats (eg. GIF TIFF) as well as shape file (.shp) 3D Maps: Capability to integrate SRTM and DTED based elevation data
Terrain Avoidance	Detects and avoids natural terrain by using elevation data (where available)
Free Hand Annotation	Capability to annotate a desired location on the map screen.
Terrain Hugging	NA
No Fly Zone	Ability for user to mark zones which they do not desire the UAV to enter during flight. Also highlights airports in the vicinity and restricts UAV from entering those areas
Geo Fencing	Capability in creating a virtual fence/perimeter for a real-world geographical area. It enables the user in creating a predefined boundary to avoid the RPA venturing beyond the defined area accidentally.
Channel Scan	Ability to estimate the best suited channel for a desired location based on the colour indication for effective flight operations.
User Controls	Take-off/Land without any manual assistance 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

PAYLOAD CHARACTERISTICS

Payload Options	**Daylight HD (1280X720) with 25x optical zoom video payload Thermal 640X480 video payload**
Video Stabilization	**Electronic and Gimbal stabilization of video output at all zoom levels in real-time**
Payload Replacement Time	**< 5 minutes**
Payload Control (in flight)	**Pan: 360° continuous Tilt: 90°**
Target Detection Slant Range (Human Size Target)	**Daylight: Minimum 1000m Thermal: Minimum 500m**

OPTIONAL GCS FEATURES

Remote Video Streaming	**OPTIONAL - Stream Live Video from GCS to remote location over Internet or local network. - Option of ONVIF stream and control at remote location for 3rd party VMS integration.**
Moving Target Indication	**OPTIONAL - Highlight moving objects in live video display.**

RECOMMENDED GCS CONTROLLER SPECIFICATION

Type	**Laptop or Tablet**
Screen Size	**Min. 10" diagonal**
Functional Temperature Range	**-15°C to +55°C (Any Govt Lab/NABL/ILAC accredited Lab certified)**
GCS Controller Battery back-up	**Atleast 1 full endurance flight without spare battery**
IP Rating	**IP65**