

**INVITATION FOR QUOTATIONS FOR SUPPLY OF
GOODS UNDER NATIONAL SHOPPING PROCEDURES**

To

Dear Sirs,

Sub : INVITATION FOR QUOTATIONS FOR SUPPLY OF “**Robots for Farm Mechanization with accessories**”

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

Brief Description of the Goods	Specifications*	Qty.	Delivery Period	Place of Delivery	Installation Requirement if any
Robots for Farm Mechanization with accessories	1. High speed sorting, picking and packaging robot Minimum Technical Specification: <ul style="list-style-type: none"> • Rotational Repeatability : ± 1 arc-min • Maximum speed [%/sec] : 1400 • Range of motion [°] : ± 360 • Allowable Moment: 2.94 • Allowable Inertia : 0.017 • Controlled axes: 4 • Payload : 3 kg • Repeatability : ± 0.1 • Necessary Integration for Food products 	1 No.	15/03/2019	CAET, JAU, Junagadh	Training to staff shall be provided by bidder at project site. Installation, commissioning, loading and unloading will be done by bidder at site.
	2. Robot for Sowing, Planting and Harvesting Minimum Technical Specifications <ul style="list-style-type: none"> • This has a wheel dimension of 8"/12" • Operates on 12V rechargeable battery • It has solar power charging/mains charging • Vehicle dimensions 45inch X 15 inch(or higher) . • BLDC motors of 300W(or higher) for driving the vehicle • Rear wheel drive • It has a memory card interface for downloading the program. • It has a remote to control the operations • It has provision for attaching different kind of agri tools like sowing, 	1 No.	15/03/2019	CAET, JAU, Junagadh	Training to staff shall be provided by bidder at project site. Installation, commissioning, loading and unloading will be done by bidder at site.

	<p>dispensing of seeds, leveling the field and dispensing water.</p> <ul style="list-style-type: none"> • The user can map the unit off-line and can record on CF card for a particular field. • This program remains for various operations to be performed on regular basis. • Purpose of digging should be done • Purpose of harvesting should be done 				
	<p>3. Laser Cutting/ Milling/ Drilling Robot</p> <p>Minimum Technical Specification:</p> <ul style="list-style-type: none"> • Payload: 12 Kgs and 16 Kgs • Dimension Robot Base: 723 * 600 mm • Path repeatability RT: 0.35 mm • Position repeatability RP: 0.05 mm • Robot Weight : 380 Kgs • Number of axis : 6 axis • Reach : 1.55 m <p>Features: Reliable – High production up time Fast – Short cycle times Accurate – Consistent parts quality Strong – Maximized utilization Robust – Harsh production environment Versatile – Flexible integration and production</p>	1 No.	15/03/2019	CAET, JAU, Junagadh	Training to staff shall be provided by bidder at project site. Installation, commissioning, loading and unloading will be done by bidder at site.
	<p>4. Autonomous robot for weeding of row crops, meadow and intercropping culture</p> <p>Minimum Technical Specification:</p> <ul style="list-style-type: none"> • Photovoltaic panels • Camera and artificial vision for guidance and positioning • Navigation by GPS and sensors • Electrical drive • Rapid robotic arms with sprayers • Tanks for two different products • Width of area covered : 2 metres • Speed : 1 kmph (average) • Space between crops 35 to 70 cm (adjustable) • Maximum height of crop : 25 cm • Robotic arms : Fast Delta - executing 4000 movements per hour • Precision : < 2 cm • Effectiveness : > 85% of weeds are detected and destroyed • Surface area covered : max 3 ha/day, max 10 ha/week • Energy : Highly efficient solar cells (380W) and battery • Sensors : Colour megapixel camera, GPS RTK, compass • Navigation : 100% of the field covered • Tanks : 2 x 15 litres – more than enough for one day of autonomous operation • Control and configuration : By 	1 No.	15/03/2019	CAET, JAU, Junagadh	Training to staff shall be provided by bidder at project site. Installation, commissioning, loading and unloading will be done by bidder at site.

