



Bid Number/बोली क्रमांक (बिड संख्या):  
GEM/2023/B/3235137  
Dated/दिनांक : 07-03-2023

### Bid Document/ बिड दस्तावेज़

Bid Details/बिड विवरण	
Bid End Date/Time/बिड बंद होने की तारीख/समय	17-03-2023 15:00:00
Bid Opening Date/Time/बिड खुलने की तारीख/समय	17-03-2023 15:30:00
Bid Offer Validity (From End Date)/बिड पेशकश वैधता (बंद होने की तारीख से)	30 (Days)
Ministry/State Name/मंत्रालय/राज्य का नाम	Manipur
Department Name/विभाग का नाम	Environment And Forest Department Manipur
Organisation Name/संगठन का नाम	Environment And Ecology Wing
Office Name/कार्यालय का नाम	Forest Head Office Sanjenthong
Total Quantity/कुल मात्रा	10015
Item Category/मद केटेगरी	Fixed Wing UAV , Multi Rotor UAV , Accessory- LIDAR Unit , Accessory- Multi spectral Sensor Unit Fixed Wing , Accessory- Multi spectral Sensor Unit Multi rotor , Software , Sprayer Drone UAV
BOQ Title/बीओक्यू शीर्षक	UAV AND ACCESSORIES FOR FORESTRY ACTIVITIES
Minimum Average Annual Turnover of the bidder (For 3 Years)/बिडर का न्यूनतम औसत वार्षिक टर्नओवर (3 वर्षों का)	400 Lakh (s)
OEM Average Turnover (Last 3 Years)/मूल उपकरण निर्माता का औसत टर्नओवर (गत 3 वर्षों का)	400 Lakh (s)
Years of Past Experience Required for same/similar service/उन्हीं/समान सेवाओं के लिए अपेक्षित विगत अनुभव के वर्ष	3 Year (s)
MSE Exemption for Years Of Experience/अनुभव के वर्षों से एमएसई छूट/	Yes
Startup Exemption for Years of Experience/अनुभव के वर्षों से स्टार्टअप छूट/ and Turnover	No

**REQUEST FOR PROPOSAL**

**FOR SUPPLYING OF  
STANDARD & PROFESSIONAL SURVEY GRADE UNMANNED AERIAL VEHICLE/  
DRONE FOR LARGE SCALE MAPPING AND SURVEILLANCE**

**Forest Department,  
Government of Manipur,  
Forest Headquarters, Sanjenthong,  
Imphal – 795001.  
Manipur. India**

## **1. INVITATION FOR PROPOSAL**

1.1 E-tender in 2-bid system are invited for the supply of Standard and Professional Survey Grade Unmanned Aerial Vehicle/Drone for large scale mapping and surveillance as per enclosed specification at **Annexure I** under the following terms & conditions from reputed and experienced manufacturers/ authorized distributors of similar items and shall be received **till 3:00 PM on 17/03/2023**. Bids shall be submitted through online only at the Govt of Manipur's E-Procurement Portal website. Manual bids shall not be accepted except for the original documents/instruments as mentioned in the tender documents.

### 1.2 Data Sheet

SN	Information	Details
1	Tender Reference No and Date	No. 2/50/2022/Forests (DRONE) dt 6/03/2023
2	Availability of RFP Document	From 11:00 AM of 7/03/2023 till 3:00 PM of 17/03/2023 through Government E-Market place and Forest website <a href="https://forest.manipurforest.gov.in/">https://forest.manipurforest.gov.in/</a>
3	Last date and time for submission of Pre-Bid Queries	13/03/2023 upto 3:00PM
4	Place, Time and Date of Pre-bid Meeting	13/03/2023, 3:30 PM @ Forest Headquarter
5	Last date and time for submission of proposal (Technical and Financial) online and hard copy (only technical)	3:00 PM on 17/03/2023
6	Place, Time and Date of Opening of Technical Bids	17/03/2023, 3:30 PM @ Forest Headquarter
7	Contact Person for Queries	Smt Debala Leiphprakpam, DCF /APM, Forest Headquarter, Imphal Contact - 9863239364
8	Address at which proposal in response to RFP notice is to be submitted	Online bid to be submitted through Government E-marketplace and hard copy of Technical Bid at the Office of the Principal Chief Conservator of Forests & Head of Forest Force (PCCF & HoFF), Forest Department, Forest Headquarters, Sanjenthong, Imphal 795001, Manipur.
9	Bid Validity	90 days from the date of financial bid
10	Bidding Method	2-bid system

## **2. ELIGIBILITY CRITERIA**

- 2.1 The bidder should have a legal entity registered in India. Copy of Certificate of Incorporation/Registration under Companies Act, 1956/2013 to be furnished.
- 2.2 Bidder should be i) a manufacturer of equipment/system of required capacity/configuration in compliance with the DGCA guidelines published vide no F.No-05-13/2014-AED VOL. IV dated 27.08.2018 OR ii) Authorised dealer / distributors of a manufacturer or Indian Agent of an overseas vendor of equipment/system of required capacity/configuration in compliance with the DGCA guidelines published vide no F.No-05-13/2014-AED VOL. IV dated 27.08.2018 are also eligible to participate in the tender, provided they furnish the authorization for the items and having the dealership/ distributorship for the subject items at least for three years continuously. Indians Agents representing Foreign Principals should fulfil the provisions of Rule 152 of GFR 2017.
- 2.3 The average annual turnover of the bidder during the last three years shall not be less than Rs 4 (Four) Crore. Audited and Certified Balance Sheet and Profit/Loss Account for the last three financial years to be furnished.
- 2.4 The bidder should have successfully completed at least two projects of supply Drones/UAV of equal technical specifications or higher in the last two years. The cost should not include field survey and data creation activities. Details as per **Annexure II**.
- 2.5 Company should have previous experience of supply in the North East, India. Supporting documents to be enclosed.
- 2.6 The Company offering these Drones should be an ISO Certified Company with Certified Service Centres in India for after sale support.

