



GOVERNMENT OF KERALA
POLICE DEPARTMENT

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e-Government Procurement (e-GP)

REQUEST FOR PROPOSAL

H6/172076/2026/PHQ

Dated: 31/08/2026

The Director General of Police & State Police Chief, Kerala Police Department, Government of Kerala invites online bids from reputed firms/agencies for the **Supply, Installation, Commissioning and Operationalisation of Drone** under the Scheme for "Technology Upgradation of Cyber Crime Investigation" under Assistance to States and UTs for Modernisation of Police 2026-27 (ASUMP 2026-27).

The tender includes the **Procurement, Supply, Installation, Commissioning and Operationalisation Of 40 Nos. Coastal Surveillance UAV Systems With Integrated Eo/Thermal Payload, RTMP-Based Live Video Streaming And Web-Based Fleet Monitoring Capability, 22 Nos. Coastal Search & Rescue / Payload-Dropping Drone Systems With Integrated Eo/Thermal Surveillance, RTMP-Based Live Video Streaming and Web-Based Video & Fleet Monitoring Capability, 06 Nos. Long-Endurance Fixed-Wing VTOL Surveillance UAV Systems with**

Integrated EO/IR Surveillance, RTMP-Based Live Video Streaming and Web-Based Video Management and Fleet Monitoring Capability for Coastal Security and Procurement of 5 Nos. GCS-Enabled Live Monitoring Drone Pilot Training Drones as specified in the enclosed technical specifications and conditions.

1	Tender No.	KPET/32/2026/PHQ Dated 31.08.2026
2	Name of Project	Supply, Installation, Commissioning and Operationalisation of Drone (i. Procurement, Supply, Installation, Commissioning and Operationalisation of 40 Nos. Coastal Surveillance UAV Systems With Integrated Eo/Thermal Payload, RTMP-Based Live Video Streaming And Web-Based Fleet Monitoring Capability, ii. 22 Nos. Coastal Search & Rescue / Payload-Dropping Drone Systems With Integrated Eo/Thermal Surveillance, RTMP-Based Live Video Streaming and Web-Based Video & Fleet Monitoring Capability, iii. 06 Nos. Long-Endurance Fixed-Wing VTOL Surveillance UAV Systems with Integrated EO/IR Surveillance, RTMP-Based Live Video Streaming and Web-Based Video Management and Fleet Monitoring Capability for Coastal Security and

		iv. Procurement of 5 Nos. GCS-Enabled Live Monitoring Drone Pilot Training Drones)
3	Estimated Amount	Rs. 1650 Lakhs
4	Tender Fees	(through online mode only) Rs. 28,750 /- [Rupees Twenty eight thousand seven hundred and fifty Only] (GST extra) 18% GST amount on tender fees mentioned above shall be paid to GST Department directly by the bidder.
5	Earnest Money Deposit	Rs. 16,50,000/- (Rupees Sixteen lakh and fifty thousand Only) (through online mode/Bank Guarantee)
6	Specifications	Attached in the Tender document.
7	Date and Time of Publication of e Tender	01.09.2026, 02:00 PM
8	Date of submission of e-Tender	01.09.2026, 02:00 PM To 14.09.2026,12:00 NOON
9	Last date and time for online Submission of e Tender	14.09.2026, 12.00 NOON
10	Date and time of opening of e-Tender	15.09.2026, 03.00 PM
11	Place of opening	Police Headquarters, Vazhuthacaud, Thiruvananthapuram- 695010
12	Date of Technical Evaluation	Bidders should be ready to attend the Technical Evaluation with product on any day within 1 week after bid opening date on short notice.

13	Address of Tender Inviting Authority	State Police Chief, Kerala, Vazhuthacaud, Thiruvananthapuram - 695010 Ph: 0471-2722566 Mobile No. 9497996998 Fax: 0471-2722566 e-mail: aig2phq.pol@kerala.gov.in Website: www.keralapolice.gov.in
14	Bid Validity	(Total Number of Days up to which the rates are to be firm) 180 days

I. REQUEST FOR PROPOSAL (RFP) FOR PROCUREMENT OF DRONES

1. **RFP 1- 40 NOS. COASTAL SURVEILLANCE DRONES**

Procurement, Supply, Installation, Commissioning And Operationalisation Of 40 Nos. Coastal Surveillance UAV Systems With Integrated Eo/Thermal Payload, RTMP-Based Live Video Streaming And Web-Based Fleet Monitoring Capability.

1. INVITATION FOR PROPOSAL

Kerala Police invites proposals from eligible and technically competent Original Equipment Manufacturers (OEMs), authorised distributors/dealers and authorised system integrators for the supply, installation, testing, commissioning and operationalisation of 40 Nos. Portable Multi-Mission Quadrotor Surveillance Unmanned Aircraft Systems (UAVs) for strengthening the aerial surveillance and operational response capabilities of Kerala Police.

The UAV systems are intended primarily for coastal security and surveillance, while also supporting law enforcement, search and rescue, disaster response, emergency surveillance and other operational requirements of Kerala Police.

The procurement shall comprise complete and operational UAV systems, including the UAV platform, electro-optical and thermal imaging capability, remote controller/ground control equipment, batteries, charging systems, associated software, communication and connectivity features, accessories, documentation, warranty and technical support.

A mandatory feature of the proposed system shall be the capability to transmit live video from the Drone Remote Controller through RTMP (Real-Time Messaging Protocol) to compatible external servers, platforms or monitoring systems over an available communication network.

The proposed solution shall further provide web-based monitoring capability for authorised personnel, enabling centralised viewing of available live video feeds, UAV location, flight telemetry and operational status.

The successful bidder shall be responsible for the complete supply, configuration, integration, testing, demonstration, commissioning and handover of the systems in operationally usable condition.

2. BACKGROUND AND PURPOSE

Kerala has an extensive coastline and a number of strategically important coastal installations, ports, harbours and other areas requiring continuous and flexible surveillance.

The deployment of portable surveillance UAV systems will provide Kerala Police with a rapidly deployable aerial surveillance capability capable of supporting operations during normal policing as well as emergency and disaster situations.

The proposed UAV systems shall therefore be suitable for deployment in coastal and other operational environments and shall provide effective day and night observation through electro-optical and thermal imaging systems.

The solution is also intended to facilitate transmission of live aerial imagery to authorised monitoring locations, thereby enabling personnel at appropriate command or operational locations to obtain timely aerial situational awareness.

3. OBJECTIVES OF THE PROCUREMENT

The primary objective of the procurement is to establish a reliable, portable and operationally flexible UAV surveillance capability for Kerala Police.

The proposed systems shall support, among other operational requirements:

- Coastal and maritime surveillance;
- Surveillance of ports, harbours, coastal installations and areas of operational importance;
- Law enforcement and security operations;
- Search and rescue activities;
- Disaster response and emergency assessment;
- Day and night aerial observation;

- Thermal-based surveillance in low-light and night conditions;
- Rapid deployment at operational locations;
- Live transmission of aerial video to authorised monitoring locations;
- Centralised monitoring of deployed UAVs through a web-based interface; and
- Recording and retrieval of operational video and flight information, wherever supported by the proposed system.

4. SCOPE OF PROCUREMENT

The procurement shall cover 40 Nos. complete Portable Multi-Mission Quadrotor Surveillance UAV Systems.

Each system shall be supplied as a complete operational package and shall include all hardware, software, accessories and components necessary for its intended operational use.

The scope shall include supply and delivery of the UAV platforms, remote controllers/ground control equipment, EO and thermal imaging capability, batteries, charging equipment, communication equipment, mission planning and flight-control software, carrying and field accessories and other items specified in this RFP.

The scope shall also include installation, configuration, integration, testing, demonstration, commissioning, training, documentation and warranty support.

Where a web-based monitoring or fleet management platform is proposed as part of the solution, the bidder shall configure and operationalise the same for use by authorised Kerala Police personnel.

The bidder shall ensure that the supplied UAV systems and associated software operate as an integrated solution and that all necessary interfaces required for the specified functions are provided.

5. FUNCTIONAL AND TECHNICAL REQUIREMENTS

The UAV shall be a portable, multi-mission quadrotor platform suitable for surveillance and security operations.

The system shall be capable of vertical take-off and landing and shall be suitable for rapid field deployment. It shall support autonomous and assisted flight operations, waypoint-based mission planning and appropriate safety and fail-safe functions.

The UAV shall incorporate a stabilised electro-optical imaging system and thermal imaging capability suitable for day and night surveillance. The payload arrangement shall permit effective observation, recording and transmission of aerial imagery.

The minimum technical requirements are set out below. The bidder may offer equipment having specifications superior to the prescribed minimum requirements.

Minimum Technical Specifications

Sl. No.	Parameter	Minimum Requirement
1	UAV Type	Portable Multi-Mission Quadrotor Surveillance UAV
2	Operational Role	Coastal Security, Law Enforcement, Search & Rescue, Disaster Response and Surveillance
3	Maximum Take-Off Weight	DGCA Small Category compliant
4	Take-off and Landing	Vertical Take-Off and Landing (VTOL)
5	Flight Endurance	Minimum 45 minutes
6	Operational Range	Minimum 5 km Line of Sight (LOS)
7	Maximum Flight Speed	Minimum 54 km/h
8	Wind Resistance	Minimum 10 m/s
9	Service Ceiling	Minimum 4,000 m AMSL
10	Operating Temperature	-10°C to +50°C
11	Navigation	GPS, NavIC, GLONASS or equivalent multi-GNSS capability
12	Flight Modes	Manual, Assisted, Autonomous, Waypoint Navigation and Return-to-Home
13	Mission Planning	Graphical mission planning with autonomous flight capability
14	Deployment	Ready for flight within 5 minutes
15	Payload Configuration	Modular/quick-swap payload configuration
16	Supported Payloads	EO Camera, Thermal Camera, Loudspeaker/Public Address System, Beacon/Search Light and compatible mission payloads
17	EO Camera	Minimum 4K Ultra HD
18	Live Video	Minimum 1080p Full HD
19	Optical/Hybrid Zoom	Minimum 10×
20	Digital Zoom	Minimum 16×
21	Thermal Camera	Minimum 640 × 512 pixels
22	Thermal Sensor	Uncooled LWIR
23	Thermal Frame Rate	Minimum 30 Hz

24	Gimbal	3-Axis Stabilised Gimbal
25	Target Tracking	AI-assisted visual target tracking
26	Communication	Encrypted digital command and control link
27	Live Streaming	RTMP support from the Drone Remote Controller for live video transmission to compatible external servers/platforms
28	Telemetry	Real-time flight telemetry and UAV health information
29	Remote Controller	Portable rugged controller with integrated display
30	Display	Minimum 7-inch high-brightness display
31	Mission Software	Mission planning, live monitoring, payload control and flight logging
32	Data Recording	Onboard recording of video, images and flight logs
33	Fail-Safe Functions	Return-to-Home, lost-link recovery, emergency landing and low-battery return
34	Obstacle Avoidance	Multi-directional obstacle detection, where supported by the offered model
35	Geo-Fencing	Configurable geo-fencing capability
36	Battery	Intelligent rechargeable lithium battery
37	Battery Quantity	Minimum three batteries per UAV system
38	Charging	Intelligent multi-battery charging system
39	Data Security	Secure authentication and encrypted storage/communication, where applicable
40	Environmental Suitability	Suitable for coastal day/night operations
41	Ingress Protection	Minimum IP54 or better
42	Transportation	Portable backpack/field deployment configuration
43	Accessories	Carrying case, spare propellers, maintenance toolkit, landing pad and essential field accessories
44	Regulatory Compliance	DGCA Type Certified, wherever applicable
45	Warranty	Minimum two years comprehensive OEM warranty
46	Technical Support	Installation, commissioning, software/firmware updates and technical assistance

The specifications indicated above represent the minimum acceptable performance. Bidders may offer equivalent or superior specifications, subject to documentary evidence and successful demonstration during technical evaluation or acceptance testing.

6. LIVE VIDEO STREAMING AND RTMP CAPABILITY

The live video streaming facility shall form an integral part of the proposed UAV solution.

The Drone Remote Controller shall have native or OEM-supported capability to transmit the live video feed using RTMP (Real-Time Messaging Protocol) to a compatible external

server, Video Management System or other authorised monitoring platform through an available communication network.

The bidder shall provide all necessary configuration information, software interfaces and technical assistance required to establish the RTMP streaming connection.

The RTMP capability shall not be considered merely as a future upgrade or optional feature. It shall be available and operational at the time of commissioning.

The bidder shall demonstrate, during acceptance testing, the complete streaming path from the UAV/Remote Controller to the designated receiving platform or server.

The bidder shall clearly indicate in the technical offer:

- Whether RTMP is supported natively by the remote controller;
- Supported video resolution and frame rate;
- Supported video and audio codecs, where applicable;
- RTMP/RTMPS capability, where supported;
- Network requirements;
- Maximum number of simultaneous streams supported;
- Streaming configuration procedure; and
- Any OEM software, licence or subscription requirement associated with the feature.

7. WEB-BASED VIDEO AND FLEET MONITORING

The proposed solution shall provide a centralised web-based monitoring capability for authorised Kerala Police personnel.

The monitoring interface shall be accessible through commonly used modern web browsers without requiring dedicated client-side software for normal viewing and monitoring.

The system shall facilitate, subject to the telemetry and interfaces available from the UAV platform, centralised viewing of live video feeds, identification of deployed UAVs, UAV location, available flight telemetry, operational status and relevant historical information.

The platform shall provide an interactive map-based interface through which authorised users can view the geographical location of deployed UAVs using available GPS information.

The system shall support monitoring of multiple UAV deployments from a common web-based interface, subject to the capacity of the proposed architecture.

The bidder shall clearly describe the proposed architecture, including the method by which UAV video and telemetry information is transmitted to and displayed through the web-based monitoring platform.

8. VIDEO, STREAMING AND SOFTWARE COMPATIBILITY

The proposed Video Management and Fleet Monitoring solution shall support commonly used video and streaming technologies to ensure interoperability with the offered UAV system.

The proposed solution shall support, as applicable to the architecture offered:

Video Codecs: H.264/AVC, H.265/HEVC and MJPEG.

Streaming Protocols: RTMP, RTSP, WebRTC, HTTP-FLV and HLS, wherever supported by the proposed system.

The bidder shall clearly identify which protocols are supported natively and which require additional software or components.

The web interface shall be compatible with commonly used browsers including Google Chrome, Microsoft Edge, Mozilla Firefox and Apple Safari.

The proposed solution shall not require obsolete browser plug-ins such as ActiveX or NPAPI for normal operation.

9. FLEET MANAGEMENT, TELEMETRY AND MAP VISUALISATION

The proposed system shall provide appropriate mechanisms for monitoring the operational status and geographical deployment of the UAV fleet.

Based on the telemetry and data made available by the UAV platform, the system shall provide authorised users with information such as UAV identification, GPS position, flight status, altitude and other relevant operational parameters.

The location of deployed UAVs shall be capable of being displayed on an interactive map interface.

The system shall also provide appropriate facilities for viewing available historical flight information, operational logs and recorded information.

The bidder shall clearly specify the telemetry parameters available for integration with the web-based monitoring system and the communication interface or protocol used for such integration.

10. INFORMATION SECURITY AND ACCESS CONTROL

The proposed solution shall incorporate appropriate security controls for protection of UAV video, telemetry, operational information and user access.

The system shall provide authenticated access and appropriate role-based permissions for authorised users.

Communication between system components shall employ appropriate security mechanisms and encryption wherever technically applicable. Stored operational information shall be protected against unauthorised access.

The system shall maintain appropriate audit records relating to user access, system events and administrative activities.

The proposed cybersecurity architecture shall comply with applicable Government of India requirements and prevailing CERT-In guidelines/directions, as applicable to the proposed deployment.

The bidder shall provide a description of the proposed cybersecurity architecture, authentication mechanism, data protection measures, access-control mechanism and audit capabilities along with the technical bid.

11. DATA MANAGEMENT, RECORDING AND REPORTING

The proposed UAV system shall support onboard recording of video, images and flight logs.

Where a central monitoring or Video Management System is provided, it shall support recording, retrieval and playback of live video feeds subject to the storage infrastructure and configuration offered.

The system shall provide appropriate facilities for reviewing operational information and available historical logs.

Where reporting and export facilities are provided, operational data and reports shall be capable of being exported in commonly usable formats, including Excel-compatible formats wherever technically supported.

The bidder shall clearly state the storage requirements, retention capability and any licensing or infrastructure requirements associated with recording and archival functions.

12. CLOUD AND EXTERNAL PLATFORM INTEGRATION

The proposed solution shall support integration with compatible external servers, platforms or cloud storage infrastructure, where such infrastructure is provided or designated by Kerala Police.

The bidder shall specify the available integration mechanisms and shall provide necessary technical information for integration with the Department's approved infrastructure.

Any third-party cloud service, subscription, licence or recurring expenditure required for operation of the proposed system shall be functional with the full system of drones commissioned for the warranty period covered for all the drones. The charges of the cloud after the warranty period will be specifically mentioned in the financial and technical proposal.

No essential operational functionality shall be dependent on an undisclosed third-party service or subscription.

13. SUPPLY, INSTALLATION AND COMMISSIONING

The successful bidder shall be responsible for complete delivery, installation, configuration, integration, testing and commissioning of all 40 UAV systems.

The bidder shall verify the supplied equipment against the approved technical specifications and shall configure the UAVs, remote controllers, payloads, batteries, mission software, RTMP streaming and web-based monitoring components as applicable.

The bidder shall conduct a comprehensive demonstration before the authorised representatives of Kerala Police.

The systems shall be considered commissioned only after successful completion of the prescribed functional tests and demonstration of the mandatory capabilities specified in this RFP.

The bidder shall submit an installation and commissioning report upon completion.

14. ACCEPTANCE TESTING

Final acceptance shall be based on verification of compliance with the approved technical specifications and successful demonstration of the operational capabilities of the supplied system.

The acceptance demonstration shall include, among other relevant functions, verification of UAV flight performance, endurance, EO and thermal imaging, gimbal operation, zoom capability, navigation, mission planning, communication, telemetry, recording, fail-safe functions, battery operation and other specified UAV features.

Particular emphasis shall be placed on demonstrating the following mandatory integrated functions:

RTMP live video streaming from the Drone Remote Controller to an external receiving platform/server;

web-based viewing of the live UAV video feed;

GPS-based map display of the deployed UAV; and

display of available UAV telemetry and operational status through the monitoring platform.

Failure to demonstrate any mandatory requirement may result in the system being treated as non-compliant, subject to the applicable procurement conditions.

Any equipment or component that does not conform to the accepted technical specifications shall be rectified or replaced by the successful bidder at no additional cost to Kerala Police.

15. TRAINING AND KNOWLEDGE TRANSFER

The successful bidder shall provide appropriate operational and technical familiarisation to personnel nominated by Kerala Police.

The training shall cover UAV operation, flight safety, pre-flight and post-flight procedures, mission planning, EO and thermal payload operation, autonomous flight functions, live video monitoring, RTMP streaming, web-based fleet monitoring, battery management, routine maintenance, troubleshooting and emergency/fail-safe procedures.

The bidder shall provide appropriate user manuals, technical documentation and operational guidelines.

Where necessary, the bidder shall also provide administrator-level familiarisation for personnel responsible for managing the web-based monitoring and fleet management platform.

16. WARRANTY AND AFTER-SALES SUPPORT

The complete UAV system and associated equipment supplied under this procurement shall be covered by a minimum two-year comprehensive OEM warranty.

The warranty shall cover manufacturing defects and failures occurring under normal operational use and shall include the UAV platform, remote controller, supplied payloads, batteries, chargers and other components included in the system.

The bidder shall provide technical assistance for configuration, troubleshooting, software and firmware updates, RTMP streaming and web-based monitoring during the warranty period.

The bidder shall clearly specify the warranty terms, service mechanism, escalation procedure and response time in the technical proposal.

17. ADVANCED SYSTEM ARCHITECTURE, INTEGRATION AND FUTURE ADAPTABILITY

The offered UAV systems shall be supplied with the latest available, stable and operationally supported hardware, flight control systems, onboard computing units, communication modules, sensors and associated firmware/software versions available at the time of supply and commissioning. The systems shall incorporate a modern and future-ready flight-control and onboard processing architecture with suitable provision for advanced autonomous operations, real-time sensor processing, AI/ML-based applications, computer vision, future payload integration and authorised customisation of flight-control, firmware, communication, telemetry and video transmission interfaces, wherever technically applicable.

The successful bidder shall provide the necessary technical support, relevant software development resources and documentation for authorised customisation and future adaptation of transferable and customisable components and shall provide assistance for restoring the UAV system to a safe and operational condition in the event of any malfunction arising after authorised modifications. The proposed Web-Based Video Management and Fleet Monitoring System shall form an integral part of the solution and shall support centralised integration and simultaneous monitoring of compatible UAV platforms, including live video, available telemetry and GPS-based map visualisation, with a minimum capacity to support the simultaneous integration, monitoring and live streaming of **100 drones at a time**, subject to the availability of compatible interfaces, communication links, network bandwidth and supporting infrastructure, and shall be scalable for future expansion.