	<ul style="list-style-type: none"> Smartphone or Tablet (Android/iOS) • Communication : Short (WiFi) or long distance (mobile phone networks) • Other: Incorporates antitheft system 				
	<p>5. COLOUR SORTING, PICKING AND PLACING, GRADING ROBOT</p> <p>Minimum Technical Specification: Agri Robot System should be simulating the process of sorting different types of fruits/vegetables on basis of size and colour. A variety of sensors are used to achieve the agri product detection and identification, and then through the mechanical arm move the object on conveyor. Lastly sorting is done by sorting mechanism.</p> <p>Salient Features</p> <ul style="list-style-type: none"> • Complete work station mounted on Aluminum Profile Plate with operating console. • Agri products feeding and testing mechanism: it is used to push agri products from dispensing unit to detection unit • Detection unit: it is used to detect agri products and convey to the unit (pick & place robot) • Robotic Arm: it is used to move the agri products into the sorting storage unit which agri product is not categorized, it will move to waste receiving bin. And qualified agri products are placed on the sorting belt. • Robotic Arm <ul style="list-style-type: none"> ○ Two axis movement: <ul style="list-style-type: none"> ○ Up-Down – Z axis ○ Linear motion – X axis ○ Z axis can travel 25 mm ○ X axis can travel max up to 300 mm ○ Gripper, when open 50 mm ○ User has an option to use large size gripper ○ Pickup weight more than 250gm <ul style="list-style-type: none"> • Agri products transport and sorting, grading and storage mechanism: it is used to sort different agri products according to the size and colour. • Other components. • System dimensions: 1500mm x 760mm x 1000mm <p>The system consists of the following:</p> <ul style="list-style-type: none"> • Display Unit: This module use touch screen with vivid animation configuration, real-time monitoring system for training and operations. Display: 7" TFT, Resolution: 800x480, Color: 65536, Backlight: LED, Processor: 32 bit 800MHz RISC, Program download: USB, COM Port: RS232. • Power Module: With leakage protection circuit breaker, switching 	1 No.	15/03/2019	CAET, JAU, Junagadh	Training to staff shall be provided by bidder at project site. Installation, commissioning, loading and unloading will be done by bidder at site.

	<p>power supply (24V/3A) and tin sockets for external devices to provide DC power and AC single-phase power, and has a leakage, short circuit, overload protection, improve the safety of the equipment.</p> <ul style="list-style-type: none"> • Controlling Unit: It is composed of Digital input: 22, Digital output: 20, Analog input: 6, Analog output: 2, Communication Port: USB, RS232, RS485, MODBUS: RTU. I/O terminals and contacts have been caused by K2 DB25 pin plug, wiring harness manner using, convenient and reliable. • Inverter Module: Converter can complete the external terminals, analog control. • Button Indicator Module: Perform various operations on the device, which has three LEDs, three buttons, an emergency stop, a switch a buzzer. • Stepper drive module: Enable position control to Gantry manipulator, there are 64 segments. • Switching module: This module consists of input & output terminals, each module wiring with trainer through this module. • Warning Lights: There are yellow, green and red colors of the light, two combined thick lines are power line (red line connect+24V, blue line connect 0V), the other three are signal controlling lines. • Relay: PLC is Transistor output Need relay convert to control load. • Feeding unit: It consists of feeding cylinder, fiber optic sensors, silos, industrial profiles, push plate, throttle, mounting plates and other components. • Belt conveyor detection unit: Timing belts, couplings, three-phase asynchronous motors, colour sensors, capacitive sensor, mounting brackets, profiles. Conveyor Belt of dimensions: 860mm x 40mm • Gantry manipulator unit: Stepper motor, belt, gantry unit, tanks chain, vertical cylinder, pneumatic finger, throttle valve etc. Conveyor Belt of dimensions: 500mm x 20mm • Material sorting unit: DC motors, couplings, conveyor belts, trough I, trough II, trough III, waste trough, inlet photoelectric sensors, industrial profiles etc. Selection Conveyor Belt of dimensions: 1200mm x 40mm. Receiving bin has 3 types to collect fruits/vegetables and 1 type to collect discarded fruits/vegetables. 				
--	---	--	--	--	--