### **3. GENERAL CONDITIONS**

- 3.1 Bidding document may be obtained via Government E-Marketplace and Forest Department website <https://forest.manipurforest.gov.in/> . **Bidders are to submit their e-bids through Government E-Market place.**
- 3.2 All bids must be accompanied by Earnest Money Deposit (EMD) as specified in the bid document and must be furnished with the bid. Micro and Small Enterprises (MSEs), as defined in MSE Procurement Policy issued by the Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organization are exempted from Bid Security. Certificate to be enclosed. In place of Bid Security, Bidders shall sign a Bid Security Declaration.
- 3.3 Bids shall be opened in presence of bidders/ representatives who intend to attend, on the specified date and time.
- 3.4 Pre-Bid meeting
  - a) All those bidders who have obtained/purchased bid document can participate in pre-bid meeting to seek clarification on the bid, if any.
  - b) Not exceeding two employees from each of the bidding firm / company /organization are invited to attend the Pre-Bid Conference at their own cost, which is to be held at the venue indicated in the Data Sheet.
  - c) The purpose of the meetings will be to clarify issues and to answer questions on any matter that may be raised at that stage.

- d) The Bidder is requested to submit any questions in writing to reach the client as per dates in the Data Sheet. The client will respond to any request for clarification to queries on the Tender Document, received not later than the dates prescribed in Invitation for Bids/Key events and dates. The clarifications (including query but without identifying the source of inquiry) will be uploaded on the portal.
- 3.5 At any time prior to the date of submission of bid, the authority inviting tender may, for any reason, whether at his own initiatives or in response to a clarification from a prospective bidder, modify the bidding documents by an amendment. All prospective bidders who have received the bidding document will be notified of the amendment in writing and the amendment shall be binding on them. In order to provide reasonable time to take the amendment into account in preparing the bid, the authority inviting tender, may at his discretion, extend the date and time for submission of bids.
- 3.6 The bid and all correspondence and documents shall be in the English language.
- 3.7 Firm/Supplier will provide requisite input as per DGCA policy guidelines for obtaining UIN (unique identification number) by the Forest Department.
- 3.8 The equipment supplied should qualify EMI/EMC test.
- 3.9 Forest Department reserves the right to reject any or all tenders and shall not be bound to assign any reasons for such rejection.

#### **4 TECHNICAL BID**

The bidder shall furnish in the e-bid, the following:

- 4.1 All bids must be accompanied by **EARNEST MONEY DEPOSIT** of an amount of Rs 6,00,000/- (Rupees six lakh) in the form of Demand Draft/Bankers Cheque in favour of “Conservator of Forest, Admn & Plg”. EMD submitted in any other form or bids without EMD shall not be accepted. Bidder has to upload scanned copy / proof of the DD along with bid. The EMD of the successful bidder shall be retained till completion of the tender period but shall not carry any interest. If the successful bidder fails to execute the agreement and/ or fails to deposit the performance security within the specified time, or withdraws his bid within the validity period of the bid, the EMD shall be forfeited. The EMD of the unsuccessful bidders will be returned within 30 days after the finalization of the tender.
- 4.2 Micro and Small Enterprises (MSEs), as defined in MSE Procurement Policy issued by the Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organization are exempted from Bid Security. Certificate to be enclosed. In place of Bid Security, Bidders shall sign a Bid Security Declaration as at **Annexure III**.
- 4.3 Duly attested photocopies of valid manufacturing license for the equipment offered.
- 4.4 Details of supplies made during the last 2 years with summary of Purchase Orders and performance certificates issued by clients in the specified format (Refer **Annexure II**). Items supplied to Govt. institutions, if any, for the last 2 years with copies of Purchase Order and Performance certificates are to be separately highlighted.

- 4.5 Annual Turn Over Statement for the last 3 financial years along with statement of concurrent commitment in the specified format (Refer **Annexure IV**) certified by the Auditor/ Chartered Accountant.
- 4.6 Copy of Certificate of Incorporation/Registration under Companies Act, 1956/2013 to be furnished.
- 4.7 GST registration certificate
- 4.8 The bidder shall submit GST clearance certificate and Professional Tax Receipt from the Department of Taxes, Manipur as per OM No. FR-8/1/2021-e-FD dated 1st June 2021 of the Finance Department, Manipur in case the bidder is registered in Manipur otherwise the bidder shall furnish copies of the latest GST return filing report.
- 4.9 Copy of PAN/TAN.
- 4.10 Undertaking in the form at **Annexure-V** confirming acceptance of all terms and conditions of the tender.
- 4.11 In case of dealer/distributor or Indian agent of an overseas manufacturer, Authorization from the manufacturer for the items quoted in **Annexure -VI**.
- 4.12 Catalogue, literature and schematic diagrams (wherever applicable) of all the equipment being offered.