The system shall also provide provision for authorised personnel at the designated Command and Control Centre to access and monitor individual UAVs and, wherever technically supported by the respective UAV platform and subject to appropriate authentication, authorisation, communication availability and operational safety controls, assume or transfer operational command and control of the selected UAV.

18. QUANTITY

The total quantity proposed for procurement under this RFP is:

40 Nos. Multi-Mission Quadrotor Surveillance UAV Systems

Each unit shall be supplied as a complete, operationally deployable system with all mandatory equipment, accessories, software and services specified in this RFP.

FINAL REQUIREMENT

The proposed UAV system shall be offered as a complete integrated surveillance solution. The RTMP live streaming capability, web-based video monitoring, GPS-based fleet visualisation and available telemetry monitoring shall form part of the operational solution and shall not be treated as optional features.

The successful bidder shall ensure that all components of the system are fully integrated, tested and operational at the time of commissioning.

Quantity: 40 Nos. Multi-Mission Quadrotor Surveillance UAV Systems.

2. RFP-2 22 NOS COASTAL SURVEILLANCE DRONES

Procurement, Supply, Installation, Commissioning And Operationalisation Of 22 Nos. Coastal Search & Rescue / Payload-Dropping Drone Systems With Integrated Eo/Thermal Surveillance, RTMP-Based Live Video Streaming And Web-Based Video & Fleet Monitoring Capability

1. INVITATION FOR PROPOSAL

Kerala Police invites proposals from eligible and technically competent Original Equipment Manufacturers (OEMs), authorised distributors/dealers and authorised system integrators for the supply, installation, testing, commissioning and operationalisation of 22 Nos. Coastal Search & Rescue / Payload-Dropping Drone Systems for strengthening the aerial search, rescue, surveillance and emergency response capabilities of Kerala Police Coastal Police units.

The proposed systems shall be suitable for deployment in coastal and maritime environments and shall provide a combination of heavy-payload carrying capability, controlled payload delivery, day and night surveillance, thermal imaging, live video transmission, flight telemetry and centralised web-based monitoring.

The UAV system shall be capable of carrying a minimum useful payload of 10 kg and shall incorporate a reliable remotely controlled payload-dropping mechanism for the controlled delivery of authorised rescue equipment and emergency supplies.

The proposed system shall also support live transmission of UAV video through RTMP (Real-Time Messaging Protocol) from the Drone Remote Controller to compatible external servers, platforms or monitoring systems over an available communication network.

The procurement shall further include a web-based Video Management and Fleet Monitoring capability through which authorised Kerala Police personnel can monitor available live video feeds, UAV locations, flight telemetry and operational status through standard web browsers.

The successful bidder shall be responsible for complete supply, integration, configuration, installation, testing, demonstration, commissioning, training and operational handover of the systems.

2. BACKGROUND AND PURPOSE

Kerala has an extensive coastline comprising coastal settlements, fishing areas, ports, harbours, maritime installations and other locations where rapid response to emergencies may be required.

In coastal search and rescue situations, conventional response assets may require considerable time to reach persons or locations in distress, particularly where the incident occurs at sea, in isolated coastal areas or in locations that are difficult to access.

The proposed heavy-payload UAV systems are intended to provide Kerala Police with a rapidly deployable aerial platform capable of reaching such locations, providing aerial situational awareness and delivering essential rescue payloads.

The system shall also support aerial surveillance during coastal security operations, disaster response, emergency assessment and other authorised police operations.

The integration of live video streaming and web-based fleet monitoring shall enable authorised personnel at operational or command locations to obtain timely aerial information and monitor the deployment of UAV assets.

3. OBJECTIVES OF THE PROCUREMENT

The primary objective of this procurement is to provide Kerala Police Coastal Police units with a reliable and rapidly deployable aerial platform capable of supporting search and rescue and emergency response operations.

The proposed system shall support:

- Coastal search and rescue operations;
- Rapid delivery of rescue equipment to persons in distress;
- Emergency supply and authorised payload delivery;
- Surveillance of persons, vessels and areas of operational interest;
- Day and night aerial surveillance;
- Thermal imaging-based search operations;
- Disaster response and emergency assessment;
- Operations involving water bodies, isolated areas and difficult terrain;
- Real-time transmission of aerial video;
- RTMP-based transmission of live video to authorised external platforms or servers;
- Centralised web-based monitoring of UAV video and available telemetry;
- GPS-based visualisation of deployed UAV locations; and
- Recording and retrieval of operational video and flight information, wherever supported by the proposed system.

4. SCOPE OF PROCUREMENT

The procurement shall comprise 22 Nos. complete Coastal Search & Rescue / Payload-Dropping Drone Systems.

Each system shall be supplied as a complete operational package, including the UAV platform, heavy-payload carrying arrangement, remotely controlled payload-dropping mechanism, EO and thermal imaging capability, Ground Control Station, flight-control and mission-planning software, communication systems, batteries, charging equipment, accessories and associated documentation.

The scope shall also include the integrated live video streaming and web-based monitoring capability required under this RFP.

The successful bidder shall be responsible for:

- Supply and delivery of complete UAV systems;
- Integration of the payload-carrying and payload-dropping mechanism;
- Integration of EO and thermal imaging payloads;
- Configuration of the Ground Control Station;
- Configuration and demonstration of RTMP live video streaming;
- Deployment/configuration of the web-based Video Management and Fleet Monitoring system;
- Integration of available UAV telemetry and GPS information;
- Installation, testing and commissioning;
- Demonstration of the complete system;
- Site Acceptance Testing;
- Training of nominated Kerala Police personnel;
- Supply of technical and operational documentation;
- Warranty and technical support; and
- Operational handover of the complete system.

All hardware, software, accessories, interfaces, cables, connectors, licences and other components necessary for the normal operation of the proposed system shall be included in the scope.

5. MINIMUM TECHNICAL REQUIREMENTS

The proposed UAV shall be a heavy-payload multirotor platform specifically suitable for coastal search and rescue, emergency response, surveillance and controlled payload delivery.

The minimum technical requirements are specified below. Bidders may offer equipment having superior specifications, provided that documentary evidence and satisfactory demonstration are furnished.

Sl. No.	Parameter	Minimum Requirement
1	UAV Type	Heavy-Payload Multirotor UAV suitable for Search & Rescue and Payload-Dropping Operations
2	Operational Role	Coastal Search & Rescue, Emergency Response, Rescue Payload Delivery, Coastal Surveillance and Disaster Response
3	Maximum Take-Off Weight	Suitable for carrying the specified payload while complying with applicable DGCA category requirements
4	Take-Off and Landing	Vertical Take-Off and Landing (VTOL)
5	Flight Endurance	Minimum 45 minutes under specified operating conditions
6	Operational Range	Minimum 5 km
7	Maximum Flight Speed	Minimum 12 m/s (43.2 km/h)
8	Wind Resistance	Minimum 15 m/s operating wind resistance
9	Payload Capacity	Minimum 10 kg useful payload
10	Payload Configuration	Modular/interchangeable payload mounting system
11	Payload Dropping System	Integrated remotely controlled payload-dropping mechanism suitable for controlled release of authorised rescue payloads
12	Payload Release Control	Controllable from the Ground Control Station
13	Payload Release Safety	Positive locking/safe-release mechanism to prevent unintended release during flight
14	Supported Rescue Payloads	Flotation/rescue aids, emergency supplies and other authorised payloads within the specified payload capacity
15	EO Camera	High-resolution electro-optical camera suitable for aerial surveillance
16	EO Resolution	Minimum 1920 × 1080 (1080p)
17	Optical/Hybrid Zoom	Minimum 10×
18	Thermal Camera	Integrated thermal imaging capability suitable for night-time search and rescue
19	Thermal Resolution	Minimum 640 × 512 pixels
20	Thermal Sensor	Uncooled LWIR thermal imaging sensor or better
21	Thermal Frame Rate	Minimum 30 Hz

22	Gimbal	Minimum 3-axis stabilised camera gimbal
23	Camera Control	Pan, tilt and zoom control through Ground Control Station
24	Target Detection	Capability to detect persons, vessels and other objects of operational interest, subject to environmental conditions
25	Communication Link	Secure digital command and control link
26	Communication Security	Encrypted communication and secure transmission
27	Live Video / RTMP	The Drone Remote Controller shall support RTMP (Real-Time Messaging Protocol) for live video streaming to compatible external platforms/servers through an available communication network
28	Video Transmission	Real-time HD video transmission to Ground Control Station
29	Telemetry	Real-time UAV position, altitude, speed, heading, battery status and available system health information
30	Ground Control Station	Rugged portable Ground Control Station with integrated display
31	GCS Display	Minimum 7-inch high-brightness display
32	Mission Planning	Graphical mission planning and waypoint navigation
33	Live Monitoring	Simultaneous monitoring of live video and essential flight telemetry
34	Payload Control	Remote control of payload-dropping mechanism and camera payloads through GCS
35	Data Recording	Onboard recording of video, images and flight logs
36	Flight Modes	Manual, assisted, autonomous/waypoint and Return-to-Home
37	Fail-Safe Features	Return-to-Home, lost-link recovery, low-battery warning/recovery and emergency landing
38	Navigation	GPS/NavIC/GLONASS or equivalent multi-GNSS navigation with IMU
39	Geo-Fencing	Configurable geo-fencing and applicable flight restriction functions
40	Obstacle Detection	Multi-directional obstacle detection/avoidance, where available and technically applicable
41	Battery	Intelligent rechargeable lithium battery system
42	Battery Provision	Minimum three flight batteries per UAV system or equivalent provision sufficient for operational deployment
43	Battery Charger	Intelligent multi-battery charging system
44	Deployment	Rapid field deployment suitable for coastal emergency

		operations
45	Environmental Capability	Suitable for outdoor coastal operations under humid, dusty and moderate adverse-weather conditions within manufacturer's specified operating limits
46	Ingress Protection	Minimum IP54 or better for UAV and critical external components, wherever applicable
47	Transportability	Portable field-deployment configuration with suitable carrying/transport cases
48	Accessories	Carrying case, spare propellers, maintenance toolkit, cables, connectors and essential field accessories
49	Payload Accessories	All mounting brackets, release mechanisms, control interfaces and accessories required for normal payload-dropping operations
50	Data Security	Secure data storage and protected access to recorded operational data
51	Regulatory Compliance	Compliance with applicable DGCA and Government of India requirements
52	Warranty	Minimum 3 years comprehensive OEM warranty
53	Technical Support	Installation, commissioning, technical assistance, maintenance support and applicable software/firmware updates

The above requirements constitute the minimum acceptable specifications. Any equipment offered with superior performance may be considered subject to technical evaluation and demonstration.

6. PAYLOAD CARRYING AND DROPPING SYSTEM

The payload carrying and dropping capability shall constitute an integral part of the proposed UAV system.

The UAV shall be capable of carrying a minimum useful payload of 10 kg while maintaining stable and controlled flight within the manufacturer's specified operating conditions.

The payload-dropping system shall provide secure attachment of the payload before take-off and controlled release during flight.

The release mechanism shall be remotely operated from the Ground Control Station and shall incorporate suitable safety arrangements to prevent accidental or unintended release.

The system shall support the controlled delivery of authorised rescue equipment, flotation devices, emergency supplies and other suitable payloads within the specified payload capacity.

The bidder shall supply all mounting brackets, release mechanisms, control interfaces, wiring, connectors and other accessories necessary for operation of the payload-dropping system.

The payload mechanism shall be tested and demonstrated during acceptance testing.

7. DAY AND NIGHT SEARCH & RESCUE SURVEILLANCE

The UAV shall provide effective day and night surveillance capability to assist operators in locating persons, vessels and other objects of operational interest.

The EO camera shall provide high-resolution daylight imagery, while the thermal imaging system shall facilitate search and observation under low-light and night-time conditions.

The camera payload shall be stabilised and controllable through the Ground Control Station. The operator shall be able to view the live camera feed while simultaneously monitoring relevant flight information.

Where supported by the proposed system, target tracking and other image-assisted functions may be provided as additional capabilities.

8. RTMP-BASED LIVE VIDEO STREAMING

The live video streaming capability shall form an integral component of the proposed UAV system.

The Drone Remote Controller shall support RTMP (Real-Time Messaging Protocol) and shall be capable of transmitting live video to a compatible external server, Video Management System or authorised monitoring platform through an available communication network.

The RTMP capability shall be operational at the time of commissioning and shall not be offered merely as a future upgrade or optional feature.

The bidder shall configure and demonstrate the complete streaming path during acceptance testing.

The bidder shall clearly specify the following in the technical proposal:

- Whether RTMP is supported natively by the Remote Controller;
- Supported video resolution and frame rate;
- Supported video codecs;
- RTMP/RTMPS capability, where supported;
- Network/connectivity requirements;
- Maximum supported simultaneous streams;
- Streaming configuration procedure; and

- Any software licence, subscription or additional infrastructure requirement.

Where an external server or platform is required for receiving the RTMP stream, the bidder shall provide the necessary technical information and integration support.

9. WEB-BASED VIDEO MANAGEMENT AND FLEET MONITORING

The proposed solution shall include a web-based Video Management and Fleet Monitoring capability for authorised Kerala Police personnel.

The platform shall be accessible through standard modern web browsers and shall not require dedicated client-side software for normal viewing and monitoring.

The platform shall provide centralised access to available UAV video feeds and operational information.

Based on the interfaces and telemetry provided by the UAV system, the platform shall support:

- Live video monitoring;
- Identification of individual UAVs;
- GPS-based UAV location;
- Interactive map-based visualisation;
- Available flight telemetry;
- UAV altitude, speed and heading;
- Battery and system status;
- Flight status;
- Historical flight information, where available;
- Recorded video retrieval, where configured;
- Operational event information; and
- Centralised monitoring of multiple deployed UAVs.

The system shall allow authorised users to monitor the geographical deployment of UAVs through an interactive map interface using available GPS coordinates.

10. VIDEO AND STREAMING COMPATIBILITY

The proposed Video Management System shall support commonly used video and streaming technologies to facilitate interoperability with the supplied UAV system.

The proposed solution shall support, as applicable to the offered architecture:

Video Codecs

- H.264/AVC;
- H.265/HEVC; and
- MJPEG.

Streaming/Viewing Protocols

- RTMP;
- RTSP;
- WebRTC;
- HTTP-FLV; and
- HLS.

The bidder shall clearly identify which protocols are supported natively and which require additional software or components.

The web interface shall be compatible with commonly used browsers including:

- Google Chrome;
- Microsoft Edge;
- Mozilla Firefox; and
- Apple Safari.

The solution shall not require obsolete browser plug-ins such as ActiveX or NPAPI for normal web-based operation.

11. FLEET MANAGEMENT AND MAP-BASED MONITORING

The proposed software shall provide appropriate facilities for monitoring the operational status and deployment of the UAV fleet.

The system shall, based on available UAV telemetry and communication interfaces, provide authorised users with information including:

- UAV identification;
- Current GPS position;
- Flight status;
- Altitude;
- Speed;
- Heading;
- Battery status;
- Communication-link status; and
- Other available operational parameters.

The geographical position of each deployed UAV shall be capable of being displayed on an interactive map.

The system shall support monitoring of multiple UAVs from a centralised interface, subject to the capacity of the proposed architecture.

The bidder shall clearly describe the telemetry interface, communication mechanism and software architecture proposed for integrating UAV telemetry with the fleet monitoring platform.

12. WEB-BASED SYSTEM ARCHITECTURE

The proposed Video Management and Fleet Monitoring software shall be designed as a web-based solution.

The system shall support centralised access through standard web browsers and shall permit authorised users to access the system according to their assigned roles and privileges.

The proposed architecture shall support appropriate separation between UAV operations, video ingestion, video management, telemetry processing and user access, wherever applicable to the proposed solution.

The bidder shall provide a system architecture diagram along with the technical bid showing the flow of:

UAV → Remote Controller → Communication Network → RTMP/Video Ingestion → Video Management System → Web Browser/Authorised User

13. DATA SECURITY, ACCESS CONTROL AND AUDIT

The proposed solution shall incorporate appropriate security controls for protection of UAV video, telemetry, operational data and user access.

The system shall provide:

- User authentication;
- Role-based access control;
- Secure communication;
- Appropriate encryption of transmitted information;
- Secure storage of recorded information;
- Audit logging;
- User activity logging;
- System event logging; and
- Controlled access to recorded video and operational data.

The proposed cybersecurity architecture shall comply with applicable Government of India requirements and prevailing CERT-In guidelines/directions, as applicable to the deployment.

The bidder shall submit details of the proposed security architecture, authentication mechanism, access-control arrangements, encryption and audit capabilities.

14. DATA RECORDING, STORAGE AND REPORTING

The UAV system shall support onboard recording of video, images and flight logs.

Where a central Video Management System is provided, the solution shall support recording, playback and retrieval of live video feeds subject to the storage infrastructure and configuration.

The system shall provide appropriate facilities for reviewing available historical flight information and operational events.

Where supported, the system shall provide reporting and export facilities for operational data in commonly usable formats, including Excel-compatible formats.

The bidder shall clearly specify:

- Storage requirements;
- Recording architecture;
- Retention capability;
- Video retrieval mechanism;
- Flight-log storage;
- Data export capability; and
- Any licence or infrastructure requirements.

15. CLOUD AND EXTERNAL PLATFORM INTEGRATION

The proposed solution shall support integration with compatible external servers, authorised monitoring platforms or cloud storage infrastructure where such infrastructure is provided or designated by Kerala Police.

The bidder shall specify the available integration mechanisms and shall provide the technical information and assistance required for integration.

Any third-party cloud service, subscription, licence or recurring expenditure required for operation of the proposed system shall be functional with the full system of drones commissioned for the warranty period covered for all the drones. The charges of the cloud after the warranty period will be specifically mentioned in the financial and technical proposal.

16. GROUND CONTROL STATION

The Ground Control Station shall provide integrated control of the UAV, surveillance payload and payload-dropping mechanism.

The GCS shall provide, at a minimum:

- Live EO and thermal video display;
- UAV position and flight trajectory;
- Altitude, speed and heading;
- Battery status;
- Communication-link status;
- Mission planning;
- Waypoint navigation;
- Camera pan, tilt and zoom control;
- Payload-dropping control;
- Flight-log recording;
- Return-to-Home control;
- Emergency/fail-safe controls; and
- Available UAV health information.

The Ground Control Station shall be rugged and portable and shall be suitable for field deployment by Coastal Police personnel.

17. INSTALLATION, INTEGRATION AND COMMISSIONING

The successful bidder shall be responsible for complete installation, integration, configuration, testing and commissioning of all 22 UAV systems.

The bidder shall configure the UAVs, Ground Control Stations, surveillance payloads, payload-dropping systems, batteries, mission software, RTMP streaming and web-based Video Management/Fleet Monitoring system.

The bidder shall demonstrate the complete operational chain before authorised representatives of Kerala Police.

The systems shall be considered commissioned only after successful completion of the prescribed acceptance tests and demonstration of the mandatory functions.

The bidder shall submit a consolidated installation and commissioning report upon completion.

18. ACCEPTANCE TESTING

Final acceptance shall be based on verification of compliance with the approved technical specifications and successful demonstration of the integrated operational capabilities.

The acceptance demonstration shall include, as applicable:

- UAV flight performance;
- Minimum payload carrying capability;
- Payload secure attachment;
- Controlled payload release;
- Flight endurance;
- Operational range;
- Day camera performance;
- Thermal camera performance;
- Gimbal operation;
- Live video transmission;
- RTMP live video streaming;
- Ground Control Station functions;
- UAV telemetry;
- GPS position information;
- Map-based UAV visualisation;
- Mission planning;
- Data recording;
- Return-to-Home;
- Lost-link recovery;
- Low-battery functions;
- Web-based Video Management System; and
- Fleet monitoring capability.

Particular emphasis shall be placed on demonstrating the complete integrated operational chain:

UAV → Payload/Camera → Remote Controller → Communication Network → RTMP/Video Management System → Web-Based Monitoring Interface

Any component or functionality that does not conform to the approved specification shall be rectified or replaced by the successful bidder at no additional cost to Kerala Police.

19. TRAINING AND KNOWLEDGE TRANSFER

The successful bidder shall provide operational and technical training to personnel nominated by Kerala Police.

The training shall cover:

- UAV system familiarisation;
- Safe operation of heavy-payload UAVs;
- Ground Control Station operation;
- Manual, assisted and waypoint flight;

- Search and rescue mission planning;
- EO and thermal camera operation;
- Payload loading and securing;
- Payload-dropping mechanism operation;
- RTMP live streaming;
- Web-based Video Management System;
- GPS and map-based fleet monitoring;
- Battery handling and management;
- Preventive maintenance;
- Basic troubleshooting;
- Emergency procedures; and
- Fail-safe operations.

The bidder shall provide appropriate training materials, manuals and technical documentation.

20. WARRANTY AND TECHNICAL SUPPORT

The successful bidder shall provide a minimum three-year comprehensive OEM warranty for the complete UAV system.

The warranty shall cover the UAV platform, Ground Control Station, EO and thermal payloads, payload-dropping mechanism, batteries subject to applicable OEM warranty conditions, charging equipment and other components supplied as part of the system.

The bidder shall provide:

- Installation and commissioning support;
- Preventive and corrective maintenance;
- Repair or replacement of defective components;
- Software and firmware updates, wherever applicable;
- RTMP configuration and troubleshooting support;
- Web-based monitoring system support;
- Technical troubleshooting;
- Genuine spare parts; and
- On-site technical assistance wherever required.

