

## INVITATION FOR QUOTATION

TEQIP-II/2016/UP2G02/Direct Contract/101

08-Feb-2017

To,

**Vi Microsystems Pvt. Ltd**

**Plot no 75, Electronics Estate, Perungudi, Chennai,,**

**Chennai, Tamil Nadu, 600096**

### **Sub: Invitation for Quotations for supply of Goods**

Dear Sir,

1. You are invited to submit your most competitive quotation for the following goods with item wise detailed specifications given at Annexure I,

| <b>Sr. No</b> | <b>Brief Description</b> | <b>Quantity</b> | <b>Delivery Period(In days)</b> | <b>Place of Delivery</b>   | <b>Installation Requirement (if any)</b> |
|---------------|--------------------------|-----------------|---------------------------------|--|--|
| 1             | AC MOTOR SETUP           | 1               | 15                              | Institute of Engineering & Technology, Sitapur Road Lucknow 226021 | Yes                                      |
| 2             | BLDC MOTOR SETUP         | 1               | 15                              | Institute of Engineering & Technology, Sitapur Road Lucknow 226021 | Yes                                      |
| 3             | DC MOTOR SETUP           | 1               | 15                              | Institute of Engineering & Technology, Sitapur                     | Yes                                      |

|    |  |   |    |  |     |
|----|--|---|----|--|-----|
|    |  |   |    | Road Lucknow<br>226021   |     |
| 4  | DIRECT TORQUE<br>CONTROL<br>IMPLEMENTATION FOR<br>AC MOTOR | 1 | 15 | Institute of<br>Engineering &<br>Technology, Sitapur<br>Road Lucknow<br>226021 | Yes |
| 5  | DSP BASED<br>CONTROLLER                                    | 2 | 15 | Institute of<br>Engineering &<br>Technology, Sitapur<br>Road Lucknow<br>226021 | Yes |
| 6  | DSPACE ADAPTER CARD  | 1 | 15 | Institute of<br>Engineering &<br>Technology, Sitapur<br>Road Lucknow<br>226021 | Yes |
| 7  | FPGA BASED<br>CONTROLLER                                   | 1 | 15 | Institute of<br>Engineering &<br>Technology, Sitapur<br>Road Lucknow<br>226021 | Yes |
| 8  | IPM POWER MODULE<br>(Till 3HP Motor)                       | 1 | 15 | Institute of<br>Engineering &<br>Technology, Sitapur<br>Road Lucknow<br>226021 | Yes |
| 9  | PMSM MOTOR SETUP   | 1 | 15 | Institute of<br>Engineering &<br>Technology, Sitapur<br>Road Lucknow<br>226021 | Yes |
| 10 | SENSOR LESS CONTROL<br>ALGORITHM FOR AC                    | 1 | 15 | Institute of<br>Engineering  | Yes |

|    |  |   |    |  |     |
|----|--|---|----|--|-----|
|    | MOTOR  |   |    | &Technology,<br>Sitapur Road<br>Lucknow 226021                                 |     |
| 11 | SLIP RING MOTOR<br>SETUP                         | 1 | 15 | Institute of<br>Engineering &<br>Technology, Sitapur<br>Road Lucknow<br>226021 | Yes |
| 12 | SPACE VECTOR PWM<br>TECHNIQUE                    | 1 | 15 | Institute of<br>Engineering &<br>Technology, Sitapur<br>Road Lucknow<br>226021 | Yes |
| 13 | THREE PHASE IGBT<br>BASED POWER<br>MODULE        | 2 | 15 | Institute of<br>Engineering &<br>Technology, Sitapur<br>Road Lucknow<br>226021 | Yes |
| 14 | VECTOR CONTROL<br>IMPLEMENTATION FOR<br>AC MOTOR | 1 | 15 | Institute of<br>Engineering &<br>Technology, Sitapur<br>Road Lucknow<br>226021 | Yes |

2. Government of India has received a credit from the International Development Association (IDA) towards the cost of the **Technical Education Quality Improvement Programme[TEQIP]-Phase II**Project and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this invitation for quotations is issued.
3. Quotation,
  - 3.1 The contract shall be for the full quantity as described above.
  - 3.2 Corrections, if any, shall be made by crossing out, initialing, dating and re writing.