	<p>6. INDUSTRIAL Welding ROBOT 6 AXIS AND PAYLOAD CAPACITY : 8 TO 10 KG</p> <p>Scope of Supply :</p> <ol style="list-style-type: none"> 1. Industrial articulated Robot with 6 axis 2. Welding power source with torch & necessary accessories 3. Offline simulation software for practice on various make robots . 4. AC Servo stabilizer with fencing & necessary foundation 5. Training to the trainer / Students at supplier's side. <p>Minimum Technical Specification:</p> <ul style="list-style-type: none"> • Type: Articulated industrial welding robot • Number of Axis: 6 Axis • Payload: : 8 Kg • Repeatability: ± 0.03mm • Range for various arm Motion: Arm 1(turning) -170 to +170 Arm 2 (lower arm) -65 to +145 Arm 3 (upper arm) -70 to +190 Arm 4 (wrist roll) -190 to +190 Arm 5 (wrist pitch/yaw) -135 to +135 Arm 6 (wrist twist) -360 to +360 • Maxi speed on various Arm: Arm 1 (turning) 7.5 Rad/s Arm 2 (lower arm) 6.5 rad/s Arm 3 (upper arm) 9.0 rad/s Arm 4 (wrist roll) 9.5 rad/s Arm 5 (wrist pitch/yaw) 9.5 rad/s Arm 6 (wrist twist) 17.45 rad/s • IEC Protection Class: IP 67 or equivalent • Allowable temp: 0 to 45 Degree • Power requirement: 1Kva • Mounting: Floor / tilt / ceiling • Teach pendent: <ul style="list-style-type: none"> ○ Display : 5.7-inch TFT color LCD ○ touch panel: VGA 640×480 pixels ○ Cable Length : Standard: 8 m, max.: 36 m (with optional extension cable) ○ IEC Protection Class : IP54 ○ Keys available(soft/hard form) : Select keys, axis keys, numerical/application keys, mode selector switch with keys (mode: teach, play, and remote), emergency stop button, enable switch, compact flash card interface device (compact flash is optional.), USB port (USB 2.0, 1 port) • Robot Controller <ul style="list-style-type: none"> ○ Configuration : Dust proof IP54 (area of backside duct fan: IP2X) ○ Dimensions : 598 (W)×427 (D)×490 (H) mm, 125 L ○ Approx. Mass : 70 kg max. (External axis amplifiers for up to three axes can be built in.) ○ Cooling System : Indirect cooling ○ Ambient Temperature : -10°C to +60°C 	1 No.	15/03/2019	CAET, JAU, Junagadh	Simulation Software: 2 licenses of Simulation software for offline programming and simulation should be provided which includes at least five major industrial robots brands / manufacturer model. Basic and Advance Training of 1 Week each to Staff at client site for at least 5 trainers. Installation and commissioning, loading and unloading will be done by bidder at site. Fencing arrangement for Robot should be done by bidder as per available lab space
--	--	-------	------------	---------------------	---

	<p>(in storage operation)</p> <ul style="list-style-type: none"> ○ Digital I/Os ○ Specialized signals: 19 inputs and 6 outputs ○ General signals: 40 inputs and 40 outputs (32 transistor outputs, 8 relay outputs) ○ Positioning System : Serial communications (absolute encoder) ○ Expansion Slots : PCI express: 2 slots ○ LAN (Connection to Host) : 2 (10BASE-T/100BASE-TX) ○ Interface : RS-232C: 1ch ○ Control Method : Software servo control ○ Drive Units : SERVOPACK for AC servomotors ○ Programming Capacity JOB: 200,000 steps, 10,000 instructions CIO ladder: 20,000 steps max. ○ Power Supply : three-phase 380 VAC to 440 VAC (+10% to -15%), 50/60 Hz (• }2%) (neutral grounding) ● Welding power source <ul style="list-style-type: none"> ○ Input Voltage: Three-phase 380 - 400 VAC ±10% ○ Output Current : 30 A to 350 A ○ Rated Input : 18 kVA/15 kW ○ Output : 12 V to 36 V ○ Operation rate : 60% (for 10 mins) ○ Applicable Welding Method : Pulsed MAG/MIG welding, CO₂/MAG/MIG short ,circuiting arc welding, AC pulsed MAG/MIG welding, CO₂/MAG/MIG AC short circuiting arc welding ○ Applicable Wire Diameter : 0.8 mm/0.9 mm/1.0 mm/1.2 mm ○ Applicable Welding Material : Iron, stainless steel, aluminium ○ Conduit cable : N35 × 3 m ○ Necessary Torch and torch cable should supply with, Wire feeder should be placed on separate stand. Shock sensor cable : 10m , Gas hose SLD hose (nominal dia. 6mm) × 10 m , ○ Cable for wire feeder control (between manipulator and welding power source) : 5m ○ Welding I/F cable (between robot controller and welding power source) : 5m ● Rated supply voltage: Three phase AC 415V ± 10% or Single Phase AC 230V ± 10% Supply frequency 50 Hz ± 2% Rated input power max.10 KVA. Stabilizer should supply along with robot. 				
--	---	--	--	--	--