The bidder shall clearly state the warranty conditions, service mechanism, escalation procedure and applicable response time.

21. ADVANCED SYSTEM ARCHITECTURE, INTEGRATION AND FUTURE ADAPTABILITY

The offered UAV systems shall be supplied with the latest available, stable and operationally supported hardware, flight control systems, onboard computing units, communication modules, sensors and associated firmware/software versions available at the time of supply and commissioning. The systems shall incorporate a modern and future-ready flight-control and onboard processing architecture with suitable provision for advanced autonomous operations, real-time sensor processing, AI/ML-based applications, computer vision, future payload integration and authorised customisation of flight-control, firmware, communication, telemetry and video transmission interfaces, wherever technically applicable.

The successful bidder shall provide the necessary technical support, relevant software development resources and documentation for authorised customisation and future adaptation of transferable and customisable components and shall provide assistance for restoring the UAV system to a safe and operational condition in the event of any malfunction arising after authorised modifications. The proposed Web-Based Video Management and Fleet Monitoring System shall form an integral part of the solution and shall support centralised integration and simultaneous monitoring of compatible UAV platforms, including live video, available telemetry and GPS-based map visualisation, with a minimum capacity to support the simultaneous integration, monitoring and live streaming of **100 drones at a time**, subject to the availability of compatible interfaces, communication links, network bandwidth and supporting infrastructure, and shall be scalable for future expansion.

The system shall also provide provision for authorised personnel at the designated Command and Control Centre to access and monitor individual UAVs and, wherever technically supported by the respective UAV platform and subject to appropriate authentication, authorisation, communication availability and operational safety controls, assume or transfer operational command and control of the selected UAV.

22. QUANTITY

The total quantity proposed under this procurement is: **22 Nos. Coastal Search & Rescue / Payload-Dropping Drone Systems**

Each system shall be supplied as a complete and operationally deployable package incorporating the required heavy-payload capability, rescue payload-dropping mechanism, EO/thermal surveillance, Ground Control Station, RTMP live video streaming and web-based Video Management and Fleet Monitoring capability.

INTEGRATED SYSTEM REQUIREMENT

The proposed procurement shall be treated as an integrated Coastal Search & Rescue UAV solution rather than merely a procurement of individual UAV hardware.

The successful bidder shall ensure integration of the heavy-payload UAV, rescue payload-dropping mechanism, EO/thermal surveillance payloads, Ground Control Station, RTMP live video streaming, telemetry interface and web-based Video Management/Fleet Monitoring system into a functional operational solution.

The complete system shall be demonstrated during commissioning, including the transmission of live UAV video through RTMP, reception and display through the web-based monitoring platform, GPS-based map visualisation of the deployed UAV and display of available flight telemetry.

Total Quantity: 22 Nos. Coastal Search & Rescue / Payload-Dropping Drone Systems.

3. RFP-3 06 Nos. LONG-RANGE STRATEGIC SURVEILLANCE DRONES

Procurement, Supply, Installation, Commissioning and Operationalisation of 06 Nos. Long-Endurance Fixed-Wing VTOL Surveillance UAV Systems with Integrated EO/IR Surveillance, RTMP-Based Live Video Streaming and Web-Based Video Management and Fleet Monitoring Capability for Coastal Security

1. INTRODUCTION

Kerala Police invites proposals from eligible and qualified Original Equipment Manufacturers (OEMs), authorised distributors, authorised dealers, system integrators or other authorised entities for the supply, installation, testing, commissioning and operationalisation of Six (06) Long-Endurance Fixed-Wing Vertical Take-Off and Landing (VTOL) Surveillance UAV Systems for strengthening the aerial surveillance and operational capabilities of Kerala Police.

The proposed UAV systems are intended primarily for long-duration coastal and maritime surveillance, intelligence, surveillance and reconnaissance (ISR), law-enforcement operations, disaster response, monitoring of critical coastal areas and other authorised operational requirements.

The proposed UAV shall combine the advantages of fixed-wing flight with Vertical Take-Off and Landing capability, thereby enabling extended-duration aerial operations without requiring a conventional runway. The system shall be capable of autonomous as well as manual operations and shall incorporate suitable electro-optical and thermal imaging payloads for day and night surveillance.

In addition to the individual UAV operational capabilities, the offered system shall support live video streaming through RTMP (Real-Time Messaging Protocol) from the Drone Remote Controller/Ground Control Station to compatible external servers or platforms over an available communication network.

The solution shall also include or support a web-based Video Management and Fleet Monitoring platform for authorised users, enabling centralised monitoring of live UAV video feeds, UAV locations, available telemetry, operational status and other relevant mission information.

The successful bidder shall be responsible for the complete supply, configuration, installation, integration, testing, demonstration, commissioning and operationalisation of the systems.

2. OBJECTIVES

The primary objective of the procurement is to establish a long-endurance aerial surveillance capability for Kerala Police to undertake extended coastal and maritime surveillance missions and provide real-time aerial situational awareness to operational and supervisory authorities.

The proposed UAV systems shall facilitate:

- Long-duration coastal and maritime surveillance.
- Intelligence, surveillance and reconnaissance operations.
- Monitoring of coastal installations and areas of operational importance.
- Surveillance of vessels and other objects of interest.
- Day and night aerial surveillance using EO and thermal imaging.
- Disaster response and emergency surveillance.
- Law-enforcement and security operations.
- Autonomous waypoint-based surveillance missions.
- Real-time transmission of aerial video to authorised monitoring locations.
- RTMP-based live video streaming to compatible external platforms or servers.
- GPS-based monitoring and map-based visualisation of UAV deployment.
- Real-time monitoring of available UAV telemetry and health information.
- Centralised monitoring of multiple UAV operations through a web-based platform.
- Secure recording, storage and retrieval of operational video and flight data, wherever configured.

3. SCOPE OF WORK

The scope of this RFP shall include the supply, installation, integration, testing, commissioning and operationalisation of Six (06) complete Long-Endurance Fixed-Wing VTOL Surveillance UAV Systems.

The successful bidder shall be responsible for:

3.1 Supply of Complete UAV Systems

Supply of complete fixed-wing VTOL UAV systems including the UAV platform, EO and thermal surveillance payloads, Ground Control Station, batteries, charging equipment, mission software and all accessories necessary for operational deployment.

3.2 Surveillance Payloads

The UAV shall be equipped with suitable electro-optical and thermal imaging capabilities for day and night surveillance.

The surveillance payload shall provide live video transmission to the Ground Control Station and support recording of video and images for operational and evidentiary purposes.

3.3 RTMP-Based Live Video Streaming

The offered Drone Remote Controller/Ground Control Station shall support RTMP (Real-Time Messaging Protocol) for transmission of live UAV video to compatible external servers, platforms or monitoring systems through an available communication network.

The bidder shall configure and demonstrate the RTMP live-streaming capability during installation and commissioning.

3.4 Web-Based Video Management and Fleet Monitoring

The offered solution shall provide or support a fully web-based Video Management and Fleet Monitoring platform for authorised users.

The platform shall enable centralised monitoring of the UAV fleet and shall provide, based on the information available from the UAV system:

- Live UAV video feeds.
- GPS location of deployed UAVs.
- Map-based visualisation of UAV locations.
- Available altitude, speed, heading and other telemetry.
- UAV identification and operational status.
- Flight and mission information.
- Historical flight information and logs, where available.
- Recording and retrieval of video, where configured.
- Role-based user access and administrative controls.

The web-based platform shall be accessible through standard web browsers without requiring dedicated client software for normal operation.

3.5 Installation and Commissioning

The successful bidder shall undertake complete:

- Delivery and physical verification.
- Installation and configuration.
- Integration of UAV and surveillance payloads.
- Ground Control Station configuration.
- Mission software configuration.
- RTMP streaming configuration.
- Web-based monitoring platform configuration.
- Functional testing.
- Demonstration.
- Acceptance testing.
- Commissioning and operational handover.

3.6 Training

The bidder shall provide operational and maintenance training to designated Kerala Police personnel covering UAV operation, VTOL and fixed-wing flight operations, mission planning, EO/thermal payload operation, RTMP streaming, web-based monitoring, fleet management, battery management, safety procedures and basic maintenance.

3.7 Warranty and Technical Support

The bidder shall provide comprehensive OEM warranty, software/firmware updates and technical support as specified in this RFP.

4. MINIMUM TECHNICAL SPECIFICATIONS

The offered UAV system shall meet or exceed the following minimum technical requirements:

Sl. No.	Parameter	Minimum Specification
1	UAV Type	Hybrid Fixed-Wing Vertical Take-Off and Landing (VTOL) UAV suitable for long-endurance surveillance
2	Operational Role	Coastal Security, Maritime Surveillance, ISR, Disaster Response, Law Enforcement and Surveillance
3	Take-Off and Landing	Fully autonomous Vertical Take-Off and Landing capability
4	Flight Endurance	Minimum 120 minutes under specified operating conditions
5	Operational Radius	Minimum 20 km
6	Communication Range	Minimum 20 km, subject to applicable regulatory and operational limitations
7	Cruise Speed	Minimum 70 km/h

8	Maximum Flight Speed	Minimum 90 km/h
9	Wind Resistance	Minimum 12 m/s
10	Service Ceiling	Minimum 3,000 m AMSL
11	Operating Temperature	-10°C to +50°C or better
12	Navigation	GPS/NavIC/GLONASS or equivalent multi-GNSS with INS/IMU
13	Flight Modes	Manual, Assisted, Autonomous, Waypoint Navigation and Return-to-Home
14	Mission Planning	Graphical mission planning with waypoint and autonomous flight capability
15	Mission Resume	Automatic mission resume after communication-link recovery
16	Deployment	Ready for flight within 10 minutes, subject to site conditions
17	Payload Capacity	Minimum 700 g
18	Payload Configuration	Modular/quick-swap payload architecture
19	Supported Payloads	EO Camera, Thermal Camera, Mapping Camera and compatible mission payloads
20	EO Camera	Minimum 4K imaging capability
21	Video Recording	Minimum 4K onboard recording
22	Live Video	Minimum 1080p Full HD live video transmission
23	Optical Zoom	Minimum 30× optical/hybrid zoom
24	Digital Zoom	Minimum 10× digital zoom
25	Thermal Camera	Integrated thermal imaging capability
26	Thermal Resolution	Minimum 640 × 512 pixels
27	Thermal Sensor	Uncooled LWIR or better
28	Thermal Frame Rate	Minimum 30 Hz
29	Gimbal	3-axis stabilised EO/IR gimbal
30	Target Tracking	AI-assisted visual target tracking, where supported by the offered system
31	Communication Link	Secure digital command and control link
32	Communication Security	Encrypted command, control and data transmission
33	RTMP Live Streaming	The Drone Remote Controller/Ground Control Station shall support RTMP (Real-Time Messaging Protocol) and live video streaming to compatible external platforms/servers through the available communication

		network.
34	Telemetry	Real-time GPS position, altitude, heading, speed/airspeed, battery status and flight/system status
35	Ground Control Station	Portable rugged Ground Control Station with integrated display
36	GCS Display	Minimum 7-inch Full HD sunlight-readable display
37	Mission Software	Mission planning, live monitoring, flight logging, payload control and mission replay
38	Controller Battery Backup	Minimum 4 hours
39	Data Recording	Flight logs, images and video recording
40	Fail-Safe	Return-to-Home, lost-link recovery, emergency landing and low-battery recovery
41	Geo-Fencing	Configurable geo-fencing and applicable flight-restriction functions
42	Obstacle Detection	Obstacle detection/avoidance, where technically applicable
43	Battery	Intelligent high-energy rechargeable lithium battery system
44	Battery Provision	Minimum 3 flight batteries per UAV system
45	Charger	Intelligent multi-battery charging system
46	Transportability	Portable/field-deployable configuration
47	Environmental Capability	Suitable for coastal day/night operations within OEM operating limits
48	Data Security	Secure storage and authenticated access to recorded operational data
49	Compliance	Applicable DGCA and Government of India requirements
50	Warranty	Minimum 3 years comprehensive OEM warranty
51	Technical Support	Installation, commissioning, software/firmware updates and technical assistance during warranty

The above specifications shall constitute the minimum technical requirements. Equivalent or superior specifications may be accepted, subject to technical evaluation and approval by Kerala Police.

5. RTMP-BASED LIVE VIDEO STREAMING REQUIREMENTS

The RTMP capability shall form an integral and mandatory requirement of the proposed UAV system.

The Drone Remote Controller/Ground Control Station shall be capable of transmitting the live video feed generated by the UAV surveillance payload to a compatible external RTMP server or platform through an available communication network.

The system shall support, as applicable:

- RTMP live video streaming.
- Configurable RTMP server/streaming URL.
- Stream key or equivalent authentication mechanism, where supported.
- Selection of appropriate video resolution and bitrate.
- Continuous live streaming during UAV operations subject to network availability.
- Simultaneous monitoring of the video on the Ground Control Station, wherever supported.
- Reconnection or stream recovery following temporary network interruption, wherever supported.

The bidder shall clearly specify the RTMP implementation, supported video formats/codecs, maximum supported streaming resolution, bitrate, network requirements and any limitations.

The RTMP streaming functionality shall be demonstrated during acceptance testing.

6. WEB-BASED VIDEO MANAGEMENT AND FLEET MONITORING SOFTWARE

The proposed Video Management and Fleet Monitoring Software shall be fully web-based and accessible through standard web browsers without requiring dedicated client software.

The system shall provide centralised access to authorised users for monitoring the UAV fleet and associated live video streams.

The solution shall support, as applicable:

- RTMP live video ingestion.
- Live video monitoring through a web browser.
- Multiple simultaneous UAV video feeds, subject to server and network capacity.
- GPS-based UAV location display.
- Interactive map-based UAV tracking.
- UAV identification and status display.
- Real-time or near-real-time telemetry display.
- Flight status and mission information.
- Historical flight information.
- Video recording and playback, where configured.
- Operational event and system logs.
- User authentication.
- Role-based access control.
- Administrative controls.
- Audit logging.

The system shall be designed to allow authorised supervisory personnel to monitor deployed UAVs from a central location without requiring them to operate the individual Ground Control Station.

7. VIDEO MANAGEMENT AND STREAMING COMPATIBILITY

The proposed software shall support commonly used video and streaming standards necessary for integration with the offered UAV system.

The solution shall support, as applicable:

Video Codecs:

- H.264 / AVC.
- H.265 / HEVC.
- MJPEG, where supported.

Streaming Protocols:

- RTMP.
- RTSP.
- WebRTC for browser-based low-latency viewing, where supported.
- HLS.
- HTTP-FLV, where supported.

The bidder shall clearly identify which codecs and protocols are natively supported by the proposed UAV, Ground Control Station and web-based monitoring platform.

The proposed web interface shall be compatible with commonly used modern browsers, including:

- Google Chrome.
- Microsoft Edge.
- Mozilla Firefox.
- Apple Safari.

The solution shall not require ActiveX, NPAPI plug-ins or specialised browser extensions for normal web-based access.

8. FLEET MANAGEMENT AND MAP-BASED MONITORING

The proposed software shall provide centralised monitoring of the UAV fleet based on available communication and telemetry interfaces.

The system shall provide, as applicable:

- GPS coordinates of deployed UAVs.
- Interactive map-based visualisation.
- Real-time or near-real-time UAV location updates.
- UAV identification.
- Flight status.
- Altitude.
- Speed.
- Heading.
- Battery status.
- Communication-link status.
- Mission status.
- Flight path/trajectory, where available.
- Historical flight information and logs.
- Centralised monitoring of multiple UAV deployments.

The platform shall enable authorised users to identify and monitor the operational deployment of the UAV fleet through a suitable map interface.

9. DATA SECURITY, USER ACCESS AND AUDIT

The proposed system shall incorporate appropriate security mechanisms for protection of operational video, telemetry and other mission-related information.

The system shall support:

- Secure user authentication.
- Role-based access control.
- Secure communication.
- Encryption of sensitive data.
- Secure storage of recorded information.
- User activity logging.
- System event logging.
- Audit trails.
- Controlled access to recorded video and operational data.

The proposed cybersecurity architecture shall comply with applicable Government of India requirements and CERT-In directions/guidelines, as applicable.

The bidder shall provide details of the proposed cybersecurity architecture and security controls.

10. DATA RECORDING, REPORTING AND EXPORT

The proposed system shall provide appropriate facilities for recording and retrieval of operational information.

The solution shall support, as applicable:

- Flight-log recording.
- UAV telemetry recording.
- Video recording.
- Image recording.
- Timeline-based review.
- Historical mission review.
- Operational event logs.
- User activity logs.
- Export of relevant reports in commonly usable formats.
- Retrieval of recorded video and associated mission information.

Where supported, reports shall be exportable in formats such as Excel (.xlsx), CSV or PDF.

11. CLOUD AND EXTERNAL SERVER INTEGRATION

The proposed solution shall support integration with compatible external servers or cloud infrastructure for live video streaming, recording, archival and retrieval, wherever such infrastructure is provided or configured by Kerala Police.

The bidder shall clearly specify:

- Server requirements.
- Network bandwidth requirements.
- Streaming requirements.
- Storage requirements.
- Cloud integration method.
- API/integration capability, where available.
- Licensing requirements, if any.
- Any recurring subscription or service requirements.

No mandatory dependence on a proprietary cloud platform shall be imposed without clearly specifying the associated technical and financial implications.

Any third-party cloud service, subscription, licence or recurring expenditure required for operation of the proposed system shall be functional with the full system of drones commissioned for the warranty period covered for all the drones. The charges of the cloud after the warranty period will be specifically mentioned in the financial and technical proposal.

12. SYSTEM CONFIGURATION

The bidder shall supply Six (06) complete and operational Long-Endurance Fixed-Wing VTOL Surveillance UAV Systems.

Each system shall include, at a minimum:

- One Long-Endurance Fixed-Wing VTOL UAV.
- EO surveillance payload.
- Thermal imaging payload.
- Modular/quick-swap payload architecture.
- Portable rugged Ground Control Station.
- Mission planning and flight-control software.
- RTMP-capable live video streaming functionality.
- Access to the proposed web-based Video Management and Fleet Monitoring platform.
- Minimum three intelligent flight batteries.
- Multi-battery smart charging system.
- Rugged carrying/transport case or field deployment system.
- Spare propeller sets.
- Maintenance toolkit.
- Essential field accessories.
- User, technical and maintenance manuals.
- Warranty documentation.

The complete system shall be supplied as an integrated operational package suitable for immediate field deployment.

13. INSTALLATION, INTEGRATION AND COMMISSIONING

The successful bidder shall be responsible for complete installation, configuration, integration, testing and commissioning of all six UAV systems.

The work shall include:

- Physical verification of supplied equipment.
- UAV configuration.
- Payload installation and configuration.
- Ground Control Station configuration.
- Mission software installation/configuration.
- RTMP streaming configuration.
- Web-based monitoring platform configuration.
- Integration with designated external server/network infrastructure, where applicable.
- GPS and map-monitoring configuration.
- Functional testing.
- Demonstration to designated Kerala Police personnel.

- Acceptance testing.
- Operational handover.

The bidder shall submit an installation and commissioning report upon completion.

14. TESTING AND ACCEPTANCE

The supplied UAV systems shall be subjected to technical and functional acceptance testing before final acceptance.

The acceptance process shall include verification and demonstration of:

- UAV configuration.
- VTOL operation.
- Fixed-wing flight operation.
- Flight endurance.
- Operational radius.
- Communication range.
- EO camera functionality.
- Thermal camera functionality.
- Optical and digital zoom.
- Gimbal operation.
- Live HD video transmission.
- RTMP live video streaming from the Drone Remote Controller/Ground Control Station.
- Web-based live video monitoring.
- GPS-based UAV tracking.
- Map-based fleet visualisation.
- Real-time telemetry.
- Mission planning.
- Autonomous waypoint operation.
- Mission resume after link recovery, where applicable.
- Flight-log recording.
- Video and image recording.
- Return-to-Home.
- Lost-link recovery.
- Low-battery safety functions.
- Battery and charging system.
- Web-based Video Management and Fleet Monitoring functions.

The bidder shall demonstrate compliance with the prescribed specifications using the actual equipment proposed for supply.

Any component or functionality that does not meet the required specification may be required to be rectified, replaced or upgraded by the bidder at no additional cost to Kerala Police.

15. TRAINING

The successful bidder shall provide operational and maintenance training to designated Kerala Police personnel.

The training shall cover:

- UAV system familiarisation.
- VTOL and fixed-wing flight operations.
- Ground Control Station operation.
- Mission planning.
- Waypoint and autonomous missions.
- EO camera operation.
- Thermal camera operation.
- Target observation and tracking.
- Live video monitoring.
- RTMP live streaming configuration and operation.
- Web-based Video Management System.
- Fleet monitoring and map-based UAV tracking.
- Telemetry monitoring.
- Flight-log and mission-data management.
- Emergency and fail-safe procedures.
- Battery handling and management.
- Preventive maintenance.
- Basic troubleshooting.
- Field deployment procedures.

Training completion certificates and relevant operational documentation shall be provided.

