



F.No.PI/NAHEP/CAAST DFSRDA/Quot./ 87b /of 2020

Date: 05/02/2020

To,

Dear Sir,

Subject: INVITATION OF QUOTATION FOR SUPPLY OF UAV (THREE NOS)

1. You are invited to submit your most competitive quotation for the following Goods: -

Sr. No.	Brief Description of the goods	Specifications*	Quantity** (Unit)	Delivery Period	Place of Delivery	Installation requirement if any
1	Three UAV	Specifications of Three UAV is mentioned below ONE BY ONE Specifications (UAV No 1) Specifications (UAV No 2) Specifications (UAV No 3)	Three	After awarding the contract & the period of validity of quotation	Office of PI, NAHEP, NAHEP-CAAST, VNMKV, Parbhani	Yes, with installation and technical demonstrations.

Specifications (UAV No 1)

Sr. No.	Title of Specification	Description / Value
1.	Frame configuration	Quadcopter
2.	Maximum Take-off weight (MTOW)	2.5
3.	Payload Capacity	200gms
4.	Range of Operation	~ 1 km LOS (Line of sight)
5.	Flight time	30-40minutes @AMSL
6.	Material of chassis	Carbon fiber arms & ABS
7.	Material of propellers	Carbon fiber
8.	Maximum Flying Speed	upto 10 m/s
9.	Maximum Launch altitude	Upto 1000 m AMSL (Above Mean Sea Level)
10.	Flight ceiling	Upto 200 m AGL (Above ground Level)
11.	Wind Tolerance	12 Knots
12.	GPS accuracy	< 3 metres
13.	Flight Autopilot	Ardupilot based, ARM cortex M7 Based H/W, Fully Autonomos
14.	Operating frequency band	Un-licensed ISM Band (2.4GHz, 5.8GMz)
15.	Propulsion	High Efficient motors
16.	Operating Environment	5°to 50°centigrade, RH : 95%
17.	Water and dust resistance rating	IP 53
18.	Launch and recovery system	Autonomous / Manual Vertical Takeoff and Landing
19.	Expected life of equipment	> 500 landings



20.	Flight modes	<ul style="list-style-type: none"> • GPS • Operation • Stabilize • Return to launch
21.	Payload	Mapping Sensor (Min 14mp, RGB)
22.	Battery	Li Based
23.	Charging time of Battery pack	< 90 Minutes

UAV Features:

• Propulsion system: Electronic Brushless motors
• Battery: Lithium based battery pack
• RC with suitable user interface
• Deployment time: < 10 minutes
• Bright LED indicator to display flight mode and warning for low battery
• Compact frame design: Foldable arms and propellers
• Night recovery beacon

Fail safe features:

Autonomous landing or Return to Launch (RTL) functionality in case of:
1. Low Battery
2. Loss of communication
3. Manual RTL

Battery charger specifications:

• Input voltage: AC 100 - 240 V
• Charger current rating: 1- 6 A
• Lithium based battery with cell count: 6S

System Configuration:

Sr No	Deliverables	Qty
1.	Ready to fly Quad - rotor UAV	1 set
2.	Remote Controller	1 No
3.	Battery Charger as per above specifications	1 No
4.	Battery	1 set
5.	Spare Propellers (2 CW and 2 CCW)	1 set
6.	Portable bag pack	1 No

Specifications (UAV No 2)

Sr. No.	Title of Specification	Description / Value
1.	Frame configuration	Quadcopter
2.	Maximum Take-off weight (MTOW)	2kg
3.	Payload Capacity	250 gms
4.	Range of Operation	~ 1 km LOS (Line of sight)
5.	Flight time	35-40 minutes @AMSL
6.	Material of chassis	Carbon fiber
7.	Material of propellers	Carbon fiber Arms and Propellers



8.	Maximum Flying Speed	upto 10 m/s
9.	Maximum Launch altitude	Upto 1000 m AMSL (Above Mean Sea Level)
10.	Flight ceiling	Upto 200 m AGL (Above ground Level)
11.	Wind Tolerance	12 Knots
12.	GPS accuracy	< 3 metres
13.	Operating frequency band	Un-licensed ISM Band (2.4GHz, 5.8GMz)
14.	Operating Environment	5°to 50°centigrade, RH : 95%
15.	Flight Autopilot-	Ardupilot based, ARM cortex M7 based H/W. Fully Autonomous
16.	Propulsion	High efficient motors (Market promise brand)
17.	Water and dust resistance rating	IP 53
18.	Launch and recovery system	Autonomous / Manual Vertical Takeoff and Landing
19.	Expected life of equipment	> 500 landings
20.	Flight modes	<ul style="list-style-type: none"> • GPS • Operation • Stabilize • Return to launch
21.	Payload	<ul style="list-style-type: none"> • Gimble based 4k recording camera with live feed on ground
22.	Battery	Li Based
23.	Charging time of Battery pack	< 90 Minutes

UAV Features:

<ul style="list-style-type: none"> • Propulsion system: Electronic Brushless motors
<ul style="list-style-type: none"> • Battery: Lithium based battery pack
<ul style="list-style-type: none"> • RC with suitable user interface
<ul style="list-style-type: none"> • Deployment time: < 10 minutes
<ul style="list-style-type: none"> • Bright LED indicator to display flight mode and warning for low battery
<ul style="list-style-type: none"> • Compact frame design: Foldable arms and propellers

Fail safe features:

Autonomous landing or Return to Launch (RTL) functionality in case of:
<ul style="list-style-type: none"> • Low Battery
<ul style="list-style-type: none"> • Loss of communication
<ul style="list-style-type: none"> • Manual RTL

Battery charger specifications:

<ul style="list-style-type: none"> • Input voltage: AC 100 - 240 V
<ul style="list-style-type: none"> • Charger current rating: 1– 6 A
<ul style="list-style-type: none"> • Lithium based battery with cell count: 6S



System Configuration:

Sr No	Deliverables	Qty
1.	Ready to fly Quad - rotor UAV	1 set
2.	Remote Controller	1 No.
3.	Battery Charger as per above specifications	1 No.
4.	Battery	1 set
5.	Spare Propellers (2 CW and 2 CCW)	1 set
6.	Portable Bag pack	1 No.

Specifications (UAV No 3)

Sr No	Title of Specification	Description / Value
1.	Frame configuration	Quadcopter foldable design
2.	Maximum Take-off weight (MTOW)	≤ 25 kg
3.	Payload Capacity	Upto 10 kg
4.	Range of Operation	~ 1 km LOS (Line of sight)
5.	Flight time	15-20minutes @AMSL
6.	Material of chassis	Carbon fiber
7.	Material of propellers	Carbon fiber
8.	Maximum Flying Speed	upto 10 m/s
9.	Maximum Launch altitude	Upto 1000 m AMSL (Above Mean Sea Level)
10.	Flight ceiling	Upto 30 m AGL (Above ground Level)
11.	Wind Tolerance	12 Knots
12.	GPS accuracy	< 3 metres
13.	Operating frequency band	Un-licensed ISM Band
14.	Operating Environment	5°to 50°centigrade, RH : 95%
15.	Water and dust resistance rating	IP 53
16.	Launch and recovery system	Autonomous / Manual Vertical Takeoff and Landing
17.	Expected life of equipment	> 500 landings
18.	Flight modes	<ul style="list-style-type: none"> • GPS • Operation • Stabilize • Return to launch
19.	Work efficiency	1200 to 2000 square metre per minute
20.	Payload	Plastic tank with capacity (10 litres) Fine grain nozzles(4 Pcs)
21.	Spray height	2 – 6 metres
22.	Pump power rating	≤ 90 Watt
23.	Battery	Li Based
24.	Charging time of Battery pack	< 90 Minutes



UAV Features:

• Propulsion system: Electronic Brushless motors
• Battery: Lithium based battery pack
• RC with suitable user interface
• Deployment time: < 10 minutes
• Bright LED indicator to display flight mode and warning for low battery
• Compact frame design: Foldable arms and propellers
• Night recovery beacon

Fail safe features:

Autonomous landing or Return to Launch (RTL) functionality in case of:
• Low Battery
• Loss of communication
• Empty tank
• Manual RTL

Battery charger specifications:

• Input voltage: AC 100 - 240 V
• Charger current rating: 1– 6 A
• Lithium based battery with cell count: 6S

Spraying system:

• BLDC motor driven spraying system with nozzles
• RC controlled spraying system
• Adjustable spray width
• Water droplet atomization: ~ 3 nm
• Manual RTL

Intelligent Spraying mode:

• Capability to operate the drone in A-B mode
• The drone needs to record the two extreme points along the length of the agricultural field. Later the pilot just needs to provide the direction in which the field expands
• The drone continues to spray in A-B mode (Line by Line) until the liquid in the tank is totally consumed
• When the liquid level sensor gives an interrupt, the drone saves the necessary GPS co-ordinates and the vehicle returns back to the home location.
• On refilling the liquid, the drone returns from a considerable height to avoid in between obstructions to the position from where it halted the spraying

System Configuration:

Sr No	Deliverables	Qty
1.	Ready to fly Quad - rotor UAV along with sprayer payload as per above specifications	1 set
2.	Remote Controller	1 No.
3.	Battery Charger as per above specifications	1 No.
4.	Battery	1 set
5.	Spare Propellers (2 CW and 2 CCW)	1 set
6.	Portable Ruggedized carrying case	1 No.



- The above price is including GST and other terms such as Technical support from purchase of goods from Feb 2020 upto Feb 2023.
- **Place of Delivery:** CENTER OF EXCELLENCE FOR DIGITAL FARMING SOLUTIONS FOR ENHANCING PRODUCTION BY ROBOTS, DRONES and AGVs. Vasant Rao Naik Marathwada Krishi Vidyapeeth Parbhani

** Quantity of work may be varies.

* Where ISI certification marked Goods are available in market, procurement should generally be limited to goods with those or equivalent marketing only.