## **5 WARRANTY MAINTENANCE**

- 5.1 The equipment supplied shall be covered under comprehensive warranty for one year from the date of commissioning and handing over and any maintenance or repair arising during this requisite period including replacement of parts if any, shall be carried out by the supplier at his own cost without any cost liability on the purchaser. AMC requirement, if any, may be indicated additional for future consideration. It shall not form part of determining the L1 rate.

## **6 AUTHORIZATION FROM EQUIPMENT MANUFACTURER:**

- 6.1 The successful bidder shall ensure that the manufacturers of the equipment being supplied shall ensure full guarantee/ warranty obligations for the required period from the date of commissioning of the supplied equipment.
  - i. Response Time for Breakdown Calls: Maintenance personnel shall attend to the breakdown within one week of reporting the fault.
  - ii. Preventive Maintenance: During the warranty period and AMC, in addition to attending break down calls, there shall be regular quarterly preventive maintenance visits.
  - iii. Operation & Maintenance Manuals: Two sets of operation & maintenance manuals along with circuit diagram and spare parts list of equipment shall be supplied.
  - iv. Installation, commissioning & Warranty Service: Supply, installation, commissioning and successful trial run of the equipment & subsequent, warranty / AMC servicing shall be done at site by the supplier themselves or their authorized agent.
  - v. Training: Free demonstration, operation and maintenance training of the assigned personnel at site shall be provided.

7 All the above documents **shall be uploaded as part of the technical e-tender bid in Government E-Market place and the original technical documents/instruments shall be submitted in hard copy in separate sealed cover superscribed as “Technical Bid Tender for Supply of Standard and Professional Survey Grade Unmanned Aerial Vehicle/Drone for Large Scale Mapping and Surveillance due at 3:00 PM on 17/03/2023** addressed to the Office of the PCCF & HoFF, Forest Department, Sanjenthong, 795001, Manipur.

## **8 SCHEDULE OF QUANTITIES & PRICES**

8.1 The rate quoted per unit shall be the landed cost at destination, inclusive of packing, forwarding, the Taxes/ duties, Freight, Insurance, Installation / Commissioning etc as per the price bid format at **Annexure VII**. Transit Insurance shall be borne by the supplier.

8.2 The landed price per unit including warranty shall be the criteria for determining the L1 rate.

8.3 No hard copy of the price bid shall be submitted. If **any unsealed** price bid is submitted in hard copy, it shall mandatorily lead to rejection of the bid.

9 Technical Bids shall be opened at the **Office of the DCF (Admin & Planning)** Forest Department, Sanjenthong, Imphal, Manipur at **3:30 PM on 17/03/2023** in presence of the intending bidders or their authorized representatives.

10 Price Bids of the bidders who meet the eligibility criteria, evaluated based on the details furnished in the Technical bid shall only be opened and the date and time of opening shall be intimated to the eligible/ short listed bidders.

## **11 TENDER EVALUATION**

11.1 Tenders will be evaluated with reference to various criteria and one of such criteria is that the rate per unit (landed price including warranty) for determining the L1 rate (Lowest rate). Conditional discounts shall not be taken into account for price comparison. However same shall be considered in case of placing order if the bidder happens to be L1.

## **12 VALIDITY OF BIDS**

12.1 Bids shall remain valid for acceptance for a period of 90 days after opening of Technical bid i.e. Technical bids with shorter validity shall be rejected. Purchaser may solicit bidders' consent to an extension of bid Validity period. A bidder may refuse extension request without forfeiting the bid Security.

## **13 VALIDITY OF TENDER**

13.1 The validity of tender of the successful bidder shall be at least 1 year from the date of finalization of the order and the successful bidder(s) are bound to supply the items at agreed rates during this period. This validity period may be further extended with mutual consent.

## **14 REASONABILITY OF RATES/ FIRM PRICE**

14.1 The bidder shall certify that the rates quoted are the lowest ones for any institution in the country. If the bidder is stockiest / distributor/ dealer, he shall confirm that the price quoted are based on manufacturer's list price with appropriate discount & shall enclose manufacturer's price list or priced quotation in support of his claim.

14.2 During the period of the contract, if the price of any tendered item is reduced due to any reason including any Law or Act of the Central/State Government, the bidder shall be statutorily bound to intimate the reduced rates immediately to the purchaser and shall charge the reduced rates. The purchaser is empowered to unilaterally effect such reduction as is necessary in rates, in case the bidder fails to notify or fail to agree to such reduction of rates.

14.3 Subject to the condition stipulated above, the prices shall remain firm for the validity period of tender and on no account any increase in price shall be entertained till the completion of the contract period.

**15 PERFORMANCE SECURITY DEPOSIT:**

15.1 The successful bidder, within 15 days of receipt of Purchase Order, shall be required to submit Performance Security Deposit of 10% of the order value in the form of Account payee Demand Draft/Fixed Deposit Receipt from a commercial bank/Bank Guarantee from a commercial bank or online payment in an acceptable form safeguarding the Purchaser's interest in all respects. Performance Security shall remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. However, if the supplier fails to execute the order or fails to perform the services as per contract, in addition to other penal actions, the Performance Security Deposit shall be encashed & the amount forfeited.