- 3.3 All duties and other levies payable by the supplier under the contract shall be included in the unit price.
- 3.4 Applicable taxes shall be quoted separately for all items.
- 3.5 The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- 3.6 The Prices should be quoted in Indian Rupees only.
4. Each bidder shall submit only one quotation.
5. Quotation shall remain valid for a period not less than **30** days after the last date of quotation submission.
6. Evaluation of Quotations,  
The Purchaser will evaluate and compare the quotations determined to be substantially responsive i.e. which
  - 6.1 are properly signed ; and
  - 6.2 confirm to the terms and conditions, and specifications.
7. The Quotations would be evaluated for all items together.
8. 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.
  - 8.1 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.
  - 8.2 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.
9. Payment shall be made in Indian Rupees as follows:  
**On Completion - 100% of total cost**

10. All supplied items are under warranty of **36** months from the date of successful acceptance of items.(In case of the supplied items do not cover the warranty of 36 months and cover only the warranty of 12 months then you may quote the price to cover the warranty for the extended to 36 months).
11. You are requested to provide your offer latest by **16:30**hours on **23-Feb-2017** .
12. Detailed specifications of the items are at Annexure I.
13. Training Clause (if any) **Yes**
14. Testing/Installation Clause (if any) **Yes**
15. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
16. Sealed quotation to be submitted/ delivered at the address mentioned below,  
Registrar, Institute of Engineering &Technology, Sitapur Road, Lucknow, UP PIN 226021
17. We look forward to receiving your quotation and thank you for your interest in this project.

Prof Y N Singh

**Nodal Officer Procurement, TEQIP-II**

### Annexure I

| Sr. No | Item Name   | Specifications  |
|--------|---|---|
| 1      | AC MOTOR SETUP                                    | 1HP THREE PHASE AC MOTOR – DC GENETATOR SET UP AC MOTOR SPECIFICATIONS: # Three phase squirrel cage induction motor. # Power : 1hp (.75kw) # Current : 1.8amp, Star connection # Three phase 415vac 50hz input # Speed : 1390 rpm # Make: siemens/benn  |
| 2      | BLDC MOTOR SETUP                                  | 1HP BLDC MOTOR – SPRING BALANCE LOAD SETUP Make - Motor Power Rated Power - 1.1 H.PS Phase - 3f Rated Voltage - 310 VDC Rated current - 4.52 A Rated Torque - 2.2 N-M Rated Speed - 4600 rpm Rotor pole - 4 Poles Position Sensor - 3 No's of Hall Sensor Mounted with 120 electrical degree apart & 2000 PPR encoder Back EMF - Quasi Trapezoidal  |
| 3      | DC MOTOR SETUP                                    | 1HP DC SHUNT MOTOR – DC GENERATOR SETUP DC MOTOR SPECIFICATIONS: # Power : 1hp (.75KW), shunt type # Armature voltage : 180VDC, 5.1Amp # Field voltage : 220VDC, 0.3Amp # Speed : 1500 rpm # Double side shaft extension # Make : BENN  |
| 4      | DIRECT TORQUE CONTROL IMPLEMENTATION FOR AC MOTOR | ? Direct torque control source code will be given ? Flux and torque estimated using voltage model ? To sense the speed & position QEP512ppr sensor used ? Dynamic independent control of speed and torque ? Having minimum running speed of 100rpm ? Motor can run in both direction ? Vd,Vq, Id, Iq speed flux theta and Torque parameters will be displayed in PC using Vb software ? User can give Ref speed command from PC ? Speed, Torque and flux regulation done with PI controller |
| 5      | DSP BASED CONTROLLER                              | TMS320F28335 BASED DSP CONTROLLER (Micro - 28335) The TMS320F28335 device members of the TMS320C28x Digital Signal Controllers (DSCs) generation, are highly integrated, high-performance solutions for demanding control applications. On-Chip Features: ? Up to 150 MHz (6.67-ns Cycle Time) ? 16 x 16 and 32 x 32 MAC Operations & Up to 18  |