16. WARRANTY AND TECHNICAL SUPPORT

The bidder shall provide a minimum three-year comprehensive OEM warranty for the complete UAV system.

The warranty shall cover the UAV platform, surveillance payloads, Ground Control Station, supplied batteries subject to OEM warranty conditions, charging equipment, supplied software and other components supplied under this procurement.

During the warranty period, the bidder shall provide:

- Installation and commissioning support.

- Preventive and corrective maintenance support.
- Repair or replacement of defective components.
- Software and firmware updates, wherever applicable.
- RTMP streaming support.
- Web-based monitoring software support.
- Technical troubleshooting.
- Genuine spare parts.
- On-site technical assistance wherever required.

17. DELIVERABLES

The successful bidder shall deliver, install, commission and operationalise Six (06) complete Long-Endurance Fixed-Wing VTOL Surveillance UAV Systems, together with all associated equipment, software and services necessary for operational deployment.

The deliverables shall include:

Sl. No.	Deliverable	Quantity
1	Long-Endurance Fixed-Wing VTOL Surveillance UAV System	06 Nos.
2	EO Surveillance Payload	06 Sets
3	Thermal Imaging Payload	06 Sets
4	Portable Rugged Ground Control Station	06 Nos.
5	Mission Planning and Flight-Control Software	06 Sets/Licences or as applicable
6	RTMP Live Streaming Capability	Integrated with each system
7	Web-Based Video Management and Fleet Monitoring Software	As required for complete system operation
8	Intelligent Flight Batteries	Minimum 18 Nos.
9	Multi-Battery Smart Charging System	06 Nos.
10	Rugged Carrying/Field Deployment Case	06 Sets
11	Spare Propeller Sets	06 Sets
12	Maintenance Toolkit	06 Sets
13	Essential Field Accessories	06 Sets
14	User/Technical/Maintenance Manuals	06 Sets
15	Warranty Documentation	06 Sets
16	Training and Demonstration	As required
17	Installation, Acceptance Testing and Commissioning Report	1 Consolidated Report

18. ADVANCED SYSTEM ARCHITECTURE, INTEGRATION AND FUTURE ADAPTABILITY

The offered UAV systems shall be supplied with the latest available, stable and operationally supported hardware, flight control systems, onboard computing units, communication modules, sensors and associated firmware/software versions available at the time of supply and commissioning. The systems shall incorporate a modern and future-ready flight-control and onboard processing architecture with suitable provision for advanced autonomous operations, real-time sensor processing, AI/ML-based applications, computer vision, future payload integration and authorised customisation of flight-control, firmware, communication, telemetry and video transmission interfaces, wherever technically applicable.

The successful bidder shall provide the necessary technical support, relevant software development resources and documentation for authorised customisation and future adaptation of transferable and customisable components and shall provide assistance for restoring the UAV system to a safe and operational condition in the event of any malfunction arising after authorised modifications. The proposed Web-Based Video Management and Fleet Monitoring System shall form an integral part of the solution and shall support centralised integration and simultaneous monitoring of compatible UAV platforms, including live video, available telemetry and GPS-based map visualisation, with a minimum capacity to support the simultaneous integration, monitoring and live streaming of **100 drones at a time**, subject to the availability of compatible interfaces, communication links, network bandwidth and supporting infrastructure, and shall be scalable for future expansion.

The system shall also provide provision for authorised personnel at the designated Command and Control Centre to access and monitor individual UAVs and, wherever technically supported by the respective UAV platform and subject to appropriate authentication, authorisation, communication availability and operational safety controls, assume or transfer operational command and control of the selected UAV.

19. QUANTITY

The total quantity proposed under this RFP shall be:

Long-Endurance Fixed-Wing VTOL Surveillance UAV System – 06 Nos.

The systems are intended for deployment by Kerala Police for extended coastal and maritime surveillance, aerial reconnaissance, situational awareness, monitoring of critical coastal areas, disaster response, law-enforcement operations and other authorised security and surveillance requirements.

4. RFP-4- 5 Nos. COASTAL SURVEILLANCE UAV SYSTEMS-

Procurement of 5 Nos. GCS-Enabled Live Monitoring Drone Pilot Training Drones

1. INTRODUCTION

Kerala Police proposes to procure Five (05) GCS-Enabled Live Monitoring Drone Pilot Training Drones for use in structured drone pilot training, operational familiarisation and practical flight training of police personnel. The systems shall provide a reliable training platform with a dedicated Ground Control Station (GCS), live video monitoring, flight telemetry, mission planning and essential safety features.

The proposed systems shall be suitable for repeated training use and shall enable trainees to develop practical skills in manual, assisted and autonomous flight operations, mission planning, live surveillance monitoring, payload operation and emergency procedures.

2. OBJECTIVES

The procurement is intended to establish dedicated training assets for Kerala Police personnel and shall:

- Facilitate practical drone pilot training and operational familiarisation.
- Provide live video and flight telemetry through a Ground Control Station.
- Support manual, assisted and autonomous flight training.
- Enable mission planning and waypoint-based flight exercises.
- Provide training on day/night surveillance and camera operations.
- Facilitate training in emergency, fail-safe and Return-to-Home procedures.
- Support repeated field training with a portable and robust system.

3. SCOPE OF WORK

The successful bidder shall be responsible for the supply, installation, commissioning, testing, demonstration and operationalisation of Five (05) complete GCS-Enabled Live Monitoring Drone Training Systems.

The scope shall include:

- Supply of 5 Nos. training UAVs.
- Supply of 5 Nos. dedicated Ground Control Stations (GCS) with integrated displays.
- Supply of integrated live-monitoring camera/payload system.
- Supply of flight batteries and intelligent chargers.
- Supply of mission planning and flight-control software.
- Supply of carrying cases and essential operational accessories.

- Installation, configuration and commissioning.
- Demonstration and acceptance testing.
- Basic operator, maintenance and system familiarisation training.
- Supply of user, technical and maintenance manuals.
- Warranty and technical support during the warranty period.

4. TECHNICAL SPECIFICATIONS

The offered system shall meet or exceed the following minimum requirements. The specifications are intended to ensure suitability for police drone pilot training and repeated operational use.

Sl. No.	Parameter	Minimum Specification
1	UAV Type	Multi-Rotor Training UAV
2	Operational Role	Drone Pilot Training, Surveillance Training and Operational Familiarisation
3	UAV Category	DGCA Small Category compliant / applicable DGCA category
4	Take-off & Landing	Vertical Take-Off and Landing (VTOL)
5	Flight Modes	Manual, Assisted, Autonomous, Waypoint Navigation and Return-to-Home
6	Flight Endurance	Minimum 30 Minutes with standard payload
7	Operational Range	Minimum 5 km
8	Maximum Flight Speed	Minimum 40 km/h
9	Wind Resistance	Minimum 10 m/s
10	Navigation	GPS / NavIC / GLONASS or equivalent Multi-GNSS
11	Mission Planning	Graphical Mission Planning with Waypoint-based Autonomous Flight
12	Deployment	Ready for Flight within 10 Minutes
13	Camera	Integrated Daylight Camera suitable for live monitoring and training
14	Video Resolution	Minimum 1080p Full HD
15	Live Video Transmission	Real-time HD video transmission to GCS
16	Gimbal	Stabilized Camera Gimbal
17	Camera Control	Pan/Tilt/Zoom control, wherever supported by the offered payload
18	Ground Control Station	Dedicated Portable GCS with Integrated Display
19	GCS Display	Minimum 7-inch high-brightness display

20	Live Monitoring	Simultaneous live video and flight information display
21	Telemetry	Real-time GPS position, altitude, speed, heading, battery and flight status
22	Mission Software	Mission Planning, Live Monitoring, Flight Logging and Flight Control
23	Flight Log	Automatic recording of flight telemetry and mission data
24	Data Recording	Onboard image/video recording
25	Communication Link	Secure Digital Command and Control Link
26	Fail-safe Features	Return-to-Home, Lost Link Recovery, Low Battery Warning/Recovery and Emergency Landing
27	Geo-fencing	Configurable Geo-fencing / applicable airspace safety features
28	Obstacle Awareness	Obstacle Detection/Avoidance, where available in the offered system
29	Battery	Intelligent Rechargeable Lithium Battery
30	Battery Configuration	Minimum Three (03) Flight Batteries per UAV system
31	Battery Charger	Intelligent / Multi-Battery Charging System
32	Data Security	Secure Data Storage and User Authentication
33	Environmental Capability	Suitable for outdoor training operations within OEM operating limits
34	Transportability	Portable Field Deployment Configuration
35	Accessories	Carrying Case, Spare Propellers, Toolkit, Cables and Essential Accessories
36	Compliance	DGCA Type Certified, where applicable, and compliant with applicable Indian regulations
37	Warranty	Minimum Three (03) Years Comprehensive OEM Warranty
38	Technical Support	Installation, Commissioning, Software Updates and Technical Assistance

5. GROUND CONTROL STATION AND LIVE MONITORING REQUIREMENTS

The Ground Control Station shall form an integral part of each training system and shall enable the instructor and trainee to monitor and control the UAV during practical training exercises.

The GCS shall provide, at minimum:

- Real-time live video from the UAV.
- UAV position and movement on a digital map.

- Altitude, speed, heading and distance information.
- Battery status and communication-link status.
- Flight mode indication.
- Waypoint and mission planning.
- Camera/payload control.
- Flight recording and telemetry logging.
- Return-to-Home and other safety controls.
- Playback/review of recorded flight data, wherever supported.

The GCS shall be portable and suitable for use during classroom demonstrations as well as outdoor practical flight training.

6. SYSTEM CONFIGURATION

Each of the Five (05) UAV Training Systems shall be supplied as a complete operational package consisting of:

- One (01) Training UAV.
- One (01) Ground Control Station with integrated display.
- One (01) Integrated surveillance camera/payload.
- Minimum Three (03) intelligent flight batteries.
- One (01) intelligent battery charging system.
- Mission planning and flight-control software.
- One (01) rugged carrying case.
- Essential cables and connectors.
- Spare propeller set.
- Maintenance toolkit.
- User and maintenance manuals.
- Warranty documentation.

The complete system shall be ready for immediate training deployment without requiring additional components for normal operation.

7. TRAINING AND DEMONSTRATION

The successful bidder shall provide system familiarisation and demonstration to the nominated Kerala Police personnel. The training shall cover:

- UAV system operation and controls.
- GCS operation and live monitoring.
- Pre-flight and post-flight procedures.

- Manual and assisted flight operations.
- Mission planning and waypoint operations.
- Live camera operation and recording.
- Battery handling and charging.
- Flight-log management.
- Emergency and fail-safe procedures.
- Basic maintenance and troubleshooting.

The bidder shall demonstrate all major functions of the supplied system before acceptance.

8. WARRANTY AND TECHNICAL SUPPORT

The bidder shall provide a minimum Five (05) years comprehensive OEM warranty covering the UAV, GCS, camera/payload, batteries, chargers and supplied accessories, subject to OEM battery warranty conditions.

During the warranty period, the bidder shall provide:

- Installation and commissioning support.
- Corrective maintenance and repair.
- Software and firmware updates, wherever applicable.
- Replacement of defective components.
- Technical troubleshooting support.
- Genuine spare parts and technical assistance.
- On-site support wherever required.

9. DELIVERABLES

The successful bidder shall deliver and commission Five (05) complete GCS-Enabled Live Monitoring Drone Training Systems.

The deliverables shall include:

- 5 Nos. Training UAVs.
- 5 Nos. Ground Control Stations.
- 5 Nos. Integrated Camera/Payload Systems.
- Minimum 15 Nos. Intelligent Flight Batteries.
- 5 Nos. Intelligent Battery Charging Systems.
- Mission planning and flight-control software.
- 5 Nos. Carrying Cases.
- 5 Nos. Maintenance Toolkits.
- Spare propeller sets.
- Essential cables and accessories.
- User and maintenance manuals.

- Warranty certificates.
- System demonstration and commissioning report.
- Training/familiarisation completion documentation.

10. INSPECTION, TESTING AND ACCEPTANCE

The supplied systems shall be subjected to inspection and acceptance testing by the Kerala Police before final acceptance. The bidder shall demonstrate the specified flight, communication, live-monitoring, GCS, telemetry, recording and safety functions.

Any deficiency identified during testing shall be rectified by the bidder at no additional cost before final acceptance.

11. COMPLIANCE AND DOCUMENTATION

The bidder shall submit technical literature, product specifications, applicable certification documents, OEM authorisation/details, warranty terms and other relevant documentation necessary for technical evaluation.

The bidder shall clearly identify compliance against each minimum technical specification specified in this RFP. The offered system shall comply with applicable DGCA requirements, Drone Rules and other Government of India regulations governing operation and procurement of the UAV system.

12. QUANTITY

The required quantity under this RFP is as follows:

Sl. No.	Item	Quantity
1	GCS-Enabled Live Monitoring Drone Training System	5 Nos.

The quoted price shall include all hardware, software, accessories, installation, commissioning, demonstration, training/familiarisation, documentation, warranty and technical support required for complete operational deployment of the three systems.

II. DOCUMENTATION AND ASSET DETAILS

The successful bidder shall provide complete technical and operational documentation for the supplied systems.

Documentation shall include, as applicable, OEM datasheets, user manuals, payload manuals, controller manuals, battery and charger documentation, warranty certificates, software and firmware details, serial numbers, asset details, RTMP configuration information, system architecture, web-platform documentation and installation and commissioning reports.

All supplied software and firmware shall be genuine and appropriately licensed wherever licensing is applicable.

III. ELIGIBILITY OF BIDDERS

The bidder shall be a legally established OEM, authorised distributor/dealer, authorised system integrator or other entity duly authorised to supply and support the proposed UAV system.

The bidder shall possess valid statutory registrations, including GST registration, as applicable.

Where the bidder is not the OEM, appropriate OEM authorisation shall be submitted along with the bid.

The bidder shall demonstrate adequate technical capability and resources for supply, installation, commissioning, training and after-sales support.

The bidder shall comply with the applicable Government procurement rules and shall not be debarred or blacklisted by a competent Government authority as on the date of submission of the bid.

IV. TECHNICAL COMPLIANCE

The bidder shall submit a comprehensive technical compliance statement against the specifications and functional requirements contained in this RFP.

The bidder shall clearly indicate the exact make, model and offered specification against each requirement and shall provide supporting OEM literature wherever applicable.

Any deviation from the prescribed minimum requirement shall be specifically declared in the bid. Failure to disclose a deviation may be treated as a material non-compliance.

The bidder shall not merely state "Complied" without providing sufficient technical details to establish compliance.

Kerala Police reserves the right to verify the claimed specifications through OEM documentation, demonstration, testing or other appropriate means.

V. PAYMENT CONDITIONS

The payment to the successful bidder shall be released in the following stages, subject to satisfactory completion of the respective milestones and submission of all required documents:

- 1. Advance Payment – 30%:** Thirty percent (30%) of the total contract value shall be released as advance payment after the execution of the contract and submission of a valid Bank Guarantee for an equivalent amount, in the prescribed format and valid for the period specified by Kerala Police. The advance payment shall be subject to fulfilment of all applicable contractual and financial conditions.
- 2. Payment on Completion of Supply – 20%:** Twenty percent (20%) of the total contract value shall be released upon successful completion of the supply and delivery of all UAV systems, associated equipment, accessories, software, hardware and other components covered under the scope of the contract, subject to physical verification and confirmation of the quantity and condition of the supplied items by the authorised representatives of Kerala Police.
- 3. Final Payment – 50%:** The remaining fifty percent (50%) of the total contract value shall be released only after successful completion of the entire project, including installation, configuration, integration, testing, commissioning, demonstration and operationalisation of all UAV systems, RTMP live video streaming, Web-Based Video Management and Fleet Monitoring System and all other components and functionalities specified in the RFP.

The final payment shall be subject to successful verification and acceptance of the complete system by the authorised representatives of the Kerala Police Department, Government of Kerala, including verification of the performance and functionality of the entire system and, wherever applicable, verification of the software system with respect to access control, protection against unauthorised modification or tampering, information security and other applicable security requirements. The final payment shall be released only after the successful completion of the required verification/acceptance process and formal approval of the Kerala Police Department, Government of Kerala.

VI. DELIVERY, INSPECTION, ACCEPTANCE AND REPLACEMENT

1. Delivery Period

The successful bidder shall supply and deliver all items specified in the tender, along with all required accessories, batteries, chargers, spares, software, documentation and other items specified in the Schedule of Requirements, within **60 days** from the date of issue of the Supply Order/Letter of Acceptance.

2. Delivery Location

Delivery shall be made to the location(s) specified by the Procuring Authority within Kerala, at the supplier's own risk and cost. The supplier shall be responsible for the safe transportation, unloading, handling and delivery of all items at the designated location(s).

3. Complete Delivery

Delivery shall be considered complete only upon delivery of all items, accessories, components and associated requirements specified in the tender and their subsequent inspection, testing and acceptance by the Procuring Authority.

Mere physical delivery of the principal items without the required accessories, batteries, chargers, spares, software/firmware, documentation or other specified components shall **not** be treated as complete delivery.

4. Inspection, Testing and Acceptance

All supplied items shall be subject to inspection, verification and acceptance testing by the Purchase/Inspection Committee or any other committee/authority designated by the Procuring Authority.

The Procuring Authority shall have the right to verify, among other things:

- Quantity and completeness of supply;
- Make, model and serial number;
- Compliance with the prescribed technical specifications;
- Accessories, batteries, chargers, spares and other components;
- Software/firmware and associated documentation;
- Workmanship and physical condition; and
- Functional and performance requirements specified in the tender.

Acceptance shall be accorded only after satisfactory completion of the required inspection, testing and demonstration, wherever applicable.

5. Defective, Damaged or Non-Conforming Items

Any item found to be defective, damaged, incomplete or not conforming to the prescribed technical specifications or tender requirements during inspection, testing or within the applicable warranty period shall be replaced or rectified by the supplier at no additional cost to the Procuring Authority.

Such replacement or rectification shall be completed within **15 days** from the date of intimation by the Procuring Authority, or within such other period as may be specified by the Procuring Authority based on the nature of the defect or non-conformity.

VI. GENERAL CONDITIONS

The equipment supplied shall be brand new, unused and of current production. Refurbished, reconditioned or previously deployed equipment shall not be accepted.

The offered UAV system shall meet or exceed the minimum technical requirements specified in this RFP.

The bidder shall be responsible for transportation, delivery, installation, configuration, testing, commissioning and operational handover of the complete system.

All accessories, cables, connectors, adapters, software components and other items necessary for normal operation shall be supplied as part of the system, whether or not each individual item is separately listed in the financial quotation.

The bidder shall ensure that the RTMP live streaming function and web-based monitoring capability are fully operational at the time of commissioning.

Kerala Police reserves the right to inspect, test and technically evaluate the equipment and to verify the claims made by the bidder against OEM documentation and actual demonstrated performance.

The Department reserves the right to accept or reject any bid in accordance with the applicable procurement rules, terms and conditions of the tender and the provisions contained in this RFP.

Execution of SLA

Successful bidder should execute a service level agreement format available at the Office of IGP Cyber Operations, Pattom Thiruvananthapuram. Cost of stamp paper for SLA is one rupee for every rupee 1000 or part thereof on the amount agreed in the contract, subject to a minimum of rupees 200 and a maximum of rupees one lakh.

Financial Bid

The bidder shall ensure that all proposed drones and other associated requirements shall be clearly identified and quoted in the Commercial Bid/BOQ, wherever applicable. Total cost evaluation method is adopted.

Contact for Clarifications

For any clarifications regarding this tender, bidders may contact the Cyber Operations Wing, Kerala Police: Email: drone.pol@kerala.gov.in

Mobile No. 09496818778

All queries should be sent well in advance of the bid submission deadline to ensure a response in time.

NOTE: -BIDDERS ARE ADVISED TO GO THROUGH THE CONDITIONS IN THE REQUEST FOR PORPOSAL AND THE TENDER DOCUMENT CAREFULLY AND COMPLY WITH THEM TO AVOID OUTRIGHT REJECTION OF THEIR TENDER.

Bidders are requested to make online payment of EMD and tender fee before 72 hours in advance of last date.

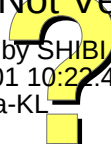
For any litigation relating to this order, the jurisdiction will be Thiruvananthapuram City.