**16 AGREEMENT**

16.1 The successful tenderer shall execute an agreement on non-judicial stamp paper of value of Rs.100/- (stamp duty to be paid by the tenderer) as per proforma in **Annexure VIII** within 15 days from the date of the intimation from Tender Inviting Authority informing that his tender has been accepted.

**17 ANNULMENT OF AWARD, FORFEITURE OF SECURITY DEPOSIT & FRESH AWARD**

17.1 Failure of the successful bidder to comply with the requirements of signing of contract and /or submission of performance security within the time schedule as stipulated above shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. Under such a situation, the proposal may be reviewed for award of the contract on the next lowest evaluated technically qualified bidder or go for a fresh bid depending on the circumstance. In case it is decided to go for the next lowest bidder, negotiation may be considered to bring down their price nearer to the originally evaluated & lowest bidder.

**18 TENTATIVE QUANTITY**

18.1 The quantity mentioned is only the tentative requirement and may increase or decrease as per the decision of Tender Inviting Authority. The rates quoted should not vary with the quantum of the order or the destination.

**19 INSPECTION & QUALITY ASSURANCE**

19.1 The purchaser and /or his authorized representative(s) have the right to inspect the manufacturing facilities of those companies who have quoted or whose items have been quoted for this tender, before accepting their rates or before awarding the contract, or at any point of time during the continuance of the tender and has

also the right to reject the tender or not to reorder based on facts brought out during such inspections.

19.2 During the process of manufacture/ fabrication of the ordered items, stage wise as well as random inspections may be carried out by authorized technical personnel to ensure compliance to specification/quality. However, such inspection shall not absolve the supplier from his responsibility of strictly adhering to the specifications & other conditions spelt out in the tender.

19.3 In case of major equipment, the bidder shall submit a stage wise quality assurance plan and the final Factory Acceptance Test plan of the complete unit to the tender inviting authority.

## **20 DELIVERY CONDITION**

20.1 The supply of items and successful commissioning shall be completed within **1 month** from the receipt of the Purchase Order and the place of the Delivery shall be at **Forest Department, Head Quarters, Sanjenthong, Imphal 795001.**

20.2 The supply, installation, commissioning of the equipment and trial run have to be done at site by the supplier or his authorized agent. No additional charges for these services shall be paid. The supplier or the Indian Agent shall be responsible for these services for imported items.

20.3 The units as per order shall be handed over to the authorized representative(s) of the purchaser at the specified location and the same shall be duly received after installation, commissioning and satisfactory demonstration of full functioning of the unit.

## **21 PAYMENT TERMS**

21.1 No advance payment shall be made. 90% payment for the supplied items shall be made after receipt of the fully functional items and completion of all codal formalities subject to submission of Performance Security, relevant documents, test certificates, warranty certificates etc. Balance 10% payment shall be released on completion of the total supply and on successful operation of all the units for at least 3 months.

21.2 Details of documents and other requirement include among others Invoice in Triplicate, Inspection Report/Dispatch Instruction, Test Certificates, Training, Insurance Intimation/Cover (if any), Warranty Certificate, all necessary manual keys, license/key of the accompany software etc

## **22 PENALTY FOR DELAY IN DELIVERY**

22.1 In case there is delay in delivery beyond the stipulated period as mentioned in delivery clause, there shall be reduction in price @ 0.5% of the value of delayed goods per week of delay or part thereof subject to a maximum of 10% of the total order value.

22.2 Once the maximum price reduction is reached, termination of the contract may be considered.

22.3 Non-performance of the contract provisions shall make the successful bidder liable to be disqualified to participate in any tender for the next 5 years, in addition

to forfeiture of EMD and Bank Guarantee for Performance Security and other penal provisions.

**23 FORCE MAJUERE**

23.1 The above condition of delivery period, price reduction & termination etc. are subject to force majeure conditions which are beyond the control of the supplier, do not involve fault or negligence of the supplier and are not anticipated. Such events may include but are not limited to riots, mutinies, war, fire, storm, tempest, flood, epidemics, or other exceptional causes like quarantine restrictions, freight embargoes. On specific request made by the tenderer the time period of supply may be extended by the purchaser at his discretion for such period as may be considered reasonable. However, the condition shall not include scarcity of raw materials, power cut, labour dispute, failure of sub-vendor and increase in cost of raw material.

**24 ADJUDICATION/REVIEW BOARD**

24.1 Any dispute arising out of or during execution of the contract shall be settled with mutual agreement through an Adjudication/Review Board appointed by the appropriate authority of the purchasing organization.

**25. SAVING CLAUSE**

25.1 No suit, prosecution or any legal proceedings shall lie against Tender Inviting Authority or any person for anything that is done in good faith or intended to be done in pursuance of tender.

**26. LAWS GOVERNING THE CONTRACT & JURISDICTION**

26.1 The contract shall be governed by the laws in force in India. In the event of any dispute arising out of the tender such dispute would be subject to the jurisdiction of the Civil Court within the city of Imphal only.