|    |  |  |
|----|--|--|
|    |  | PWM Outputs ? Up to 6 HRPWM Outputs with 150 ps MEP<br>Resolution ? Up to 6 Event Capture Input & Up to 2<br>Quadrature Encoder Interfaces   |
| 6  | DSPACE ADAPTER CARD                              | DSPACE ADAPTER CARD  |
| 7  | FPGA BASED<br>CONTROLLER                         | SPARTAN 6 FPGA Development Board (VPE-SPARTAN 6)   |
| 8  | IPM POWER MODULE<br>(Till 3HP Motor)             | Power Module is designed for Motor control Applications upto<br>3 HP by using the 3rd Generation IGBT & DIODE Technology<br>Based IPM  |
| 9  | PMSM MOTOR SETUP                                 | 1HP PMSM MOTOR – SPRING BALANCE LOAD SET UP  |
| 10 | SENSOR LESS CONTROL<br>ALGORITHM FOR AC<br>MOTOR | * Position and speed sensors (QEP Encoders) will not be used<br>*MRAS scheme will be used to estimate the speed and<br>position * Ref speed & actual speed will be displayed in pc<br>through VB softwares *Vd,Vq, Id, Iq speed flux theta and<br>Torque parameters will be displayed in PC through Vb<br>software User can give the ref speed from pc                     |
| 11 | SLIP RING MOTOR SETUP                            | 1 HP SLIP RING MOTOR WITH SPRING BALANCE LOAD SET UP<br>SLIP RING MOTOR  |
| 12 | SPACE VECTOR PWM<br>TECHNIQUE                    | ?Converting 3 to 2 Quantities ?Converting the 8 state of<br>Inverter to 2 Quantities ?Finding the Switching Sequence of<br>SVM ?Derivation of Va & Vb components of Components of –<br>Vref ?Calculate the modulation index ?Derivation of Time<br>duration Ta, Tb & To for each Sector ?The above algorithm had<br>been implemented in FPGA using VHDL & System generator |
| 13 | THREE PHASE IGBT<br>BASED POWER MODULE           | THREE PHASE IGBT BASED POWER MODULE (VPET-106A) (For<br>1HP Motor)   |
| 14 | VECTOR CONTROL<br>IMPLEMENTATION FOR<br>AC MOTOR | VECTOR CONTROL IMPLEMENTATION FOR AC MOTOR   |

**FORMAT FOR QUOTATION SUBMISSION**

(In letterhead of the supplier with seal)

Date: \_\_\_\_\_

To:

\_\_\_\_\_  
\_\_\_\_\_

| Sl. No.           | Description of goods (with full Specifications) | Qty. | Unit | Quoted Unit rate in Rs.<br>(Including Ex Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments) | Total Price<br>(A) | Sales tax and other taxes payable |                   |
|-------------------|---|------|------|--|--------------------|-----------------------------------|-------------------|
|                   |   |      |      |  |                    | In %                              | In figures<br>(B) |
|                   |   |      |      |  |                    |                                   |                   |
| <b>Total Cost</b> |   |      |      |  |                    |                                   |                   |

Gross Total Cost (A+B): Rs. \_\_\_\_\_

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. \_\_\_\_\_ (Amount in figures) (Rupees \_\_\_\_\_ amount in words) within the period specified in the Invitation for Quotations.



We confirm that the normal commercial warranty/ guarantee of ----- months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.

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

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Contact No: \_\_\_\_\_