Sd/-

Assistant Inspector General of Police, Procurement
For DIRECTOR GENERAL OF POLICE &
STATE POLICE CHIEF, KERALA

Signature Not Verified

Digitally signed by SHIBI K
Date: 2026.09.01 10:22:40 IST
Location: Kerala-KL





**Kerala
Tenders**

eTendering System Government of Kerala

Tender Details

Date : 01-Sep-2026 11:53 AM

Print

Basic Details

Organisation Chain	Kerala Police Police Headquarters		
Tender Reference Number	KPET/32/2026/PHQ		
Tender ID	2026_KP_866959_1	Withdrawal Allowed	Yes
Tender Type	Open Tender	Form of contract	Item Rate
Tender Category	Goods	No. of Covers	2
General Technical Evaluation Allowed	No	ItemWise Technical Evaluation Allowed	No
Payment Mode	Online	Is Multi Currency Allowed For BOQ	No
Is Multi Currency Allowed For Fee	No	Allow Two Stage Bidding	No

Payment Instruments

Online Bankers	S.No	Bank Name
	1	SBI MOPS

Cover Details, No. Of Covers - 2

Cover No	Cover	Document Type	Description
1	Fee/PreQual/Technical	.pdf	Scanned copy of agreement executed on Kerala Stamp paper Rs. 200 duly signed and sealed in all pages
		.pdf	Scanned copy of Tender Document duly signed and sealed in all pages
		.pdf	Brochures of the item quoted and conditions of supply if any
		.pdf	Copies of other document required in the Request for Proposal and Scope of work
2	Finance	.xls	Financial Bid

Other Important Documents

S.No	Category	Sub Category	Sub Category Description	Format/File
1	Certificate Details	Permanent Account Number	Permanent Account Number	
2	Certificate Details	Registration Certificate	Registration Certificate	
3	Certificate Details	Bidders Address Format	Bidders Address Format	
4	Certificate Details	Income Tax Certificate	Income Tax Certificate	
5	Certificate Details	Partnership Deed	Partnership Deed	
6	Certificate Details	Power of Attorney	Power of Attorney	
7	Certificate Details	Affidavit regarding correctness of bid	Required in tender document in bidder file 1	
8	Certificate Details	Affidavit regarding No Near Relative working in department	Affidavit regarding No Near Relative working in department	
9	Certificate Details	Excise registration Number	Excise registration Number	
10	Certificate Details	Service tax registration No	Service tax registration No	
11	Certificate Details	GST Certificate	GST Certificate	
12	Financial Details	Bankers Details	Bankers Details	
13	Financial Details	B23. P/L and Balance Sheet 2022-2023	P/L and Balance Sheet 2022-2023	

14	Financial Details	B24 P/L and Balance Sheet 2023-2024	P/L and Balance Sheet 2023-2024	
15	Financial Details	B25. P/L and Balance Sheet 2024-2025	P/L and Balance Sheet 2024-2025	
16	Miscellaneous	Work Completed Certificate Copies	Work Completed Certificate Copies	
17	Miscellaneous	Company profile	Company profile	
18	Work Details	Works Completed Details	Works Completed Details	
19	Work Details	Quantity of Work Done Details	Quantity of Work Done Details	

Tender Fee Details, [Total Fee in ₹ * - 30,284]				EMD Fee Details			
Tender Fee in ₹	28,750			EMD Amount in ₹	16,50,000	EMD Exemption Allowed	Yes
Processing Fee in ₹ (18.00% GST Incl.)	1,534			EMD Fee Type	fixed	EMD Percentage	NA
Fee Payable To	Nil	Fee Payable At	Nil	EMD Payable To	Nil	EMD Payable At	Nil
Tender Fee Exemption Allowed	Yes						

[Click to view modification history](#)

Work /Item(s)					
Title	Supply, Installation, Commissioning and Operationalisation of Drones				
Work Description	Supply, Installation, Commissioning and Operationalisation of Drones				
Pre Qualification Details	Refer Request For Proposal and Scope of work				
Independent External Monitor/Remarks	NA				
Show Tender Value in Public Domain	Yes				
Tender Value in ₹	16,50,00,000	Product Category	Equipments	Sub category	Supply of Drones
Contract Type	Tender	Bid Validity(Days)	180	Period Of Work(Days)	60
Location	All Keralam	Pincode	695010	Pre Bid Meeting Place	NA
Pre Bid Meeting Address	NA	Pre Bid Meeting Date	NA	Bid Opening Place	Police Headquarters Thiruvananthapuram
Should Allow NDA Tender	No	Allow Preferential Bidder	No		

Critical Dates			
Publish Date	01-Sep-2026 02:00 PM	Bid Opening Date	15-Sep-2026 03:00 PM
Document Download / Sale Start Date	01-Sep-2026 02:00 PM	Document Download / Sale End Date	14-Sep-2026 12:00 PM
Clarification Start Date	NA	Clarification End Date	NA
Bid Submission Start Date	01-Sep-2026 02:00 PM	Bid Submission End Date	14-Sep-2026 12:00 PM

Tender Documents				
NIT Document	S.No	Document Name	Description	Document Size (in KB)
	1	Tendernotice_1.pdf	Request For Proposal	542.62
Work Item Documents	S.No	Document Type	Document Name	Description
	1	Tender Documents	Generalconditions.pdf	Tender Document, General Conditions, format for agreement etc
	2	Other Document	Scopeofwork.pdf	Scope of Work
	3	BOQ	BOQ_1467793.xls	Financial Bid

Bid Openers List			
S.No	Bid Opener Login Id	Bid Opener Name	Certificate Name
1.	sekharpramod@gmail.com	PRAMOD S	PRAMOD S
2.	sastha@gmail.com	SASTHA RAJ R	SASTHA RAJ R
3.	shibikshibi0@gmail.com	SHIBI K	SHIBI K

Tender Properties

Auto Tendering Process allowed	No	Show Technical bid status	Yes
Show Finance bid status	Yes	Stage to disclose Bid Details in Public Domain	Technical Bid Opening
BoQ Comparative Chart model	Normal	BoQ Compartive chart decimal places	2
BoQ Comparative Chart Rank Type	H	Form Based BoQ	No

Tender Inviting Authority

Name	DGP and State Police Chief Keralam
Address	Police Headqaurters Vazhuthacaud Thiruvananthapuram, Keralam

Tender Creator Details

Created By	SHIBI K
Designation	Senior Superintendent
Created Date	31-Aug-2026 04:15 PM

Scope and specification of Drones

I. REQUEST FOR PROPOSAL (RFP) FOR PROCUREMENT OF DRONES

1. RFP 1- 40 NOS. COASTAL SURVEILLANCE DRONES

Procurement, Supply, Installation, Commissioning And Operationalisation Of 40 Nos. Coastal Surveillance UAV Systems With Integrated Eo/Thermal Payload, RTMP-Based Live Video Streaming And Web-Based Fleet Monitoring Capability.

1. INVITATION FOR PROPOSAL

Kerala Police invites proposals from eligible and technically competent Original Equipment Manufacturers (OEMs), authorised distributors/dealers and authorised system integrators for the supply, installation, testing, commissioning and operationalisation of 40 Nos. Portable Multi-Mission Quadrotor Surveillance Unmanned Aircraft Systems (UAVs) for strengthening the aerial surveillance and operational response capabilities of Kerala Police.

The UAV systems are intended primarily for coastal security and surveillance, while also supporting law enforcement, search and rescue, disaster response, emergency surveillance and other operational requirements of Kerala Police.

The procurement shall comprise complete and operational UAV systems, including the UAV platform, electro-optical and thermal imaging capability, remote controller/ground control equipment, batteries, charging systems, associated software, communication and connectivity features, accessories, documentation, warranty and technical support.

A mandatory feature of the proposed system shall be the capability to transmit live video from the Drone Remote Controller through RTMP (Real-Time Messaging Protocol) to compatible external servers, platforms or monitoring systems over an available communication network.

The proposed solution shall further provide web-based monitoring capability for authorised personnel, enabling centralised viewing of available live video feeds, UAV location, flight telemetry and operational status.

The successful bidder shall be responsible for the complete supply, configuration, integration, testing, demonstration, commissioning and handover of the systems in operationally usable condition.

2. BACKGROUND AND PURPOSE

Kerala has an extensive coastline and a number of strategically important coastal installations, ports, harbours and other areas requiring continuous and flexible surveillance.

The deployment of portable surveillance UAV systems will provide Kerala Police with a rapidly deployable aerial surveillance capability capable of supporting operations during normal policing as well as emergency and disaster situations.

The proposed UAV systems shall therefore be suitable for deployment in coastal and other operational environments and shall provide effective day and night observation through electro-optical and thermal imaging systems.

The solution is also intended to facilitate transmission of live aerial imagery to authorised monitoring locations, thereby enabling personnel at appropriate command or operational locations to obtain timely aerial situational awareness.

3. OBJECTIVES OF THE PROCUREMENT

The primary objective of the procurement is to establish a reliable, portable and operationally flexible UAV surveillance capability for Kerala Police.

The proposed systems shall support, among other operational requirements:

- Coastal and maritime surveillance;
- Surveillance of ports, harbours, coastal installations and areas of operational importance;
- Law enforcement and security operations;
- Search and rescue activities;
- Disaster response and emergency assessment;
- Day and night aerial observation;
- Thermal-based surveillance in low-light and night conditions;
- Rapid deployment at operational locations;
- Live transmission of aerial video to authorised monitoring locations;
- Centralised monitoring of deployed UAVs through a web-based interface; and

- Recording and retrieval of operational video and flight information, wherever supported by the proposed system.

4. SCOPE OF PROCUREMENT

The procurement shall cover 40 Nos. complete Portable Multi-Mission Quadrotor Surveillance UAV Systems.

Each system shall be supplied as a complete operational package and shall include all hardware, software, accessories and components necessary for its intended operational use.

The scope shall include supply and delivery of the UAV platforms, remote controllers/ground control equipment, EO and thermal imaging capability, batteries, charging equipment, communication equipment, mission planning and flight-control software, carrying and field accessories and other items specified in this RFP.

The scope shall also include installation, configuration, integration, testing, demonstration, commissioning, training, documentation and warranty support.

Where a web-based monitoring or fleet management platform is proposed as part of the solution, the bidder shall configure and operationalise the same for use by authorised Kerala Police personnel.

The bidder shall ensure that the supplied UAV systems and associated software operate as an integrated solution and that all necessary interfaces required for the specified functions are provided.

5. FUNCTIONAL AND TECHNICAL REQUIREMENTS

The UAV shall be a portable, multi-mission quadrotor platform suitable for surveillance and security operations.

The system shall be capable of vertical take-off and landing and shall be suitable for rapid field deployment. It shall support autonomous and assisted flight operations, waypoint-based mission planning and appropriate safety and fail-safe functions.

The UAV shall incorporate a stabilised electro-optical imaging system and thermal imaging capability suitable for day and night surveillance. The payload arrangement shall permit effective observation, recording and transmission of aerial imagery.

The minimum technical requirements are set out below. The bidder may offer equipment having specifications superior to the prescribed minimum requirements.

Minimum Technical Specifications

Sl. No.	Parameter	Minimum Requirement
1	UAV Type	Portable Multi-Mission Quadrotor Surveillance UAV
2	Operational Role	Coastal Security, Law Enforcement, Search & Rescue, Disaster Response and Surveillance
3	Maximum Take-Off Weight	DGCA Small Category compliant
4	Take-off and Landing	Vertical Take-Off and Landing (VTOL)
5	Flight Endurance	Minimum 45 minutes
6	Operational Range	Minimum 5 km Line of Sight (LOS)
7	Maximum Flight Speed	Minimum 54 km/h
8	Wind Resistance	Minimum 10 m/s
9	Service Ceiling	Minimum 4,000 m AMSL
10	Operating Temperature	-10°C to +50°C
11	Navigation	GPS, NavIC, GLONASS or equivalent multi-GNSS capability
12	Flight Modes	Manual, Assisted, Autonomous, Waypoint Navigation and Return-to-Home
13	Mission Planning	Graphical mission planning with autonomous flight capability
14	Deployment	Ready for flight within 5 minutes
15	Payload Configuration	Modular/quick-swap payload configuration
16	Supported Payloads	EO Camera, Thermal Camera, Loudspeaker/Public Address System, Beacon/Search Light and compatible mission payloads
17	EO Camera	Minimum 4K Ultra HD
18	Live Video	Minimum 1080p Full HD
19	Optical/Hybrid Zoom	Minimum 10×
20	Digital Zoom	Minimum 16×
21	Thermal Camera	Minimum 640 × 512 pixels
22	Thermal Sensor	Uncooled LWIR
23	Thermal Frame Rate	Minimum 30 Hz

24	Gimbal	3-Axis Stabilised Gimbal
25	Target Tracking	AI-assisted visual target tracking
26	Communication	Encrypted digital command and control link
27	Live Streaming	RTMP support from the Drone Remote Controller for live video transmission to compatible external servers/platforms
28	Telemetry	Real-time flight telemetry and UAV health information
29	Remote Controller	Portable rugged controller with integrated display
30	Display	Minimum 7-inch high-brightness display
31	Mission Software	Mission planning, live monitoring, payload control and flight logging
32	Data Recording	Onboard recording of video, images and flight logs
33	Fail-Safe Functions	Return-to-Home, lost-link recovery, emergency landing and low-battery return
34	Obstacle Avoidance	Multi-directional obstacle detection, where supported by the offered model
35	Geo-Fencing	Configurable geo-fencing capability
36	Battery	Intelligent rechargeable lithium battery
37	Battery Quantity	Minimum three batteries per UAV system
38	Charging	Intelligent multi-battery charging system
39	Data Security	Secure authentication and encrypted storage/communication, where applicable
40	Environmental Suitability	Suitable for coastal day/night operations
41	Ingress Protection	Minimum IP54 or better
42	Transportation	Portable backpack/field deployment configuration
43	Accessories	Carrying case, spare propellers, maintenance toolkit, landing pad and essential field accessories
44	Regulatory Compliance	DGCA Type Certified, wherever applicable
45	Warranty	Minimum two years comprehensive OEM warranty
46	Technical Support	Installation, commissioning, software/firmware updates and technical assistance

The specifications indicated above represent the minimum acceptable performance. Bidders may offer equivalent or superior specifications, subject to documentary evidence and successful demonstration during technical evaluation or acceptance testing.

6. LIVE VIDEO STREAMING AND RTMP CAPABILITY

The live video streaming facility shall form an integral part of the proposed UAV solution.

The Drone Remote Controller shall have native or OEM-supported capability to transmit the live video feed using RTMP (Real-Time Messaging Protocol) to a compatible external server, Video Management System or other authorised monitoring platform through an available communication network.

The bidder shall provide all necessary configuration information, software interfaces and technical assistance required to establish the RTMP streaming connection.

The RTMP capability shall not be considered merely as a future upgrade or optional feature. It shall be available and operational at the time of commissioning.

The bidder shall demonstrate, during acceptance testing, the complete streaming path from the UAV/Remote Controller to the designated receiving platform or server.

The bidder shall clearly indicate in the technical offer:

- Whether RTMP is supported natively by the remote controller;
- Supported video resolution and frame rate;
- Supported video and audio codecs, where applicable;
- RTMP/RTMPS capability, where supported;
- Network requirements;
- Maximum number of simultaneous streams supported;
- Streaming configuration procedure; and
- Any OEM software, licence or subscription requirement associated with the feature.

7. WEB-BASED VIDEO AND FLEET MONITORING

The proposed solution shall provide a centralised web-based monitoring capability for authorised Kerala Police personnel.

The monitoring interface shall be accessible through commonly used modern web browsers without requiring dedicated client-side software for normal viewing and monitoring.

The system shall facilitate, subject to the telemetry and interfaces available from the UAV platform, centralised viewing of live video feeds, identification of deployed UAVs, UAV location, available flight telemetry, operational status and relevant historical information.

The platform shall provide an interactive map-based interface through which authorised users can view the geographical location of deployed UAVs using available GPS information.

The system shall support monitoring of multiple UAV deployments from a common web-based interface, subject to the capacity of the proposed architecture.

The bidder shall clearly describe the proposed architecture, including the method by which UAV video and telemetry information is transmitted to and displayed through the web-based monitoring platform.

8. VIDEO, STREAMING AND SOFTWARE COMPATIBILITY

The proposed Video Management and Fleet Monitoring solution shall support commonly used video and streaming technologies to ensure interoperability with the offered UAV system.

The proposed solution shall support, as applicable to the architecture offered:

Video Codecs: H.264/AVC, H.265/HEVC and MJPEG.

Streaming Protocols: RTMP, RTSP, WebRTC, HTTP-FLV and HLS, wherever supported by the proposed system.

The bidder shall clearly identify which protocols are supported natively and which require additional software or components.

The web interface shall be compatible with commonly used browsers including Google Chrome, Microsoft Edge, Mozilla Firefox and Apple Safari.

The proposed solution shall not require obsolete browser plug-ins such as ActiveX or NPAPI for normal operation.

9. FLEET MANAGEMENT, TELEMETRY AND MAP VISUALISATION

The proposed system shall provide appropriate mechanisms for monitoring the operational status and geographical deployment of the UAV fleet.

Based on the telemetry and data made available by the UAV platform, the system shall provide authorised users with information such as UAV identification, GPS position, flight status, altitude and other relevant operational parameters.

The location of deployed UAVs shall be capable of being displayed on an interactive map interface.

The system shall also provide appropriate facilities for viewing available historical flight information, operational logs and recorded information.

The bidder shall clearly specify the telemetry parameters available for integration with the web-based monitoring system and the communication interface or protocol used for such integration.

10. INFORMATION SECURITY AND ACCESS CONTROL

The proposed solution shall incorporate appropriate security controls for protection of UAV video, telemetry, operational information and user access.

The system shall provide authenticated access and appropriate role-based permissions for authorised users.

Communication between system components shall employ appropriate security mechanisms and encryption wherever technically applicable. Stored operational information shall be protected against unauthorised access.

The system shall maintain appropriate audit records relating to user access, system events and administrative activities.

The proposed cybersecurity architecture shall comply with applicable Government of India requirements and prevailing CERT-In guidelines/directions, as applicable to the proposed deployment.

The bidder shall provide a description of the proposed cybersecurity architecture, authentication mechanism, data protection measures, access-control mechanism and audit capabilities along with the technical bid.

11. DATA MANAGEMENT, RECORDING AND REPORTING

The proposed UAV system shall support onboard recording of video, images and flight logs.

Where a central monitoring or Video Management System is provided, it shall support recording, retrieval and playback of live video feeds subject to the storage infrastructure and configuration offered.

The system shall provide appropriate facilities for reviewing operational information and available historical logs.

Where reporting and export facilities are provided, operational data and reports shall be capable of being exported in commonly usable formats, including Excel-compatible formats wherever technically supported.

The bidder shall clearly state the storage requirements, retention capability and any licensing or infrastructure requirements associated with recording and archival functions.

12. CLOUD AND EXTERNAL PLATFORM INTEGRATION

The proposed solution shall support integration with compatible external servers, platforms or cloud storage infrastructure, where such infrastructure is provided or designated by Kerala Police.

The bidder shall specify the available integration mechanisms and shall provide necessary technical information for integration with the Department's approved infrastructure.

Any third-party cloud service, subscription, licence or recurring expenditure required for operation of the proposed system shall be functional with the full system of drones commissioned for the warranty period covered for all the drones. The charges of the cloud after the warranty period will be specifically mentioned in the financial and technical proposal.

No essential operational functionality shall be dependent on an undisclosed third-party service or subscription.

13. SUPPLY, INSTALLATION AND COMMISSIONING

The successful bidder shall be responsible for complete delivery, installation, configuration, integration, testing and commissioning of all 40 UAV systems.

The bidder shall verify the supplied equipment against the approved technical specifications and shall configure the UAVs, remote controllers, payloads, batteries, mission software, RTMP streaming and web-based monitoring components as applicable.

The bidder shall conduct a comprehensive demonstration before the authorised representatives of Kerala Police.

The systems shall be considered commissioned only after successful completion of the prescribed functional tests and demonstration of the mandatory capabilities specified in this RFP.

The bidder shall submit an installation and commissioning report upon completion.

14. ACCEPTANCE TESTING

Final acceptance shall be based on verification of compliance with the approved technical specifications and successful demonstration of the operational capabilities of the supplied system.

The acceptance demonstration shall include, among other relevant functions, verification of UAV flight performance, endurance, EO and thermal imaging, gimbal operation, zoom capability, navigation, mission planning, communication, telemetry, recording, fail-safe functions, battery operation and other specified UAV features.

Particular emphasis shall be placed on demonstrating the following mandatory integrated functions:

RTMP live video streaming from the Drone Remote Controller to an external receiving platform/server;

web-based viewing of the live UAV video feed;

GPS-based map display of the deployed UAV; and

display of available UAV telemetry and operational status through the monitoring platform.

Failure to demonstrate any mandatory requirement may result in the system being treated as non-compliant, subject to the applicable procurement conditions.

Any equipment or component that does not conform to the accepted technical specifications shall be rectified or replaced by the successful bidder at no additional cost to Kerala Police.

15. TRAINING AND KNOWLEDGE TRANSFER

The successful bidder shall provide appropriate operational and technical familiarisation to personnel nominated by Kerala Police.

The training shall cover UAV operation, flight safety, pre-flight and post-flight procedures, mission planning, EO and thermal payload operation, autonomous flight functions, live video monitoring, RTMP streaming, web-based fleet monitoring, battery management, routine maintenance, troubleshooting and emergency/fail-safe procedures.

The bidder shall provide appropriate user manuals, technical documentation and operational guidelines.

Where necessary, the bidder shall also provide administrator-level familiarisation for personnel responsible for managing the web-based monitoring and fleet management platform.

16. WARRANTY AND AFTER-SALES SUPPORT

The complete UAV system and associated equipment supplied under this procurement shall be covered by a minimum two-year comprehensive OEM warranty.

The warranty shall cover manufacturing defects and failures occurring under normal operational use and shall include the UAV platform, remote controller, supplied payloads, batteries, chargers and other components included in the system.

The bidder shall provide technical assistance for configuration, troubleshooting, software and firmware updates, RTMP streaming and web-based monitoring during the warranty period.