**27. ADDITIONAL POINTS IMPORTANT TO THE BIDDER-** Bidders shall submit an undertaking stating the below points

- i) Bidders shall confirm that he will provide in advance two copies of each of installation, operation and maintenance instructions and diagrams in English, in case contract is awarded and order placed.
- ii) Bidders shall upload, in a separate sheet duly signed full information in respect of the output obtained from the machine being offered and also guarantee the performance of the machine under normal conditions and guaranteed output installation of the machine will be demonstrated.
- iii) Bidders shall upload lists duly signed for such spare parts and tools as are absolutely essential for proper maintenance and operation of Equipment for a period of 5 years (in case of Electronic and Optical Spare parts) and 3 years (in case of Electronic and Mechanical Spare Parts) giving full particulars of the Spare parts and tools with the price of each spare part and tool separately.
- iv) Bidders shall confirm that he has adequate servicing and spare parts facilities in India in respect of the equipment being tendered or that he shall arrange to provide such facilities simultaneously with the supply of the equipment

- v) Bidder shall guarantee that before going out of production of the spare parts, he will give adequate advance notice prior to the purchaser so that the later may order his requirements of spares in one lot, if he so desires.
- vi) Bidder shall guarantee that if you go out of production of the spare parts, then he will make available blueprints, drawings of the spare parts and specifications of the materials at no cost to the purchaser if and when required in connection with the equipment to enable the purchaser to fabricate or procure spare parts from other sources.

## ANNEXURE I

## TECHNICAL SPECIFICATIONS AND DETAILS

## 1. SUPPLY OF STANDARD AND PROFESSIONAL SURVEY GRADE UNAMMANED VEHICLE/DRONE FOR LARGE SCALE MAPPING AND SURVEILLANCE INDIVIDUALLY INCLUDING ONE YEAR WARRANTY

S. No.	Particulars	Minimum Specification/Range
1	Drone Type	Fixed Wing Hybrid VTOL
2	Mission	Large Scale Mapping & Surveillance
3	Landing & Takeoff	Vertical Takeoff and Landing (VTOL)
4	Fuselage Material	Composite material & Carbon Fiber
5	<b>Wingspan</b>	<b>2300-2500mm</b>
6	<b>Maximum Take-Off Weight</b>	<b>5-8kg</b>
7	Max Payload Capacity	Upto 1.5kg
7 (a)	Payload Type	Multiple Swapable
8	<b>Efficiency cruise speed</b>	<b>17-25m/s</b>
9	Flight Duration	60-90 minutes
10	<b>Max Flight Range</b>	<b>Minimum 25 km</b>
11	<b>Data Link Radius</b>	<b>Minimum 5km</b>
12	<b>Absolute Ceiling</b>	<b>3000-5000m</b>
13	Mode Switch Altitude	120m
14	Positioning Accuracy	1cm+-1ppm
15	Positioning Method	PPK/RTK
16	PPK Refresh Rate	5Hz (up to 100Hz)
17	Others	Auto Take-Off and Landing, Auto Mission, Black Box Function
18	<b>Assembling time</b>	<b>2-5minutes (Individual)</b>
19	<b>Disassembling Time</b>	<b>2-10minutes (Individual)</b>
20	<b>Wind Tolerance (Ground)</b>	<b>Upto 9m/s</b>
21	<b>Wind Tolerance (in cruise flight)</b>	<b>Upto 12m/s</b>
22	Working Environmental Temperature	-0~50 ° C
23	IP level	IP56
24	<b>GSD</b>	<b>2-4 cm/pixel</b>
25	Training	1 week at customer site after delivery and Commissioning
26	Battery	4-5 (Four) Extra Battery (swappable) each as per the following specifications
	Features	<ul style="list-style-type: none"> <li>a. High quality, reliable power</li> <li>b. Higher charge voltage than standard lipo: 3.8V (one cell)</li> <li>c. Higher capacity than comparable size packs</li> <li>d. Superior Japan and Korea Lithium Polymer raw materials.</li> <li>e. At least 150 times cycle life.</li> </ul>
	Specifications	a. <b>Minimum Capacity: 22000mAh (range 20000-25000 be specified)</b>

		b. Configuration: 6S1P / 22.8V / 6 cells c. Discharge Rate: 25C d. Max Burst discharge Rate: 30C e. Balancer Connector Type: JST-XHR
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## 2. Professional grade Multirotor UAS

### Drone Platform

- DGCA Complaint – Micro Category RPAS
- Construction: All Carbon fiber composite
- Operational Range Up to 10 Km
- 2.Flight Duration: Endurance/ Up to **50 Mins**
- Cruise Speed 6 m/s
- Wind Tolerance 20 m/s
- Service Ceiling Up to 1000M AGL
- Weight W/O Payload Approx. 4-5 Kg
- Max Payload Capacity Up to 2 Kg
- Fully Autonomous (GPS waypoint profiles, Autonomous Survey for aerial mapping, fail-safe return

#### Ground Control Station

- GCST<sup>TM</sup> - Industrial Version
- ETA – WPC RPAS TYPE Approved
- Tablet based TAS-Proprietary software for autonomous Mapping Industrial grade
- 10- inch Android Tablet. (must)
- Data communication up to 1.5 Kms
- R/C: 2.4 Ghz communication channel
- Data: 57600 Baud rates
- Bluetooth Bridge Data Transfer USB port

#### Standard Accessories

Rugged transport box with pick & pluck foam, 2 extra propeller, 5 Additional battery swappable, Dual battery charger, camera battery, camera charger, 16gb C10 high speed memory card, camera lens cleaner USB cables and GCS tripod mount.

**Note:** DGCA Compliant (Licensing)+UIN + RPAS Induction / Operation Training (1 week) and packing & forwarding charges

#### General:

All software shall be perpetual and multiuser.