2. Government of India has received a financing from the International Bank for Reconstruction and Development World Bank towards the cost of the National Agricultural Higher Education Project NAHEP (CAAST- DFSRDA, VNMKV, Parbhani) and intends to apply part of the proceeds of this loan to eligible payments under the contract for which this invitation for quotations is issued.

3. Bid Price

- a) The contract shall be for the full quantity as described above. Corrections, if any, shall be by made by crossing out, initialing, dating and re writing.
- b) All duties, taxes and other levies payable on the raw materials and components shall be included in the total price.
- c) Sales tax in connection with the sale shall be shown separately.
- d) The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- e) The prices shall be quoted in Indian Rupees only.

4. Each bidder shall submit only one quotation.

5. Validity of Quotation

Quotation shall remain valid for a period not less than 15 days after deadline date specified for submission.

6. Evaluation of Quotations

The Purchaser will evaluate and compare the quotations determined to be substantially responsive i.e. which

- a) are properly signed; and
- b) conform to the terms and conditions, and specifications.

The quotations would be evaluated for all the item together/ would be evaluated separately for each item. [*Select one of the options.*]

Sales tax in connection with sale of goods shall not be taken into account in evaluation.

7. Award of contract

The purchaser will award the contract to be bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation prices.

- 7.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process the reject all quotations at any time prior to the award of contract.



**CENTRE OF EXCELLENCE FOR DIGITAL FARMING SOLUTIONS FOR
ENHANCING PRODUCTIVITY BY ROBOTS, DRONES and AGVs.**

VASANTRAO NAIK MARATHWADA KRISHI VIDYAPEETH, PARBHANI (M.S.) INDIA

Contact No. 02452_223002, 223802 Mob. 942211232 Email: nahep.caast.vnmkv@gmail.com

www.vnmkv.org.in ; www.nahep.vnmkv.org.in



- 7.2 The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the supply/ Purchase order.
8. Part payment or part supply orders will not be accepted. The payment will be made immediately after delivery of Goods/Setup/installation/Training/Assignment as per signed up/award of contract.
 9. The necessary catalogue, leaf lets, operational manual or any other printed material related to goods/material should be provided during completion of contract.
 10. Normal commercial warranty/ guarantee shall be applicable to the supplied goods.
 11. The rates/prices should be FOR, VNMKV, Parbhani (MS) India. All leakages-breakage and losses in transit including shortages, if any will be borne by the firm/supplier. Offer should clearly mention the locations for which rates are quoted.
 12. The firm should provide proof of GST registration no. / Tin no. / PAN no. and all legislative documents required as per world bank/ICAR New Delhi procedure.
 13. **Onsite installation with technical demonstration and training** to core team member and technical staff should be provided by the supplier in consultation with expert team member of NAHEP-CAAST DFSRDA, VNMKV, Parbhani office.
 14. In case, any holiday is declared by the Government on the day of opening, the bids will be opened on the next working day at the same time. The Principal Investigator, NAHEP - CAAST DFSRD reserves the right to accept or reject any or all the bids.
 15. The bids of firm (s) which have either been black-listed by VNMKV, Parbhani or any other Govt. organization will not be accepted. In this regards, the firm has to give an undertaking on the enclosed format.
 16. You are requested to provide your offer latest by **05.00 PM on or before 24 / 02 /2020 in the name of Principal Investigator, NAHEP-CAAST-DFSRDA, VNMKV, Parbhani – 431 402**. The bids will be opened on the last day of submission at the same time. All suppliers/firms are requested to be present in the chamber of undersigned.
 17. Write the title “Quotation for supply of UAV (**THREE NOS**)” on top line of envelopment.
 18. We look forward to receiving your quotations and thank you for your interest in this project.

Principal Investigator
National Agricultural Higher Education Project
CAAST DFSRDA, VNMKV, PARBHANI
Pin Code-431402, (M.S.), INDIA
Tel. No.:+91 942211232,
Email: nahep.caast.vnmkv@gmail.com



FORMAT OF QUOTATION FOR SUPPLIER

Sl. No.	Description Goods	Specifications	Qty.	Unit	Quoted Unit Rate in Rs.	Total Amount	
						Rupees	
TOTAL	In Figures						
	In Words						
GST							

Gross Total Cost: Rs.

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. (Amount in figure) Rs. (Amount in words) within the period specified in the Invitation for Quotation.

We also confirm that the normal commercial warrantee/ guarantee of Months shall apply to the offered goods.

We hereby certify that we have neither black-listed by VNMKV, Parbhani nor any other Govt. organization.

We hereby certify that we have no "Conflict of Interest" with NAHEP-CAAST, DFSRDA VNMKV, Parbhani office or staff.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in corrupt, fraudulent, collusive, or obstructive practices (as defined in the prevailing World Bank's sanction procedures) in competing for or in performing the Contract.

Signature of Supplier

*** Supplier should also mention the discount offered.**