The bidder shall clearly specify the warranty terms, service mechanism, escalation procedure and response time in the technical proposal.

17. ADVANCED SYSTEM ARCHITECTURE, INTEGRATION AND FUTURE ADAPTABILITY

The offered UAV systems shall be supplied with the latest available, stable and operationally supported hardware, flight control systems, onboard computing units, communication modules, sensors and associated firmware/software versions available at the time of supply and commissioning. The systems shall incorporate a modern and future-ready flight-control and onboard processing architecture with suitable provision for advanced autonomous operations, real-time sensor processing, AI/ML-based applications,

computer vision, future payload integration and authorised customisation of flight-control, firmware, communication, telemetry and video transmission interfaces, wherever technically applicable.

The successful bidder shall provide the necessary technical support, relevant software development resources and documentation for authorised customisation and future adaptation of transferable and customisable components and shall provide assistance for restoring the UAV system to a safe and operational condition in the event of any malfunction arising after authorised modifications. The proposed Web-Based Video Management and Fleet Monitoring System shall form an integral part of the solution and shall support centralised integration and simultaneous monitoring of compatible UAV platforms, including live video, available telemetry and GPS-based map visualisation, with a minimum capacity to support the simultaneous integration, monitoring and live streaming of **100 drones at a time**, subject to the availability of compatible interfaces, communication links, network bandwidth and supporting infrastructure, and shall be scalable for future expansion.

The system shall also provide provision for authorised personnel at the designated Command and Control Centre to access and monitor individual UAVs and, wherever technically supported by the respective UAV platform and subject to appropriate authentication, authorisation, communication availability and operational safety controls, assume or transfer operational command and control of the selected UAV.

18. QUANTITY

The total quantity proposed for procurement under this RFP is:

40 Nos. Multi-Mission Quadrotor Surveillance UAV Systems

Each unit shall be supplied as a complete, operationally deployable system with all mandatory equipment, accessories, software and services specified in this RFP.

FINAL REQUIREMENT

The proposed UAV system shall be offered as a complete integrated surveillance solution. The RTMP live streaming capability, web-based video monitoring, GPS-based fleet visualisation and available telemetry monitoring shall form part of the operational solution and shall not be treated as optional features.

The successful bidder shall ensure that all components of the system are fully integrated, tested and operational at the time of commissioning.

Quantity: 40 Nos. Multi-Mission Quadrotor Surveillance UAV Systems.

2. RFP-2 22 NOS COASTAL SURVEILLANCE DRONES

Procurement, Supply, Installation, Commissioning And Operationalisation Of 22 Nos. Coastal Search & Rescue / Payload-Dropping Drone Systems With Integrated Eo/Thermal Surveillance, RTMP-Based Live Video Streaming And Web-Based Video & Fleet Monitoring Capability

1. INVITATION FOR PROPOSAL

Kerala Police invites proposals from eligible and technically competent Original Equipment Manufacturers (OEMs), authorised distributors/dealers and authorised system integrators for the supply, installation, testing, commissioning and operationalisation of 22 Nos. Coastal Search & Rescue / Payload-Dropping Drone Systems for strengthening the aerial search, rescue, surveillance and emergency response capabilities of Kerala Police Coastal Police units.

The proposed systems shall be suitable for deployment in coastal and maritime environments and shall provide a combination of heavy-payload carrying capability, controlled payload delivery, day and night surveillance, thermal imaging, live video transmission, flight telemetry and centralised web-based monitoring.

The UAV system shall be capable of carrying a minimum useful payload of 10 kg and shall incorporate a reliable remotely controlled payload-dropping mechanism for the controlled delivery of authorised rescue equipment and emergency supplies.

The proposed system shall also support live transmission of UAV video through RTMP (Real-Time Messaging Protocol) from the Drone Remote Controller to compatible external servers, platforms or monitoring systems over an available communication network.

The procurement shall further include a web-based Video Management and Fleet Monitoring capability through which authorised Kerala Police personnel can monitor available live video feeds, UAV locations, flight telemetry and operational status through standard web browsers.

The successful bidder shall be responsible for complete supply, integration, configuration, installation, testing, demonstration, commissioning, training and operational handover of the systems.

2. BACKGROUND AND PURPOSE

Kerala has an extensive coastline comprising coastal settlements, fishing areas, ports, harbours, maritime installations and other locations where rapid response to emergencies may be required.

In coastal search and rescue situations, conventional response assets may require considerable time to reach persons or locations in distress, particularly where the incident occurs at sea, in isolated coastal areas or in locations that are difficult to access.

The proposed heavy-payload UAV systems are intended to provide Kerala Police with a rapidly deployable aerial platform capable of reaching such locations, providing aerial situational awareness and delivering essential rescue payloads.

The system shall also support aerial surveillance during coastal security operations, disaster response, emergency assessment and other authorised police operations.

The integration of live video streaming and web-based fleet monitoring shall enable authorised personnel at operational or command locations to obtain timely aerial information and monitor the deployment of UAV assets.

3. OBJECTIVES OF THE PROCUREMENT

The primary objective of this procurement is to provide Kerala Police Coastal Police units with a reliable and rapidly deployable aerial platform capable of supporting search and rescue and emergency response operations.

The proposed system shall support:

- Coastal search and rescue operations;
- Rapid delivery of rescue equipment to persons in distress;
- Emergency supply and authorised payload delivery;
- Surveillance of persons, vessels and areas of operational interest;
- Day and night aerial surveillance;
- Thermal imaging-based search operations;
- Disaster response and emergency assessment;

- Operations involving water bodies, isolated areas and difficult terrain;
- Real-time transmission of aerial video;
- RTMP-based transmission of live video to authorised external platforms or servers;
- Centralised web-based monitoring of UAV video and available telemetry;
- GPS-based visualisation of deployed UAV locations; and
- Recording and retrieval of operational video and flight information, wherever supported by the proposed system.

4. SCOPE OF PROCUREMENT

The procurement shall comprise 22 Nos. complete Coastal Search & Rescue / Payload-Dropping Drone Systems.

Each system shall be supplied as a complete operational package, including the UAV platform, heavy-payload carrying arrangement, remotely controlled payload-dropping mechanism, EO and thermal imaging capability, Ground Control Station, flight-control and mission-planning software, communication systems, batteries, charging equipment, accessories and associated documentation.

The scope shall also include the integrated live video streaming and web-based monitoring capability required under this RFP.

The successful bidder shall be responsible for:

- Supply and delivery of complete UAV systems;
- Integration of the payload-carrying and payload-dropping mechanism;
- Integration of EO and thermal imaging payloads;
- Configuration of the Ground Control Station;
- Configuration and demonstration of RTMP live video streaming;
- Deployment/configuration of the web-based Video Management and Fleet Monitoring system;
- Integration of available UAV telemetry and GPS information;
- Installation, testing and commissioning;
- Demonstration of the complete system;
- Site Acceptance Testing;
- Training of nominated Kerala Police personnel;
- Supply of technical and operational documentation;
- Warranty and technical support; and
- Operational handover of the complete system.

All hardware, software, accessories, interfaces, cables, connectors, licences and other components necessary for the normal operation of the proposed system shall be included in the scope.

5. MINIMUM TECHNICAL REQUIREMENTS

The proposed UAV shall be a heavy-payload multirotor platform specifically suitable for coastal search and rescue, emergency response, surveillance and controlled payload delivery.

The minimum technical requirements are specified below. Bidders may offer equipment having superior specifications, provided that documentary evidence and satisfactory demonstration are furnished.

Sl. No.	Parameter	Minimum Requirement
1	UAV Type	Heavy-Payload Multirotor UAV suitable for Search & Rescue and Payload-Dropping Operations
2	Operational Role	Coastal Search & Rescue, Emergency Response, Rescue Payload Delivery, Coastal Surveillance and Disaster Response
3	Maximum Take-Off Weight	Suitable for carrying the specified payload while complying with applicable DGCA category requirements
4	Take-Off and Landing	Vertical Take-Off and Landing (VTOL)
5	Flight Endurance	Minimum 45 minutes under specified operating conditions
6	Operational Range	Minimum 5 km
7	Maximum Flight Speed	Minimum 12 m/s (43.2 km/h)
8	Wind Resistance	Minimum 15 m/s operating wind resistance
9	Payload Capacity	Minimum 10 kg useful payload
10	Payload Configuration	Modular/interchangeable payload mounting system
11	Payload Dropping System	Integrated remotely controlled payload-dropping mechanism suitable for controlled release of authorised rescue payloads
12	Payload Release Control	Controllable from the Ground Control Station
13	Payload Release Safety	Positive locking/safe-release mechanism to prevent unintended release during flight
14	Supported Rescue Payloads	Flotation/rescue aids, emergency supplies and other authorised payloads within the specified payload capacity
15	EO Camera	High-resolution electro-optical camera suitable for aerial

		surveillance
16	EO Resolution	Minimum 1920 × 1080 (1080p)
17	Optical/Hybrid Zoom	Minimum 10×
18	Thermal Camera	Integrated thermal imaging capability suitable for night-time search and rescue
19	Thermal Resolution	Minimum 640 × 512 pixels
20	Thermal Sensor	Uncooled LWIR thermal imaging sensor or better
21	Thermal Frame Rate	Minimum 30 Hz
22	Gimbal	Minimum 3-axis stabilised camera gimbal
23	Camera Control	Pan, tilt and zoom control through Ground Control Station
24	Target Detection	Capability to detect persons, vessels and other objects of operational interest, subject to environmental conditions
25	Communication Link	Secure digital command and control link
26	Communication Security	Encrypted communication and secure transmission
27	Live Video / RTMP	The Drone Remote Controller shall support RTMP (Real-Time Messaging Protocol) for live video streaming to compatible external platforms/servers through an available communication network
28	Video Transmission	Real-time HD video transmission to Ground Control Station
29	Telemetry	Real-time UAV position, altitude, speed, heading, battery status and available system health information
30	Ground Control Station	Rugged portable Ground Control Station with integrated display
31	GCS Display	Minimum 7-inch high-brightness display
32	Mission Planning	Graphical mission planning and waypoint navigation
33	Live Monitoring	Simultaneous monitoring of live video and essential flight telemetry
34	Payload Control	Remote control of payload-dropping mechanism and camera payloads through GCS
35	Data Recording	Onboard recording of video, images and flight logs
36	Flight Modes	Manual, assisted, autonomous/waypoint and Return-to-Home
37	Fail-Safe Features	Return-to-Home, lost-link recovery, low-battery warning/recovery and emergency landing
38	Navigation	GPS/NavIC/GLONASS or equivalent multi-GNSS navigation with IMU
39	Geo-Fencing	Configurable geo-fencing and applicable flight restriction functions
40	Obstacle Detection	Multi-directional obstacle detection/avoidance, where available and technically applicable
41	Battery	Intelligent rechargeable lithium battery system

42	Battery Provision	Minimum three flight batteries per UAV system or equivalent provision sufficient for operational deployment
43	Battery Charger	Intelligent multi-battery charging system
44	Deployment	Rapid field deployment suitable for coastal emergency operations
45	Environmental Capability	Suitable for outdoor coastal operations under humid, dusty and moderate adverse-weather conditions within manufacturer's specified operating limits
46	Ingress Protection	Minimum IP54 or better for UAV and critical external components, wherever applicable
47	Transportability	Portable field-deployment configuration with suitable carrying/transport cases
48	Accessories	Carrying case, spare propellers, maintenance toolkit, cables, connectors and essential field accessories
49	Payload Accessories	All mounting brackets, release mechanisms, control interfaces and accessories required for normal payload-dropping operations
50	Data Security	Secure data storage and protected access to recorded operational data
51	Regulatory Compliance	Compliance with applicable DGCA and Government of India requirements
52	Warranty	Minimum 3 years comprehensive OEM warranty
53	Technical Support	Installation, commissioning, technical assistance, maintenance support and applicable software/firmware updates

The above requirements constitute the minimum acceptable specifications. Any equipment offered with superior performance may be considered subject to technical evaluation and demonstration.

6. PAYLOAD CARRYING AND DROPPING SYSTEM

The payload carrying and dropping capability shall constitute an integral part of the proposed UAV system.

The UAV shall be capable of carrying a minimum useful payload of 10 kg while maintaining stable and controlled flight within the manufacturer's specified operating conditions.

The payload-dropping system shall provide secure attachment of the payload before take-off and controlled release during flight.

The release mechanism shall be remotely operated from the Ground Control Station and shall incorporate suitable safety arrangements to prevent accidental or unintended release.

The system shall support the controlled delivery of authorised rescue equipment, flotation devices, emergency supplies and other suitable payloads within the specified payload capacity.

The bidder shall supply all mounting brackets, release mechanisms, control interfaces, wiring, connectors and other accessories necessary for operation of the payload-dropping system.

The payload mechanism shall be tested and demonstrated during acceptance testing.

7. DAY AND NIGHT SEARCH & RESCUE SURVEILLANCE

The UAV shall provide effective day and night surveillance capability to assist operators in locating persons, vessels and other objects of operational interest.

The EO camera shall provide high-resolution daylight imagery, while the thermal imaging system shall facilitate search and observation under low-light and night-time conditions.

The camera payload shall be stabilised and controllable through the Ground Control Station. The operator shall be able to view the live camera feed while simultaneously monitoring relevant flight information.

Where supported by the proposed system, target tracking and other image-assisted functions may be provided as additional capabilities.

8. RTMP-BASED LIVE VIDEO STREAMING

The live video streaming capability shall form an integral component of the proposed UAV system.

The Drone Remote Controller shall support RTMP (Real-Time Messaging Protocol) and shall be capable of transmitting live video to a compatible external server, Video Management System or authorised monitoring platform through an available communication network.

The RTMP capability shall be operational at the time of commissioning and shall not be offered merely as a future upgrade or optional feature.

The bidder shall configure and demonstrate the complete streaming path during acceptance testing.

The bidder shall clearly specify the following in the technical proposal:

- Whether RTMP is supported natively by the Remote Controller;
- Supported video resolution and frame rate;
- Supported video codecs;
- RTMP/RTMPS capability, where supported;
- Network/connectivity requirements;
- Maximum supported simultaneous streams;
- Streaming configuration procedure; and
- Any software licence, subscription or additional infrastructure requirement.

Where an external server or platform is required for receiving the RTMP stream, the bidder shall provide the necessary technical information and integration support.

9. WEB-BASED VIDEO MANAGEMENT AND FLEET MONITORING

The proposed solution shall include a web-based Video Management and Fleet Monitoring capability for authorised Kerala Police personnel.

The platform shall be accessible through standard modern web browsers and shall not require dedicated client-side software for normal viewing and monitoring.

The platform shall provide centralised access to available UAV video feeds and operational information.

Based on the interfaces and telemetry provided by the UAV system, the platform shall support:

- Live video monitoring;
- Identification of individual UAVs;
- GPS-based UAV location;
- Interactive map-based visualisation;
- Available flight telemetry;
- UAV altitude, speed and heading;
- Battery and system status;
- Flight status;
- Historical flight information, where available;
- Recorded video retrieval, where configured;

- Operational event information; and
- Centralised monitoring of multiple deployed UAVs.

The system shall allow authorised users to monitor the geographical deployment of UAVs through an interactive map interface using available GPS coordinates.

10. VIDEO AND STREAMING COMPATIBILITY

The proposed Video Management System shall support commonly used video and streaming technologies to facilitate interoperability with the supplied UAV system.

The proposed solution shall support, as applicable to the offered architecture:

Video Codecs

- H.264/AVC;
- H.265/HEVC; and
- MJPEG.

Streaming/Viewing Protocols

- RTMP;
- RTSP;
- WebRTC;
- HTTP-FLV; and
- HLS.

The bidder shall clearly identify which protocols are supported natively and which require additional software or components.

The web interface shall be compatible with commonly used browsers including:

- Google Chrome;
- Microsoft Edge;
- Mozilla Firefox; and
- Apple Safari.

The solution shall not require obsolete browser plug-ins such as ActiveX or NPAPI for normal web-based operation.

11. FLEET MANAGEMENT AND MAP-BASED MONITORING

The proposed software shall provide appropriate facilities for monitoring the operational status and deployment of the UAV fleet.

The system shall, based on available UAV telemetry and communication interfaces, provide authorised users with information including:

- UAV identification;
- Current GPS position;
- Flight status;
- Altitude;
- Speed;
- Heading;
- Battery status;
- Communication-link status; and
- Other available operational parameters.

The geographical position of each deployed UAV shall be capable of being displayed on an interactive map.

The system shall support monitoring of multiple UAVs from a centralised interface, subject to the capacity of the proposed architecture.

The bidder shall clearly describe the telemetry interface, communication mechanism and software architecture proposed for integrating UAV telemetry with the fleet monitoring platform.

12. WEB-BASED SYSTEM ARCHITECTURE

The proposed Video Management and Fleet Monitoring software shall be designed as a web-based solution.

The system shall support centralised access through standard web browsers and shall permit authorised users to access the system according to their assigned roles and privileges.

The proposed architecture shall support appropriate separation between UAV operations, video ingestion, video management, telemetry processing and user access, wherever applicable to the proposed solution.

The bidder shall provide a system architecture diagram along with the technical bid showing the flow of:

UAV → Remote Controller → Communication Network → RTMP/Video Ingestion → Video Management System → Web Browser/Authorised User

13. DATA SECURITY, ACCESS CONTROL AND AUDIT

The proposed solution shall incorporate appropriate security controls for protection of UAV video, telemetry, operational data and user access.

The system shall provide:

- User authentication;
- Role-based access control;
- Secure communication;
- Appropriate encryption of transmitted information;
- Secure storage of recorded information;
- Audit logging;
- User activity logging;
- System event logging; and
- Controlled access to recorded video and operational data.

The proposed cybersecurity architecture shall comply with applicable Government of India requirements and prevailing CERT-In guidelines/directions, as applicable to the deployment.

The bidder shall submit details of the proposed security architecture, authentication mechanism, access-control arrangements, encryption and audit capabilities.

14. DATA RECORDING, STORAGE AND REPORTING

The UAV system shall support onboard recording of video, images and flight logs.

Where a central Video Management System is provided, the solution shall support recording, playback and retrieval of live video feeds subject to the storage infrastructure and configuration.

The system shall provide appropriate facilities for reviewing available historical flight information and operational events.

Where supported, the system shall provide reporting and export facilities for operational data in commonly usable formats, including Excel-compatible formats.

The bidder shall clearly specify:

- Storage requirements;
- Recording architecture;
- Retention capability;
- Video retrieval mechanism;
- Flight-log storage;
- Data export capability; and
- Any licence or infrastructure requirements.

15. CLOUD AND EXTERNAL PLATFORM INTEGRATION

The proposed solution shall support integration with compatible external servers, authorised monitoring platforms or cloud storage infrastructure where such infrastructure is provided or designated by Kerala Police.

The bidder shall specify the available integration mechanisms and shall provide the technical information and assistance required for integration.

Any third-party cloud service, subscription, licence or recurring expenditure required for operation of the proposed system shall be functional with the full system of drones commissioned for the warranty period covered for all the drones. The charges of the cloud after the warranty period will be specifically mentioned in the financial and technical proposal.

16. GROUND CONTROL STATION

The Ground Control Station shall provide integrated control of the UAV, surveillance payload and payload-dropping mechanism.

The GCS shall provide, at a minimum:

- Live EO and thermal video display;
- UAV position and flight trajectory;
- Altitude, speed and heading;
- Battery status;
- Communication-link status;
- Mission planning;
- Waypoint navigation;
- Camera pan, tilt and zoom control;
- Payload-dropping control;
- Flight-log recording;
- Return-to-Home control;
- Emergency/fail-safe controls; and
- Available UAV health information.

The Ground Control Station shall be rugged and portable and shall be suitable for field deployment by Coastal Police personnel.

17. INSTALLATION, INTEGRATION AND COMMISSIONING

The successful bidder shall be responsible for complete installation, integration, configuration, testing and commissioning of all 22 UAV systems.

The bidder shall configure the UAVs, Ground Control Stations, surveillance payloads, payload-dropping systems, batteries, mission software, RTMP streaming and web-based Video Management/Fleet Monitoring system.

The bidder shall demonstrate the complete operational chain before authorised representatives of Kerala Police.

The systems shall be considered commissioned only after successful completion of the prescribed acceptance tests and demonstration of the mandatory functions.

The bidder shall submit a consolidated installation and commissioning report upon completion.

18. ACCEPTANCE TESTING

Final acceptance shall be based on verification of compliance with the approved technical specifications and successful demonstration of the integrated operational capabilities.

The acceptance demonstration shall include, as applicable:

- UAV flight performance;
- Minimum payload carrying capability;
- Payload secure attachment;
- Controlled payload release;
- Flight endurance;
- Operational range;
- Day camera performance;
- Thermal camera performance;
- Gimbal operation;
- Live video transmission;
- RTMP live video streaming;
- Ground Control Station functions;
- UAV telemetry;
- GPS position information;
- Map-based UAV visualisation;
- Mission planning;
- Data recording;
- Return-to-Home;
- Lost-link recovery;
- Low-battery functions;
- Web-based Video Management System; and
- Fleet monitoring capability.