All drone shall come with free Mission Planner software.

### 3. Accessories for Survey Grade Unmanned Vehicle/Drone

S. No.	Particulars	Minimum Specification/Range
<b>A</b>	<b>Enhanced Lightweight UAV LiDAR System</b>	
1	Direction Range	190m @ 10% reflectance 450m @ 80% reflectance
2	Dimensions	136*106*129mm (not required)
3	Weight	1-1.25kg
4	Voltage	12~24V, 0.9A @ 24VDC
5	Operating Temperature	-20~50°C
6	System Accuracy Vertical )	Approx. 5cm @ 70m
<b>LiDAR Sensor Technical Parameters</b>		
1	Wavelength	905nm
2	Range Accuracy	2cm (1σ@20m)
3	Scan Rate	720,000 points/s (Triple return)
4	Scan Method	Repetitive Scan
5	Laser Class	Class I
6	FOV	70.4°(Horizontal) ×4.5° (Vertical)
7	Returns	Up to 3 returns
<b>Inertial Navigation System</b>		
1	GNSS	GPS, GLONASS, BeiDou etc.
2	Attitude Accuracy	0.008°
3	Azimuth Accuracy	0.038° Attitude Accuracy 0.008° IMU Data Frequency 200HZ Camera
4	IMU Data Frequency	
<b>Camera</b>		
1	Image Sensor	APS-C
2	Focal Length	16mm/24mm
3	Pixels	26 Megapixels
4	Image Size	6252 x 4168
5	RGB Sensor	
<b>Software</b>		
1	Post-Processing	LiDAR360
2	Flight Planning and Control Software	LiPlan or similar Software
3	Pre-Processing	LiGeoreference or similar Software

## Technical Specifications of the MultiSpectral Sensor

SN	Particulars	Specification
1	Weight and Dimensions	Should be compatible with the Drone being supplied
2	External Power	4.2 V DC-15.8 V DC 4 W nominal, 8 W peak
3	Spectral Bands	Blue, green, red, red edge, near-IR (global shutter, narrowband)
4	Wavelength (nm)	Blue (475 nm center+/-20nm), green (560nm+/-20nm), red (668nm centre+/-10nm), red edge (717 nm+/-10nm), near-IR (840nm+/-40nm)
5	RGB Color Output	Global Shutter, aligned with all bands
6	Ground Sample Distance (GSD)	8 cm per pixel (per band) at 120 m (~400 ft) AGL
7	Capture Rate	1 Capture per second (all bands), 12-bit RAW
8	Interfaces	Serial, 10/100/1000 ethernet, removable Wi-Fi, external trigger, GPS, SDHC
9	Field of view	47.2° HFOV
10	Triggering options	Timer mode, overlap mode, external trigger mode (PWM, GPIO, serial, and Ethernet options, manual capture mode

## 4. CLOUD PROCESSING SOFTWARE

### Access to Cloud Platform:

Cloud-based analytics platforms must be accessible to Department and have actionable aerial intelligence to reduce time and costs, improve safety, and make faster decisions. Platform should enable the user to have a repository of the data and perform various functions. Access shall be for perpetual at least for **Pix4D Software, specifically Pix 4D Mapper Pro and Agi Soft**

### Cloud platform must have following features: -

- a. Cloud based data processing
- b. Cloud Based Data Visualization and Analysis
- c. Online reporting preparation (PDF/Excel sheet)
  - a. Download and share reports
  - b. Video/image-based analytics like zoom, image capture and reporting
  - c. Platform should be complete cloud based digital repository to keep the historical data
  - d. Platform should have the capability of AI for multiple use cases.
  - e. Should be able to process all kind of payload, RGB, Thermal, Multispectral, Hyperspectral and LiDAR.

#### 4. SPRAYING DRONE

#### Specifications

##### Frame Specifications

Wheelbase : 1404MM  
 Expanded Size : 1495\*1308\*500MM  
 Tank capacity : 10L-16L  
 945\*848\*500MM  
 Frame weight : 5kg (Without spray systems)

##### Brushless water pump specifications

Use Voltage : 12-14S (DC44-60.9V)  
 Maximum power : 150W  
 Pressure : 0.35Mpa  
 Current :  $\leq 2.5A$   
 Travel range : 1100-1940us

##### Recommended configuration

Motor : HobbywingX6  
 Paddle : 23-24" Folding Paddle  
 Folded size :

ESC : 80A FOC  
 Supply Voltage : 12S  
 Max. Takeoff Weight: 25kg

Flow Rate : 5L / Minute  
 Protection Level : IP67  
 Weight : 388g Without Wire 338g  
 Size : 123 x 76 x 52mm