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

2. Government of India has received a financing from the International Bank for Reconstruction and Development (IBRD) in various currencies towards the cost of the National Agricultural Higher Education Project (NAHEP) 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 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 the 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 separately for each item.

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 the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.

- 7.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.
- 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 purchase order.
8. Payment shall be made immediately after delivery of the goods.
9. Normal commercial warranty/ guarantee shall be applicable to the supplied goods.
10. You are requested to provide your offer latest by 17:00 hours on 29/01/2019.
11. General Terms and Conditions listed in Annexure – I must be followed by the bidder.
12. We look forward to receiving your quotations and thank you for your interest in this project.

Quotation must be delivered to the address below latest by 17.00 hours on January 29, 2019, along with a cover-letter and supporting documents in an envelope indicating **“IDP - Quotation for Robots for Farm Mechanization with accessories”**.

Principal and Dean & Co-PI (IDP),
Address: College of Agricultural
Engineering and Technology,
Junagadh Agricultural University,
Junagadh – 362001, Gujarat, India
Tel. No.: 02852671018
Fax No.: 02852671018

(Purchaser)

Name: Co-PI (IDP), Principal and Dean
Address: College of Agricultural
Engineering and Technology, Junagadh
Agricultural University,
Junagadh – 362001, Gujarat, India
Tel. No.: 02852671018
Fax No.: 02852671018

FORMAT OF QUOTATION *

SR. No.	Description Goods	Specifications	Qty.	Unit	Quoted Unit Rate in Rs.	Total Amount	
						In Figures	In Words
Total							
Sales Tax							

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 figures) (Rs. amount in words) within the period specified in the Invitation for Quotations.

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

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier

* *Applicable while the bids are being invited for more than one item and would be evaluated for each item separately.*

Annexure I

General Terms and Conditions

01. Junagadh Agricultural University (hereinafter referred to as “JAU”), for its various Departments (hereinafter referred to as “the purchaser”) for their requirement of intend to invite for supply and installation of Scientific Instruments/ machineries at JAU, Junagadh.
02. Government of India has received a financing from the International Bank for Reconstruction and Development (IBRD) in various currencies towards the cost of the National Agricultural Higher Education Project (NAHEP) 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.
03. Each bidder shall submit only one quotation.
04. The items subjected to requirements and the same may be purchased or may not be purchased without assigning any reason.
05. The purchase orders placed on any date during the validity of the RFQ at the rate, terms and conditions of the RFQ.
06. At the time of order, If in any case the quoted item is not available in the market, the successful bidder will have to supply higher version/specification of that item in the quoted cost in the same time duration with prior approval of Purchaser.
07. Purchase committee reserves the right to get clarification from the bidder.
08. Successful bidder failing to provide after sales services would be permanently blacklisted.
09. The bidders are encouraged to visit at ordering site before quoting for the assessment of feasibility of the quoted item. However, no any excuses will be acceptable regarding the performance to fulfil the objective of the quoted items.
10. There should be no discrepancy in price quoted under similar period and similar supplies under the territorial jurisdiction of Gujarat state.
11. The World Bank has right to inspect accounts and records of the bidders, suppliers and contractors.
12. In case of dispute, the base of arbitration must be the guideline of procurement recommended by the ICAR-NAHEP will be the final.
13. **Bid Price :**
 - a) The contract shall be for the full quantity as described. Corrections, if any, shall be made by crossing out, initiating, dating and rewriting.
 - b) All duties, taxes, all freight, packaging and forwarding, transit insurance, installation charges, applicable taxes and other levies payable on the raw materials and components shall be included in the total price.
 - c) GST in connection with the sale/service 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.
14. **Validity of Bid :** Bid shall remain valid for a period not less than 30 days after the deadline date specified for submission.
15. **Documents to be submitted for eligibility :** Your quotations will be considered upon the provision of the following documents duly signed by the authorized representative, failure in providing the requested documents may constitute grounds for disqualification of quotations;
 - a) Quotation letter duly signed by the authorized representative -(Mandatory)