Particular emphasis shall be placed on demonstrating the complete integrated operational chain:

UAV → Payload/Camera → Remote Controller → Communication Network → RTMP/Video Management System → Web-Based Monitoring Interface

Any component or functionality that does not conform to the approved specification shall be rectified or replaced by the successful bidder at no additional cost to Kerala Police.

19. TRAINING AND KNOWLEDGE TRANSFER

The successful bidder shall provide operational and technical training to personnel nominated by Kerala Police.

The training shall cover:

- UAV system familiarisation;
- Safe operation of heavy-payload UAVs;
- Ground Control Station operation;
- Manual, assisted and waypoint flight;
- Search and rescue mission planning;
- EO and thermal camera operation;
- Payload loading and securing;
- Payload-dropping mechanism operation;
- RTMP live streaming;
- Web-based Video Management System;
- GPS and map-based fleet monitoring;
- Battery handling and management;
- Preventive maintenance;
- Basic troubleshooting;
- Emergency procedures; and
- Fail-safe operations.

The bidder shall provide appropriate training materials, manuals and technical documentation.

20. WARRANTY AND TECHNICAL SUPPORT

The successful bidder shall provide a minimum three-year comprehensive OEM warranty for the complete UAV system.

The warranty shall cover the UAV platform, Ground Control Station, EO and thermal payloads, payload-dropping mechanism, batteries subject to applicable OEM warranty conditions, charging equipment and other components supplied as part of the system.

The bidder shall provide:

- Installation and commissioning support;
- Preventive and corrective maintenance;
- Repair or replacement of defective components;
- Software and firmware updates, wherever applicable;
- RTMP configuration and troubleshooting support;
- Web-based monitoring system support;
- Technical troubleshooting;
- Genuine spare parts; and
- On-site technical assistance wherever required.

The bidder shall clearly state the warranty conditions, service mechanism, escalation procedure and applicable response time.

21. ADVANCED SYSTEM ARCHITECTURE, INTEGRATION AND FUTURE ADAPTABILITY

The offered UAV systems shall be supplied with the latest available, stable and operationally supported hardware, flight control systems, onboard computing units, communication modules, sensors and associated firmware/software versions available at the time of supply and commissioning. The systems shall incorporate a modern and future-ready flight-control and onboard processing architecture with suitable provision for advanced autonomous operations, real-time sensor processing, AI/ML-based applications, computer vision, future payload integration and authorised customisation of flight-control, firmware, communication, telemetry and video transmission interfaces, wherever technically applicable.

The successful bidder shall provide the necessary technical support, relevant software development resources and documentation for authorised customisation and future adaptation of transferable and customisable components and shall provide assistance for restoring the UAV system to a safe and operational condition in the event of any malfunction arising after authorised modifications. The proposed Web-Based Video Management and Fleet Monitoring System shall form an integral part of the solution and shall support centralised integration and simultaneous monitoring of compatible UAV platforms, including live video, available telemetry and GPS-based map visualisation, with a minimum capacity to support the simultaneous integration, monitoring and live streaming of **100 drones at a time**, subject to the availability of compatible interfaces, communication links, network bandwidth and supporting infrastructure, and shall be scalable for future expansion.

The system shall also provide provision for authorised personnel at the designated Command and Control Centre to access and monitor individual UAVs and, wherever technically supported by the respective UAV platform and subject to appropriate authentication, authorisation, communication availability and operational safety controls, assume or transfer operational command and control of the selected UAV.

22. QUANTITY

The total quantity proposed under this procurement is: **22 Nos. Coastal Search & Rescue / Payload-Dropping Drone Systems**

Each system shall be supplied as a complete and operationally deployable package incorporating the required heavy-payload capability, rescue payload-dropping mechanism, EO/thermal surveillance, Ground Control Station, RTMP live video streaming and web-based Video Management and Fleet Monitoring capability.

INTEGRATED SYSTEM REQUIREMENT

The proposed procurement shall be treated as an integrated Coastal Search & Rescue UAV solution rather than merely a procurement of individual UAV hardware.

The successful bidder shall ensure integration of the heavy-payload UAV, rescue payload-dropping mechanism, EO/thermal surveillance payloads, Ground Control Station, RTMP live video streaming, telemetry interface and web-based Video Management/Fleet Monitoring system into a functional operational solution.

The complete system shall be demonstrated during commissioning, including the transmission of live UAV video through RTMP, reception and display through the web-based monitoring platform, GPS-based map visualisation of the deployed UAV and display of available flight telemetry.

Total Quantity: 22 Nos. Coastal Search & Rescue / Payload-Dropping Drone Systems.

3. RFP-3 06 Nos. LONG-RANGE STRATEGIC SURVEILLANCE DRONES

Procurement, Supply, Installation, Commissioning and Operationalisation of 06 Nos. Long-Endurance Fixed-Wing VTOL Surveillance UAV Systems with Integrated EO/IR Surveillance, RTMP-Based Live Video Streaming and Web-Based Video Management and Fleet Monitoring Capability for Coastal Security

1. INTRODUCTION

Kerala Police invites proposals from eligible and qualified Original Equipment Manufacturers (OEMs), authorised distributors, authorised dealers, system integrators or other authorised entities for the supply, installation, testing, commissioning and

operationalisation of Six (06) Long-Endurance Fixed-Wing Vertical Take-Off and Landing (VTOL) Surveillance UAV Systems for strengthening the aerial surveillance and operational capabilities of Kerala Police.

The proposed UAV systems are intended primarily for long-duration coastal and maritime surveillance, intelligence, surveillance and reconnaissance (ISR), law-enforcement operations, disaster response, monitoring of critical coastal areas and other authorised operational requirements.

The proposed UAV shall combine the advantages of fixed-wing flight with Vertical Take-Off and Landing capability, thereby enabling extended-duration aerial operations without requiring a conventional runway. The system shall be capable of autonomous as well as manual operations and shall incorporate suitable electro-optical and thermal imaging payloads for day and night surveillance.

In addition to the individual UAV operational capabilities, the offered system shall support live video streaming through RTMP (Real-Time Messaging Protocol) from the Drone Remote Controller/Ground Control Station to compatible external servers or platforms over an available communication network.

The solution shall also include or support a web-based Video Management and Fleet Monitoring platform for authorised users, enabling centralised monitoring of live UAV video feeds, UAV locations, available telemetry, operational status and other relevant mission information.

The successful bidder shall be responsible for the complete supply, configuration, installation, integration, testing, demonstration, commissioning and operationalisation of the systems.

2. OBJECTIVES

The primary objective of the procurement is to establish a long-endurance aerial surveillance capability for Kerala Police to undertake extended coastal and maritime surveillance missions and provide real-time aerial situational awareness to operational and supervisory authorities.

The proposed UAV systems shall facilitate:

- Long-duration coastal and maritime surveillance.
- Intelligence, surveillance and reconnaissance operations.
- Monitoring of coastal installations and areas of operational importance.
- Surveillance of vessels and other objects of interest.
- Day and night aerial surveillance using EO and thermal imaging.
- Disaster response and emergency surveillance.
- Law-enforcement and security operations.
- Autonomous waypoint-based surveillance missions.
- Real-time transmission of aerial video to authorised monitoring locations.
- RTMP-based live video streaming to compatible external platforms or servers.
- GPS-based monitoring and map-based visualisation of UAV deployment.
- Real-time monitoring of available UAV telemetry and health information.
- Centralised monitoring of multiple UAV operations through a web-based platform.
- Secure recording, storage and retrieval of operational video and flight data, wherever configured.

3. SCOPE OF WORK

The scope of this RFP shall include the supply, installation, integration, testing, commissioning and operationalisation of Six (06) complete Long-Endurance Fixed-Wing VTOL Surveillance UAV Systems.

The successful bidder shall be responsible for:

3.1 Supply of Complete UAV Systems

Supply of complete fixed-wing VTOL UAV systems including the UAV platform, EO and thermal surveillance payloads, Ground Control Station, batteries, charging equipment, mission software and all accessories necessary for operational deployment.

3.2 Surveillance Payloads

The UAV shall be equipped with suitable electro-optical and thermal imaging capabilities for day and night surveillance.

The surveillance payload shall provide live video transmission to the Ground Control Station and support recording of video and images for operational and evidentiary purposes.

3.3 RTMP-Based Live Video Streaming

The offered Drone Remote Controller/Ground Control Station shall support RTMP (Real-Time Messaging Protocol) for transmission of live UAV video to compatible external servers, platforms or monitoring systems through an available communication network.

The bidder shall configure and demonstrate the RTMP live-streaming capability during installation and commissioning.

3.4 Web-Based Video Management and Fleet Monitoring

The offered solution shall provide or support a fully web-based Video Management and Fleet Monitoring platform for authorised users.

The platform shall enable centralised monitoring of the UAV fleet and shall provide, based on the information available from the UAV system:

- Live UAV video feeds.
- GPS location of deployed UAVs.
- Map-based visualisation of UAV locations.
- Available altitude, speed, heading and other telemetry.
- UAV identification and operational status.
- Flight and mission information.
- Historical flight information and logs, where available.
- Recording and retrieval of video, where configured.
- Role-based user access and administrative controls.

The web-based platform shall be accessible through standard web browsers without requiring dedicated client software for normal operation.

3.5 Installation and Commissioning

The successful bidder shall undertake complete:

- Delivery and physical verification.
- Installation and configuration.
- Integration of UAV and surveillance payloads.
- Ground Control Station configuration.
- Mission software configuration.
- RTMP streaming configuration.
- Web-based monitoring platform configuration.
- Functional testing.
- Demonstration.

- Acceptance testing.
- Commissioning and operational handover.

3.6 Training

The bidder shall provide operational and maintenance training to designated Kerala Police personnel covering UAV operation, VTOL and fixed-wing flight operations, mission planning, EO/thermal payload operation, RTMP streaming, web-based monitoring, fleet management, battery management, safety procedures and basic maintenance.

3.7 Warranty and Technical Support

The bidder shall provide comprehensive OEM warranty, software/firmware updates and technical support as specified in this RFP.

4. MINIMUM TECHNICAL SPECIFICATIONS

The offered UAV system shall meet or exceed the following minimum technical requirements:

Sl. No.	Parameter	Minimum Specification
1	UAV Type	Hybrid Fixed-Wing Vertical Take-Off and Landing (VTOL) UAV suitable for long-endurance surveillance
2	Operational Role	Coastal Security, Maritime Surveillance, ISR, Disaster Response, Law Enforcement and Surveillance
3	Take-Off and Landing	Fully autonomous Vertical Take-Off and Landing capability
4	Flight Endurance	Minimum 120 minutes under specified operating conditions
5	Operational Radius	Minimum 20 km
6	Communication Range	Minimum 20 km, subject to applicable regulatory and operational limitations
7	Cruise Speed	Minimum 70 km/h
8	Maximum Flight Speed	Minimum 90 km/h
9	Wind Resistance	Minimum 12 m/s
10	Service Ceiling	Minimum 3,000 m AMSL
11	Operating Temperature	-10°C to +50°C or better
12	Navigation	GPS/NavIC/GLONASS or equivalent multi-GNSS with INS/IMU
13	Flight Modes	Manual, Assisted, Autonomous, Waypoint Navigation

		and Return-to-Home
14	Mission Planning	Graphical mission planning with waypoint and autonomous flight capability
15	Mission Resume	Automatic mission resume after communication-link recovery
16	Deployment	Ready for flight within 10 minutes, subject to site conditions
17	Payload Capacity	Minimum 700 g
18	Payload Configuration	Modular/quick-swap payload architecture
19	Supported Payloads	EO Camera, Thermal Camera, Mapping Camera and compatible mission payloads
20	EO Camera	Minimum 4K imaging capability
21	Video Recording	Minimum 4K onboard recording
22	Live Video	Minimum 1080p Full HD live video transmission
23	Optical Zoom	Minimum 30× optical/hybrid zoom
24	Digital Zoom	Minimum 10× digital zoom
25	Thermal Camera	Integrated thermal imaging capability
26	Thermal Resolution	Minimum 640 × 512 pixels
27	Thermal Sensor	Uncooled LWIR or better
28	Thermal Frame Rate	Minimum 30 Hz
29	Gimbal	3-axis stabilised EO/IR gimbal
30	Target Tracking	AI-assisted visual target tracking, where supported by the offered system
31	Communication Link	Secure digital command and control link
32	Communication Security	Encrypted command, control and data transmission
33	RTMP Live Streaming	The Drone Remote Controller/Ground Control Station shall support RTMP (Real-Time Messaging Protocol) and live video streaming to compatible external platforms/servers through the available communication network.
34	Telemetry	Real-time GPS position, altitude, heading, speed/airspeed, battery status and flight/system status
35	Ground Control Station	Portable rugged Ground Control Station with integrated display
36	GCS Display	Minimum 7-inch Full HD sunlight-readable display
37	Mission Software	Mission planning, live monitoring, flight logging, payload control and mission replay
38	Controller Battery Backup	Minimum 4 hours
39	Data Recording	Flight logs, images and video recording
40	Fail-Safe	Return-to-Home, lost-link recovery, emergency landing and low-battery recovery
41	Geo-Fencing	Configurable geo-fencing and applicable flight-restriction functions

42	Obstacle Detection	Obstacle detection/avoidance, where technically applicable
43	Battery	Intelligent high-energy rechargeable lithium battery system
44	Battery Provision	Minimum 3 flight batteries per UAV system
45	Charger	Intelligent multi-battery charging system
46	Transportability	Portable/field-deployable configuration
47	Environmental Capability	Suitable for coastal day/night operations within OEM operating limits
48	Data Security	Secure storage and authenticated access to recorded operational data
49	Compliance	Applicable DGCA and Government of India requirements
50	Warranty	Minimum 3 years comprehensive OEM warranty
51	Technical Support	Installation, commissioning, software/firmware updates and technical assistance during warranty

The above specifications shall constitute the minimum technical requirements. Equivalent or superior specifications may be accepted, subject to technical evaluation and approval by Kerala Police.

5. RTMP-BASED LIVE VIDEO STREAMING REQUIREMENTS

The RTMP capability shall form an integral and mandatory requirement of the proposed UAV system.

The Drone Remote Controller/Ground Control Station shall be capable of transmitting the live video feed generated by the UAV surveillance payload to a compatible external RTMP server or platform through an available communication network.

The system shall support, as applicable:

- RTMP live video streaming.
- Configurable RTMP server/streaming URL.
- Stream key or equivalent authentication mechanism, where supported.
- Selection of appropriate video resolution and bitrate.
- Continuous live streaming during UAV operations subject to network availability.
- Simultaneous monitoring of the video on the Ground Control Station, wherever supported.
- Reconnection or stream recovery following temporary network interruption, wherever supported.

The bidder shall clearly specify the RTMP implementation, supported video formats/codecs, maximum supported streaming resolution, bitrate, network requirements and any limitations.

The RTMP streaming functionality shall be demonstrated during acceptance testing.

6. WEB-BASED VIDEO MANAGEMENT AND FLEET MONITORING SOFTWARE

The proposed Video Management and Fleet Monitoring Software shall be fully web-based and accessible through standard web browsers without requiring dedicated client software.

The system shall provide centralised access to authorised users for monitoring the UAV fleet and associated live video streams.

The solution shall support, as applicable:

- RTMP live video ingestion.
- Live video monitoring through a web browser.
- Multiple simultaneous UAV video feeds, subject to server and network capacity.
- GPS-based UAV location display.
- Interactive map-based UAV tracking.
- UAV identification and status display.
- Real-time or near-real-time telemetry display.
- Flight status and mission information.
- Historical flight information.
- Video recording and playback, where configured.
- Operational event and system logs.
- User authentication.
- Role-based access control.
- Administrative controls.
- Audit logging.

The system shall be designed to allow authorised supervisory personnel to monitor deployed UAVs from a central location without requiring them to operate the individual Ground Control Station.

7. VIDEO MANAGEMENT AND STREAMING COMPATIBILITY

The proposed software shall support commonly used video and streaming standards necessary for integration with the offered UAV system.

The solution shall support, as applicable:

Video Codecs:

- H.264 / AVC.
- H.265 / HEVC.
- MJPEG, where supported.

Streaming Protocols:

- RTMP.
- RTSP.
- WebRTC for browser-based low-latency viewing, where supported.
- HLS.
- HTTP-FLV, where supported.

The bidder shall clearly identify which codecs and protocols are natively supported by the proposed UAV, Ground Control Station and web-based monitoring platform.

The proposed web interface shall be compatible with commonly used modern browsers, including:

- Google Chrome.
- Microsoft Edge.
- Mozilla Firefox.
- Apple Safari.

The solution shall not require ActiveX, NPAPI plug-ins or specialised browser extensions for normal web-based access.

8. FLEET MANAGEMENT AND MAP-BASED MONITORING

The proposed software shall provide centralised monitoring of the UAV fleet based on available communication and telemetry interfaces.

The system shall provide, as applicable:

- GPS coordinates of deployed UAVs.
- Interactive map-based visualisation.
- Real-time or near-real-time UAV location updates.
- UAV identification.

- Flight status.
- Altitude.
- Speed.
- Heading.
- Battery status.
- Communication-link status.
- Mission status.
- Flight path/trajectory, where available.
- Historical flight information and logs.
- Centralised monitoring of multiple UAV deployments.

The platform shall enable authorised users to identify and monitor the operational deployment of the UAV fleet through a suitable map interface.

9. DATA SECURITY, USER ACCESS AND AUDIT

The proposed system shall incorporate appropriate security mechanisms for protection of operational video, telemetry and other mission-related information.

The system shall support:

- Secure user authentication.
- Role-based access control.
- Secure communication.
- Encryption of sensitive data.
- Secure storage of recorded information.
- User activity logging.
- System event logging.
- Audit trails.
- Controlled access to recorded video and operational data.

The proposed cybersecurity architecture shall comply with applicable Government of India requirements and CERT-In directions/guidelines, as applicable.

The bidder shall provide details of the proposed cybersecurity architecture and security controls.

10. DATA RECORDING, REPORTING AND EXPORT

The proposed system shall provide appropriate facilities for recording and retrieval of operational information.

The solution shall support, as applicable:

- Flight-log recording.
- UAV telemetry recording.
- Video recording.
- Image recording.
- Timeline-based review.
- Historical mission review.
- Operational event logs.
- User activity logs.
- Export of relevant reports in commonly usable formats.
- Retrieval of recorded video and associated mission information.

Where supported, reports shall be exportable in formats such as Excel (.xlsx), CSV or PDF.

11. CLOUD AND EXTERNAL SERVER INTEGRATION

The proposed solution shall support integration with compatible external servers or cloud infrastructure for live video streaming, recording, archival and retrieval, wherever such infrastructure is provided or configured by Kerala Police.

The bidder shall clearly specify:

- Server requirements.
- Network bandwidth requirements.
- Streaming requirements.
- Storage requirements.
- Cloud integration method.
- API/integration capability, where available.
- Licensing requirements, if any.
- Any recurring subscription or service requirements.

No mandatory dependence on a proprietary cloud platform shall be imposed without clearly specifying the associated technical and financial implications.

Any third-party cloud service, subscription, licence or recurring expenditure required for operation of the proposed system shall be functional with the full system of drones commissioned for the warranty period covered for all the drones. The charges of the cloud

after the warranty period will be specifically mentioned in the financial and technical proposal.

12. SYSTEM CONFIGURATION

The bidder shall supply Six (06) complete and operational Long-Endurance Fixed-Wing VTOL Surveillance UAV Systems.

Each system shall include, at a minimum:

- One Long-Endurance Fixed-Wing VTOL UAV.
- EO surveillance payload.
- Thermal imaging payload.
- Modular/quick-swap payload architecture.
- Portable rugged Ground Control Station.
- Mission planning and flight-control software.
- RTMP-capable live video streaming functionality.
- Access to the proposed web-based Video Management and Fleet Monitoring platform.
- Minimum three intelligent flight batteries.
- Multi-battery smart charging system.
- Rugged carrying/transport case or field deployment system.
- Spare propeller sets.
- Maintenance toolkit.
- Essential field accessories.
- User, technical and maintenance manuals.
- Warranty documentation.

The complete system shall be supplied as an integrated operational package suitable for immediate field deployment.

13. INSTALLATION, INTEGRATION AND COMMISSIONING

The successful bidder shall be responsible for complete installation, configuration, integration, testing and commissioning of all six UAV systems.

The work shall include:

- Physical verification of supplied equipment.
- UAV configuration.
- Payload installation and configuration.

- Ground Control Station configuration.
- Mission software installation/configuration.
- RTMP streaming configuration.
- Web-based monitoring platform configuration.
- Integration with designated external server/network infrastructure, where applicable.
- GPS and map-monitoring configuration.
- Functional testing.
- Demonstration to designated Kerala Police personnel.
- Acceptance testing.
- Operational handover.

The bidder shall submit an installation and commissioning report upon completion.

14. TESTING AND ACCEPTANCE

The supplied UAV systems shall be subjected to technical and functional acceptance testing before final acceptance.