Flight Controller Specification's		
Supported Model's	I4, X4 Four-rotor, IY6, Y6, 16, V6 Six-rotor V8, I8, X8, IX8 Eight-rotor	
Recommended Battery Type	3S-12S Lithium Polymer Battery	
External Receiver Type	SBUS receiver	
Support Product's (Radar, Camera & Meter's)	Obstacle Avoidance Radar*, Ground Imitation Radar*, FPV Camera, Flow Meter, Liquid Level Meter	
Assistant Software System Configuration Requirement's	Windows 7/8/10 (32/64 bit)	
Hovering Accuracy	horizontal direction: $\pm 1.5m$ Vertical Direction: $\pm 0.5m$	
Maximum Tilt Angle	30°	
Maximum Yaw Speed	150°/s	
Maximum Vertical Speed	6m / s	
Maximum Wind Resistance	Wind: 4 GUSTS: 5	
Power Consumption	< SW	
Working Voltage Range	FC	4.8V-5.3V
	PMU	Input 11.1V-50V (3S-12SLiPo Recommended) Maximum Output Current 3A@5V
	PMU2 (UPS)	Input 11.1V-50V (3S-12SLiPo Recommended) Maximum output current 3A@5V
	GPS	5V
	LED	5V
	Voltage	3S - 12s
Working Temperature	-10°C 60°C	
Storage temperature	-25°C~60°C	

Flight Controller Specification's	
Storage temperature	-25°C~60°C
Colour	Green & Black
Weight	TotalNetWeight:321gFC:87g PMU: 41g PMU2 (UPS): 44g GPS: 45g LED: 14g
Size	FC: 72.6*48*22.8mm
	PMU: 53.4 * 34.4 * 14.5mm
	PMU2 (UPS): 53.4*34.4*14.5mm
	GPS: q62*14.3mm
	LED:24 24*8mm

5.

## 6. Obstacle Avoidance Radar

- Obstacle avoidance radar module is mainly used to measure the relative distance between the drone and the obstacle in front of the flight, so as to avoid the obstacle effectively. Obstacle avoidance radar adopts 24GHz radar technology, which can work in all-weather under strong light, high temperature, fog, dust, wind and night. Its sensitivity is high, the detection distance is long, the signal transmission is fast and stable. Electric wires, small trees with a trunk of 10 cm, people with a height of 1.7 m, and telephone poles with a height of 15 cm play an excellent obstacle avoidance function for high-speed drones, which is very suitable for plant protection drones to work in complex outdoor environments. Features:
  - High sensitivity;
  - Long detection distance;
  - Fast signal transmission;
  - Stable signal transmission;
  - All-weather work;
  - Strong environmental adaptability.

### 2. Ground Imitation Radar

The ground-like radar module uses millimeter-wave radar technology. Through continuous scanning of the radar, the aircraft can sense the terrain change in the flight direction, and adjust the flying height in time according to the terrain and crop height to achieve ground-like flight and ensure uniform spraying in flight . The ground-like radar module has stable detection performance and good environmental applicability, strong anti-interference ability, not affected by light, long detection distance, and has the characteristics of all weather and all day.

Features:

- Strong penetrability (including fog, smoke, dust, light rain) is not affected by light;
- Strong anti-interference ability, good environmental applicability;
- Stable performance, detection distance of 15m;
- Power saving and high efficiency, the total power consumption is only 1.5W;
- It works all day and all days;
- Small Size and Light Weight.

**PROFORMA FOR PERFORMANCE STATEMENT****(FOR A PERIOD OF LAST 3 YEARS)**

Name of firm \_\_\_\_\_

Sl.	Name of the product	Year	Quantity	Value	Name and full address of the purchaser	Remarks on Performance
	1	2	3	4	5	
1.						
2.						
3.						

Signature and seal of the Tenderer \_\_\_\_\_

**Bid-Security Declaration Form**

Date: Tender No

To

(insert complete name and address of the purchaser)

I/We, the undersigned, declare that

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am/We are in a breach of any obligation under the bid conditions, because I/We

- a) have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid: or
- b) having been notified of the acceptance of our Bid by the Purchaser during the period of bid validity (i) fail or refuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the instructions to Bidders.

I/We understand this Bid Security Declaration shall cease to be valid if I am/We are not the successful Bidder upon the earlier of (i) the receipt of your notification of the name of the successful Bidder or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown)

In the capacity of (insert legal capacity of person signing the Bid Security Declaration)

Name: (insert complete name of person signing the Bid Securing Declaration)

Duly authorized to sign the bid for on behalf of (insert complete name of Bidder) dated on \_\_\_\_\_ day of \_\_\_\_\_ (insert date of signing)

Corporate Seal (where appropriate)

ANNEXURE-IV

ANNUAL TURN OVER STATEMENT

The Annual Turnover of M/s \_\_\_\_\_ for the past three years and concurrent commitment for the current financial year are given below and certified that the statement is true and correct.

---

<i>Sl.No.</i>	<i>Year</i>	<i>Turnover in Lakhs (Rs)</i>
1.	-	
2.	-	
3.	-	
		Total - Rs. _____ Lakhs.

---

Average turnover per annum - Rs. \_\_\_\_\_ Lakhs.

Concurrent Commitment

Sl. No.	Contract Ref.	Purchaser	Total Contract Value	Outstanding Value	Estimated Delay in completion date

Date:

Seal:

Signature of Auditor/  
Chartered Accountant  
(Name in Capital)