- b) Bidder's details with contact no, email, address etc. (Mandatory)
- c) Copy of company registration certificate. (Mandatory)
- d) Copy of PAN card. (Mandatory)
- e) Copy of GST Certificate (Mandatory)
- f) Detailed information on the implementation plan (Mandatory)
- g) Copies of Income Tax Returns for the last Financial Years having an average annual turnover equivalent to three times of quoted price or more. (Mandatory)
- h) Annexure – I (Mandatory)

16. Evaluation of Bids :

- a) The Purchaser will evaluate and compare the bids determined to be substantially responsive i.e. which are properly signed and conform to the terms and conditions, and specifications.
- b) The Quotations would be evaluated separately for each item.
- c) GST in connection with sale of goods/services shall not be taken into account in evaluation.

17. Award of contract

- a) The lowest price is not the criteria and emphasis would be placed on quality and specifications of the material. The Purchaser will award the contract to the bidder whose bid has been determined to be substantially responsive and who has offered the lowest evaluated bid price.
- b) Notwithstanding the above, the JAU reserves the right to accept or reject any bids and to cancel the quoting process and reject all bids at any time prior to the award of contract.
- c) The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the bid validity period. The terms of the accepted offer shall be incorporated in the purchase order.

18. Security Deposit: Successful bidder has to submit 5% of purchase order value as a Security Deposit in the form of a demand draft/ bank guarantee from a Nationalized bank within 10 days preferably having a branch at the Junagadh, which should be valid for a period of 1 year. Bank guarantee in favour of "Junagadh Agricultural University Fund Account", payable at Junagadh from any Nationalized bank and will be informed by purchase office at the time of giving purchase order and provide performance security form.

19. Refund of Security Deposit: The amount of security deposit will be refunded after completion of standard warranty period (or warranty period specified in item specification) starting from successful installation of item, after writing a letter to the Office where in instruments/machinery installed.

20. Forfeiture of Security Deposit: The security deposit will be forfeited if, successful bidder fails to supply the items within the delivery period and/or supplier fails to comply specifications of instruments and/or supplier fails in successful installation/demonstration of the instruments/ machinery and/or supplier fails to provide satisfactory post sale services and support or fail to replace the defective piece/ service the instruments/ machinery before warranty period.

21. Warranty:

- a) Normal commercial warranty/ guarantee shall be applicable from the date of commissioning/installation for respective item.
- b) Further, any complaint shall be attended within a response time of 48 hours on 24X7 basis during warranty period.

22. Payment: The payment of item/items will be made after successful supply, commissioning/installation and satisfactory performance of the quoted items as per

the requirement of the ordering party. However, any request regarding the advance or partial payment will not be entertained in any circumstances.

23. **Delivery/Installation:**

- a) Free delivery to the consignee.
- b) Maximum delivery/installation period of specified item is within 15 days from the date of purchase order.
- c) The application for extension of delivery period shall be sent to concern ordering office of Junagadh Agricultural University at least 5 days prior to the expiry of delivery period of each item. The officer in charge, who is placing the order reserve the right to extend period or reject the deal and their decision in the matter, shall be final and binding to all.

24. **Training and Demonstration:** Supplier has to perform on-site live demonstration/training.

25. **Dispute:** In case of any dispute, final decision of The Procurement Unit, Junagadh Agricultural University, Junagadh – 362 001 will be binding upon all. In case of any dispute arises in respect of this RFQ, a suit in that behalf shall be subject to Junagadh Jurisdiction.

26. **All rights are reserved with the University Authority to accept or reject any or all the tenders received without assigning any reasons thereof.**