The acceptance process shall include verification and demonstration of:

- UAV configuration.
- VTOL operation.
- Fixed-wing flight operation.
- Flight endurance.
- Operational radius.
- Communication range.
- EO camera functionality.
- Thermal camera functionality.
- Optical and digital zoom.
- Gimbal operation.
- Live HD video transmission.
- RTMP live video streaming from the Drone Remote Controller/Ground Control Station.
- Web-based live video monitoring.
- GPS-based UAV tracking.
- Map-based fleet visualisation.
- Real-time telemetry.
- Mission planning.
- Autonomous waypoint operation.
- Mission resume after link recovery, where applicable.
- Flight-log recording.
- Video and image recording.
- Return-to-Home.
- Lost-link recovery.

- Low-battery safety functions.
- Battery and charging system.
- Web-based Video Management and Fleet Monitoring functions.

The bidder shall demonstrate compliance with the prescribed specifications using the actual equipment proposed for supply.

Any component or functionality that does not meet the required specification may be required to be rectified, replaced or upgraded by the bidder at no additional cost to Kerala Police.

15. TRAINING

The successful bidder shall provide operational and maintenance training to designated Kerala Police personnel.

The training shall cover:

- UAV system familiarisation.
- VTOL and fixed-wing flight operations.
- Ground Control Station operation.
- Mission planning.
- Waypoint and autonomous missions.
- EO camera operation.
- Thermal camera operation.
- Target observation and tracking.
- Live video monitoring.
- RTMP live streaming configuration and operation.
- Web-based Video Management System.
- Fleet monitoring and map-based UAV tracking.
- Telemetry monitoring.
- Flight-log and mission-data management.
- Emergency and fail-safe procedures.
- Battery handling and management.
- Preventive maintenance.
- Basic troubleshooting.
- Field deployment procedures.

Training completion certificates and relevant operational documentation shall be provided.

16. WARRANTY AND TECHNICAL SUPPORT

The bidder shall provide a minimum three-year comprehensive OEM warranty for the complete UAV system.

The warranty shall cover the UAV platform, surveillance payloads, Ground Control Station, supplied batteries subject to OEM warranty conditions, charging equipment, supplied software and other components supplied under this procurement.

During the warranty period, the bidder shall provide:

- Installation and commissioning support.
- Preventive and corrective maintenance support.
- Repair or replacement of defective components.
- Software and firmware updates, wherever applicable.
- RTMP streaming support.
- Web-based monitoring software support.
- Technical troubleshooting.
- Genuine spare parts.
- On-site technical assistance wherever required.

17. DELIVERABLES

The successful bidder shall deliver, install, commission and operationalise Six (06) complete Long-Endurance Fixed-Wing VTOL Surveillance UAV Systems, together with all associated equipment, software and services necessary for operational deployment.

The deliverables shall include:

Sl. No.	Deliverable	Quantity
1	Long-Endurance Fixed-Wing VTOL Surveillance UAV System	06 Nos.
2	EO Surveillance Payload	06 Sets
3	Thermal Imaging Payload	06 Sets
4	Portable Rugged Ground Control Station	06 Nos.
5	Mission Planning and Flight-Control Software	06 Sets/Licences or as applicable
6	RTMP Live Streaming Capability	Integrated with each system
7	Web-Based Video Management and Fleet Monitoring Software	As required for complete system operation
8	Intelligent Flight Batteries	Minimum 18 Nos.
9	Multi-Battery Smart Charging System	06 Nos.
10	Rugged Carrying/Field Deployment Case	06 Sets
11	Spare Propeller Sets	06 Sets

12	Maintenance Toolkit	06 Sets
13	Essential Field Accessories	06 Sets
14	User/Technical/Maintenance Manuals	06 Sets
15	Warranty Documentation	06 Sets
16	Training and Demonstration	As required
17	Installation, Acceptance Testing and Commissioning Report	1 Consolidated Report

18. ADVANCED SYSTEM ARCHITECTURE, INTEGRATION AND FUTURE ADAPTABILITY

The offered UAV systems shall be supplied with the latest available, stable and operationally supported hardware, flight control systems, onboard computing units, communication modules, sensors and associated firmware/software versions available at the time of supply and commissioning. The systems shall incorporate a modern and future-ready flight-control and onboard processing architecture with suitable provision for advanced autonomous operations, real-time sensor processing, AI/ML-based applications, computer vision, future payload integration and authorised customisation of flight-control, firmware, communication, telemetry and video transmission interfaces, wherever technically applicable.

The successful bidder shall provide the necessary technical support, relevant software development resources and documentation for authorised customisation and future adaptation of transferable and customisable components and shall provide assistance for restoring the UAV system to a safe and operational condition in the event of any malfunction arising after authorised modifications. The proposed Web-Based Video Management and Fleet Monitoring System shall form an integral part of the solution and shall support centralised integration and simultaneous monitoring of compatible UAV platforms, including live video, available telemetry and GPS-based map visualisation, with a minimum capacity to support the simultaneous integration, monitoring and live streaming of **100 drones at a time**, subject to the availability of compatible interfaces, communication links, network bandwidth and supporting infrastructure, and shall be scalable for future expansion.

The system shall also provide provision for authorised personnel at the designated Command and Control Centre to access and monitor individual UAVs and, wherever technically supported by the respective UAV platform and subject to appropriate authentication, authorisation, communication availability and operational safety controls, assume or transfer operational command and control of the selected UAV.

19. QUANTITY

The total quantity proposed under this RFP shall be:

Long-Endurance Fixed-Wing VTOL Surveillance UAV System – 06 Nos.

The systems are intended for deployment by Kerala Police for extended coastal and maritime surveillance, aerial reconnaissance, situational awareness, monitoring of critical coastal areas, disaster response, law-enforcement operations and other authorised security and surveillance requirements.

4. RFP-4- 5 Nos. COASTAL SURVEILLANCE UAV SYSTEMS-

Procurement of 5 Nos. GCS-Enabled Live Monitoring Drone Pilot Training Drones

1. INTRODUCTION

Kerala Police proposes to procure Five (05) GCS-Enabled Live Monitoring Drone Pilot Training Drones for use in structured drone pilot training, operational familiarisation and practical flight training of police personnel. The systems shall provide a reliable training platform with a dedicated Ground Control Station (GCS), live video monitoring, flight telemetry, mission planning and essential safety features.

The proposed systems shall be suitable for repeated training use and shall enable trainees to develop practical skills in manual, assisted and autonomous flight operations, mission planning, live surveillance monitoring, payload operation and emergency procedures.

2. OBJECTIVES

The procurement is intended to establish dedicated training assets for Kerala Police personnel and shall:

- Facilitate practical drone pilot training and operational familiarisation.
- Provide live video and flight telemetry through a Ground Control Station.
- Support manual, assisted and autonomous flight training.
- Enable mission planning and waypoint-based flight exercises.
- Provide training on day/night surveillance and camera operations.
- Facilitate training in emergency, fail-safe and Return-to-Home procedures.
- Support repeated field training with a portable and robust system.

3. SCOPE OF WORK

The successful bidder shall be responsible for the supply, installation, commissioning, testing, demonstration and operationalisation of Five (05) complete GCS-Enabled Live Monitoring Drone Training Systems.

The scope shall include:

- Supply of 5 Nos. training UAVs.
- Supply of 5 Nos. dedicated Ground Control Stations (GCS) with integrated displays.
- Supply of integrated live-monitoring camera/payload system.
- Supply of flight batteries and intelligent chargers.
- Supply of mission planning and flight-control software.
- Supply of carrying cases and essential operational accessories.
- Installation, configuration and commissioning.
- Demonstration and acceptance testing.
- Basic operator, maintenance and system familiarisation training.
- Supply of user, technical and maintenance manuals.
- Warranty and technical support during the warranty period.

4. TECHNICAL SPECIFICATIONS

The offered system shall meet or exceed the following minimum requirements. The specifications are intended to ensure suitability for police drone pilot training and repeated operational use.

Sl. No.	Parameter	Minimum Specification
1	UAV Type	Multi-Rotor Training UAV
2	Operational Role	Drone Pilot Training, Surveillance Training and Operational Familiarisation
3	UAV Category	DGCA Small Category compliant / applicable DGCA category
4	Take-off & Landing	Vertical Take-Off and Landing (VTOL)
5	Flight Modes	Manual, Assisted, Autonomous, Waypoint Navigation and Return-to-Home
6	Flight Endurance	Minimum 30 Minutes with standard payload
7	Operational Range	Minimum 5 km
8	Maximum Flight	Minimum 40 km/h

	Speed	
9	Wind Resistance	Minimum 10 m/s
10	Navigation	GPS / NavIC / GLONASS or equivalent Multi-GNSS
11	Mission Planning	Graphical Mission Planning with Waypoint-based Autonomous Flight
12	Deployment	Ready for Flight within 10 Minutes
13	Camera	Integrated Daylight Camera suitable for live monitoring and training
14	Video Resolution	Minimum 1080p Full HD
15	Live Video Transmission	Real-time HD video transmission to GCS
16	Gimbal	Stabilized Camera Gimbal
17	Camera Control	Pan/Tilt/Zoom control, wherever supported by the offered payload
18	Ground Control Station	Dedicated Portable GCS with Integrated Display
19	GCS Display	Minimum 7-inch high-brightness display
20	Live Monitoring	Simultaneous live video and flight information display
21	Telemetry	Real-time GPS position, altitude, speed, heading, battery and flight status
22	Mission Software	Mission Planning, Live Monitoring, Flight Logging and Flight Control
23	Flight Log	Automatic recording of flight telemetry and mission data
24	Data Recording	Onboard image/video recording
25	Communication Link	Secure Digital Command and Control Link
26	Fail-safe Features	Return-to-Home, Lost Link Recovery, Low Battery Warning/Recovery and Emergency Landing
27	Geo-fencing	Configurable Geo-fencing / applicable airspace safety features
28	Obstacle Awareness	Obstacle Detection/Avoidance, where available in the offered system
29	Battery	Intelligent Rechargeable Lithium Battery
30	Battery Configuration	Minimum Three (03) Flight Batteries per UAV system
31	Battery Charger	Intelligent / Multi-Battery Charging System
32	Data Security	Secure Data Storage and User Authentication
33	Environmental Capability	Suitable for outdoor training operations within OEM operating limits
34	Transportability	Portable Field Deployment Configuration
35	Accessories	Carrying Case, Spare Propellers, Toolkit, Cables and Essential Accessories
36	Compliance	DGCA Type Certified, where applicable, and compliant with applicable Indian regulations
37	Warranty	Minimum Three (03) Years Comprehensive OEM Warranty
38	Technical Support	Installation, Commissioning, Software Updates and Technical Assistance

5. GROUND CONTROL STATION AND LIVE MONITORING REQUIREMENTS

The Ground Control Station shall form an integral part of each training system and shall enable the instructor and trainee to monitor and control the UAV during practical training exercises.

The GCS shall provide, at minimum:

- Real-time live video from the UAV.
- UAV position and movement on a digital map.
- Altitude, speed, heading and distance information.
- Battery status and communication-link status.
- Flight mode indication.
- Waypoint and mission planning.
- Camera/payload control.
- Flight recording and telemetry logging.
- Return-to-Home and other safety controls.
- Playback/review of recorded flight data, wherever supported.

The GCS shall be portable and suitable for use during classroom demonstrations as well as outdoor practical flight training.

6. SYSTEM CONFIGURATION

Each of the Five (05) UAV Training Systems shall be supplied as a complete operational package consisting of:

- One (01) Training UAV.
- One (01) Ground Control Station with integrated display.
- One (01) Integrated surveillance camera/payload.
- Minimum Three (03) intelligent flight batteries.
- One (01) intelligent battery charging system.
- Mission planning and flight-control software.
- One (01) rugged carrying case.
- Essential cables and connectors.
- Spare propeller set.
- Maintenance toolkit.
- User and maintenance manuals.
- Warranty documentation.

The complete system shall be ready for immediate training deployment without requiring additional components for normal operation.

7. TRAINING AND DEMONSTRATION

The successful bidder shall provide system familiarisation and demonstration to the nominated Kerala Police personnel. The training shall cover:

- UAV system operation and controls.
- GCS operation and live monitoring.
- Pre-flight and post-flight procedures.
- Manual and assisted flight operations.
- Mission planning and waypoint operations.
- Live camera operation and recording.
- Battery handling and charging.
- Flight-log management.
- Emergency and fail-safe procedures.
- Basic maintenance and troubleshooting.

The bidder shall demonstrate all major functions of the supplied system before acceptance.

8. WARRANTY AND TECHNICAL SUPPORT

The bidder shall provide a minimum Five (05) years comprehensive OEM warranty covering the UAV, GCS, camera/payload, batteries, chargers and supplied accessories, subject to OEM battery warranty conditions.

During the warranty period, the bidder shall provide:

- Installation and commissioning support.
- Corrective maintenance and repair.
- Software and firmware updates, wherever applicable.
- Replacement of defective components.
- Technical troubleshooting support.
- Genuine spare parts and technical assistance.

- On-site support wherever required.

9. DELIVERABLES

The successful bidder shall deliver and commission Five (05) complete GCS-Enabled Live Monitoring Drone Training Systems.

The deliverables shall include:

- 5 Nos. Training UAVs.
- 5 Nos. Ground Control Stations.
- 5 Nos. Integrated Camera/Payload Systems.
- Minimum 15 Nos. Intelligent Flight Batteries.
- 5 Nos. Intelligent Battery Charging Systems.
- Mission planning and flight-control software.
- 5 Nos. Carrying Cases.
- 5 Nos. Maintenance Toolkits.
- Spare propeller sets.
- Essential cables and accessories.
- User and maintenance manuals.
- Warranty certificates.
- System demonstration and commissioning report.
- Training/familiarisation completion documentation.

10. INSPECTION, TESTING AND ACCEPTANCE

The supplied systems shall be subjected to inspection and acceptance testing by the Kerala Police before final acceptance. The bidder shall demonstrate the specified flight, communication, live-monitoring, GCS, telemetry, recording and safety functions.

Any deficiency identified during testing shall be rectified by the bidder at no additional cost before final acceptance.

11. COMPLIANCE AND DOCUMENTATION

The bidder shall submit technical literature, product specifications, applicable certification documents, OEM authorisation/details, warranty terms and other relevant documentation necessary for technical evaluation.

The bidder shall clearly identify compliance against each minimum technical specification specified in this RFP. The offered system shall comply with applicable DGCA requirements, Drone Rules and other Government of India regulations governing operation and procurement of the UAV system.

12. QUANTITY

The required quantity under this RFP is as follows:

Sl. No.	Item	Quantity
1	GCS-Enabled Live Monitoring Drone Training System	5 Nos.

The quoted price shall include all hardware, software, accessories, installation, commissioning, demonstration, training/familiarisation, documentation, warranty and technical support required for complete operational deployment of the three systems.

II. DOCUMENTATION AND ASSET DETAILS

The successful bidder shall provide complete technical and operational documentation for the supplied systems.

Documentation shall include, as applicable, OEM datasheets, user manuals, payload manuals, controller manuals, battery and charger documentation, warranty certificates, software and firmware details, serial numbers, asset details, RTMP configuration information, system architecture, web-platform documentation and installation and commissioning reports.

All supplied software and firmware shall be genuine and appropriately licensed wherever licensing is applicable.

III. ELIGIBILITY OF BIDDERS

The bidder shall be a legally established OEM, authorised distributor/dealer, authorised system integrator or other entity duly authorised to supply and support the proposed UAV system.

The bidder shall possess valid statutory registrations, including GST registration, as applicable.

Where the bidder is not the OEM, appropriate OEM authorisation shall be submitted along with the bid.

The bidder shall demonstrate adequate technical capability and resources for supply, installation, commissioning, training and after-sales support.

The bidder shall comply with the applicable Government procurement rules and shall not be debarred or blacklisted by a competent Government authority as on the date of submission of the bid.

IV. TECHNICAL COMPLIANCE

The bidder shall submit a comprehensive technical compliance statement against the specifications and functional requirements contained in this RFP.

The bidder shall clearly indicate the exact make, model and offered specification against each requirement and shall provide supporting OEM literature wherever applicable.

Any deviation from the prescribed minimum requirement shall be specifically declared in the bid. Failure to disclose a deviation may be treated as a material non-compliance.

The bidder shall not merely state "Complied" without providing sufficient technical details to establish compliance.

Kerala Police reserves the right to verify the claimed specifications through OEM documentation, demonstration, testing or other appropriate means.

V. PAYMENT CONDITIONS

The payment to the successful bidder shall be released in the following stages, subject to satisfactory completion of the respective milestones and submission of all required documents:

- 1. Advance Payment – 30%:** Thirty percent (30%) of the total contract value shall be released as advance payment after the execution of the contract and submission of a valid Bank Guarantee for an equivalent amount, in the prescribed format and valid for the period specified by Kerala Police. The advance payment shall be subject to fulfilment of all applicable contractual and financial conditions.
- 2. Payment on Completion of Supply – 20%:** Twenty percent (20%) of the total contract value shall be released upon successful completion of the supply and

delivery of all UAV systems, associated equipment, accessories, software, hardware and other components covered under the scope of the contract, subject to physical verification and confirmation of the quantity and condition of the supplied items by the authorised representatives of Kerala Police.

3. **Final Payment – 50%:** The remaining fifty percent (50%) of the total contract value shall be released only after successful completion of the entire project, including installation, configuration, integration, testing, commissioning, demonstration and operationalisation of all UAV systems, RTMP live video streaming, Web-Based Video Management and Fleet Monitoring System and all other components and functionalities specified in the RFP.

The final payment shall be subject to successful verification and acceptance of the complete system by the authorised representatives of the Kerala Police Department, Government of Kerala, including verification of the performance and functionality of the entire system and, wherever applicable, verification of the software system with respect to access control, protection against unauthorised modification or tampering, information security and other applicable security requirements. The final payment shall be released only after the successful completion of the required verification/acceptance process and formal approval of the Kerala Police Department, Government of Kerala.

VI. DELIVERY, INSPECTION, ACCEPTANCE AND REPLACEMENT

1. Delivery Period

The successful bidder shall supply and deliver all items specified in the tender, along with all required accessories, batteries, chargers, spares, software, documentation and other items specified in the Schedule of Requirements, within **60 days** from the date of issue of the Supply Order/Letter of Acceptance.

2. Delivery Location

Delivery shall be made to the location(s) specified by the Procuring Authority within Kerala, at the supplier's own risk and cost. The supplier shall be responsible for the safe transportation, unloading, handling and delivery of all items at the designated location(s).

3. Complete Delivery

Delivery shall be considered complete only upon delivery of all items, accessories, components and associated requirements specified in the tender and their subsequent inspection, testing and acceptance by the Procuring Authority.

Mere physical delivery of the principal items without the required accessories, batteries, chargers, spares, software/firmware, documentation or other specified components shall **not** be treated as complete delivery.

4. Inspection, Testing and Acceptance

All supplied items shall be subject to inspection, verification and acceptance testing by the Purchase/Inspection Committee or any other committee/authority designated by the Procuring Authority.

The Procuring Authority shall have the right to verify, among other things:

- Quantity and completeness of supply;
- Make, model and serial number;
- Compliance with the prescribed technical specifications;
- Accessories, batteries, chargers, spares and other components;
- Software/firmware and associated documentation;
- Workmanship and physical condition; and
- Functional and performance requirements specified in the tender.

Acceptance shall be accorded only after satisfactory completion of the required inspection, testing and demonstration, wherever applicable.

5. Defective, Damaged or Non-Conforming Items

Any item found to be defective, damaged, incomplete or not conforming to the prescribed technical specifications or tender requirements during inspection, testing or within the applicable warranty period shall be replaced or rectified by the supplier at no additional cost to the Procuring Authority.

Such replacement or rectification shall be completed within **15 days** from the date of intimation by the Procuring Authority, or within such other period as may be specified by the Procuring Authority based on the nature of the defect or non-conformity.

VI. GENERAL CONDITIONS

The equipment supplied shall be brand new, unused and of current production. Refurbished, reconditioned or previously deployed equipment shall not be accepted.

The offered UAV system shall meet or exceed the minimum technical requirements specified in this RFP.

The bidder shall be responsible for transportation, delivery, installation, configuration, testing, commissioning and operational handover of the complete system.

All accessories, cables, connectors, adapters, software components and other items necessary for normal operation shall be supplied as part of the system, whether or not each individual item is separately listed in the financial quotation.

The bidder shall ensure that the RTMP live streaming function and web-based monitoring capability are fully operational at the time of commissioning.

Kerala Police reserves the right to inspect, test and technically evaluate the equipment and to verify the claims made by the bidder against OEM documentation and actual demonstrated performance.

The Department reserves the right to accept or reject any bid in accordance with the applicable procurement rules, terms and conditions of the tender and the provisions contained in this RFP.

Execution of SLA

Successful bidder should execute a service level agreement format available at the Office of IGP Cyber Operations, Pattom Thiruvananthapuram. Cost of stamp paper for SLA is one rupee for every rupee 1000 or part thereof on the amount agreed in the contract, subject to a minimum of rupees 200 and a maximum of rupees one lakh.

Financial Bid

The bidder shall ensure that all proposed drones and other associated requirements shall be clearly identified and quoted in the Commercial Bid/BOQ, wherever applicable. Total cost evaluation method is adopted.

Contact for Clarifications

For any clarifications regarding this tender, bidders may contact the Cyber Operations Wing, Kerala Police: Email: drone.pol@kerala.gov.in

Mobile No. 09496818778

All queries should be sent well in advance of the bid submission deadline to ensure a response in time.