**UNDERTAKING**

To

Tender enquiry No. \_\_\_\_\_

For supply of \_\_\_\_\_

Sir,

1. I, Shri \_\_\_\_\_, on behalf of M/s \_\_\_\_\_ having registered office at \_\_\_\_\_, do hereby declare that I have gone through the terms and conditions mentioned for the above and undertake to comply with all tender terms and conditions. The rates quoted by me/us are valid and binding on me/us for acceptance for a period of one year from the date of award of contract to us.
2. I/We undersigned hereby bind myself/ourselves to the Office of .....to supply ..... The rates quoted by me/us for the items tendered for are specified against each. It is certified that rates quoted are lowest quoted for any institution in India and not higher than the MRP/ prevailing market rate.
3. The articles shall be strictly as per specification and of the best quality as per requirement of the institution. The decision of the Office of ..... (hereinafter called the said Purchaser) as regards to the quality and specification of article shall be final and binding on me/us.
4. We agree to the conditions of the tender under which the EARNEST MONEY DEPOSIT and PERFORMANCE SECURITY DEPOSIT shall be forfeited by us.
5. We hereby undertake to pay the **penalty** as per the terms and conditions of the contract for delayed supply of the ordered items.
6. We agree to accept the amount of the bill to be paid by the purchaser after completion of all codal formalities and should any amount of the bill found by the purchaser/auditors to have been over-paid; the amount so found shall be refunded by me/us.
7. We hereby undertake to supply the items during the validity of the tender as per direction given in supply order within the stipulated period.
8. The tender inviting authority has the right to accept or reject any or all the tenders without assigning any reason.
9. We understand all the terms and conditions of the contract and bind myself/ourselves to abide by them.
10. We hereby declare that there is no vigilance/CBI or court case pending/contemplated against us at the moment.

SIGNATURE :

NAME & DESIGNATION :

DATE :

NAME & ADDRESS OF THE FIRM:

SEAL :

**MANUFACTURER'S AUTHORIZATION FORM**

No. \_\_\_\_\_ Dated \_\_\_\_\_

To,

Dear Dir,

Bid Ref. No. \_\_\_\_\_

We \_\_\_\_\_ who are established and reputable manufacturers of \_\_\_\_\_ having factories at \_\_\_\_\_ Registered office at \_\_\_\_\_ possessing Manufacturing Licence No. \_\_\_\_\_ dated \_\_\_\_\_, Valid Upto \_\_\_\_\_, hereby authorize M/s. \_\_\_\_\_

\_\_\_\_\_ (Name and address of Representative), to submit a bid and subsequently negotiate and sign the contract with you against the above-mentioned tender for the following items quoted.

- 1.
- 2.
- 3.

(Attach separate sheet if necessary)

We hereby extend our Guarantee/ warranty for a period of \_\_\_\_ year (as applicable) from the date of receipt of the item as per the tender conditions for the items offered for supply against the tender submitted by the above firm.

Yours faithfully,

(Name)

for and on behalf of M/s. \_\_\_\_\_

(Name of Manufacturer)

Note: This letter of authority should be on the letterhead of the manufacturing concern and should be signed by a person competent and having the power of attorney to bind the manufacturer.

## ANNEXURE VII

<b>SCHEDULE OF QUANTITIES &amp; PRICES (Amt in Rs)</b>				
<b>SN</b>	<b>Name of the Equipment/item as per the Specifications given in Annexure I</b>	<b>Qty</b>	<b>Unit price inclusive of all taxes</b>	<b>Total price for equipment/items</b>
1	Supply of Standard and Professional Grade Unmanned Aerial Vehicle/Drone (Fixed Wing- hybrid VTOL) with PPK Enabled GNSS System having Swappable Payload Capability with Base for Large Scale Mapping	2		
2	Professional grade Multirotor UAS for Surveillance with Camera (Thermal & RGB)	3		
	<b>Accessories</b>			
3	Enhanced Lightweight UAV LiDAR + RGB System as a payload and mountable on Fixed Wing- Hybrid VTOL	2		
4	Multi-Spectral Sensor capable of mounting on Fixed Wing- Hybrid VTOL	2		
5	Multi-Spectral Sensor capable of mountable on Multi Rotor UAS/UAV	3		
6	HelloGeo - Cloud based Processing Software (inclusive of Pix4D perpetual, and Mission Planning Software and Lidar Image Processing Software)	Perpetual and multi user		
7	Spraying Drone	4		
	<b>Total in figures</b>			
	<b>Total in words</b>			
	1. All applicable taxes & duties including GST, other levies and charges etc should be mentioned clearly.			

**FORM OF CONTRACT AGREEMENT**

THIS CONTRACT AGREEMENT is made

The ..... day of ....., year.....

BETWEEN

(1) Name and Address of the Purchaser:

(2) Name and Address of the supplier:

WHEREAS the Purchaser invited bids for certain goods and ancillary services, viz., [insert: brief description of goods and services] and has accepted a bid by the Supplier for the supply of those goods and services in the sum of [insert: contract price in words and figures] (hereinafter called “the Contract Price”)

NOW THIS AGREEMENT WITNESSES AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meaning as are respectively assigned to them in the Condition of Contract referred to.
2. The following documents shall constitute the Contract between the Purchaser and the Supplier, and each shall be read and constructed as an integral part of the Contract:
  - (a) This Contract Agreement
  - (b) General Condition of Contract
  - (c) Technical Requirements (including Technical Specifications)
  - (d) The Supplier’s bid and original Price Schedules
  - (e) The Purchaser’s Notification of Award
3. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the Contract price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

For and on behalf of the Purchaser

Signed: \_\_\_\_\_

In the capacity of [insert: **title or other appropriate designation**]

In the presence of \_\_\_\_\_

For and on behalf of the supplier

Signed: \_\_\_\_\_

In the capacity of [insert: **title or other appropriate designation**]

In the presence of \_\_\_\_\_