



National Institute of Technology, Durgapur
Mahatma Gandhi Avenue
Durgapur 713209
West Bengal
INDIA

BID REFERENCE:NITD/CSE/DISRAM/ITRA/Procurement/01

Date: 10/02/2014

To

Dear Sir,

SUB : Procurement of products for Research Infrastructure under the project of "**Post-Disaster Situation Analysis and Resource Management Using Delay-Tolerant Peer-to-Peer Wireless Networks (DISARM)**" as specified in **annexure-II**.

1. You are invited to submit your most competitive quotation for the listed items as per **Annexure-II**. Price bid form as per **Annexure-I** must be filled with complete numerical values.
2. **Bid Price (Annexure-I)**
 - a. The contract shall be for the full quantity as described above. Corrections, if any, shall be made by crossing out, initialing, dating and rewriting.
 - b. All duties, taxes and other levies payable by the contractor under the contract shall be included in the total price **F.O.R. NIT Durgapur**.
 - c. 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.
 - d. The bid price must be quoted in **Indian Rupees**.
3. Each bidder shall submit only one quotation for each item.
4. The bid submitted by the bidder must comprise the following:
 - i. Detailed technical specifications, conforming to the given specifications (vide Annexure – I), and literature /drawings /manuals of the Items/services to be supplied
 - ii. Warranty period
 - iii. Valid sales-tax / VAT clearance certificate
 - iv. Price bid as per Annexure-I
5. **Validity of Quotation**
 - a. Quotation shall remain valid for a period not less than 60 days after the deadline date specified for submission.
6. **Evaluation of Quotations**
 - a. The Purchaser will evaluate and compare the quotations determined to be substantially responsive i.e.
 - i. which are properly signed and
 - ii. conform to the terms and conditions, and specifications.

7. Award of contract

- a. The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive, technologically acceptable and who has offered the lowest evaluated quotation price.
 - b. 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.
 - c. 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.** Delivery shall be made at **Department of Computer Science & Engineering, NIT, Durgapur.**
- 9.** Payment shall be made immediately within 30 days after satisfactory installation, commissioning and acceptance of the Item.
- 10.** Comprehensive onsite warranty shall be applicable to the supplied Items for a period of **12 months** from the date of installation.
- 11.** The Institute is **exempted from payment of custom and excise duty** on items mentioned below:
1. Scientific and technical instruments, apparatus, equipment (including computers)
 2. Accessories, spare parts and consumables thereof
 3. Computer software, CD-ROM, recorded magnetic tapes, microfilms, and microchips.
- 12.** The successful bidder must submit before the release of payment a **valid bank guarantee on any nationalized bank of 5% of the order value towards Performance Security** during the warranty period. Else, **95% of the payment will be released retaining 5% of the order value towards Performance Security during the warranty period.**
- 13. Liquidated Damage** will be applicable at the rate of 0.5% per week. The purchaser has the right to cancel the purchase order when LD accumulates to 10 %.
- 14.** A bank draft / Bank Guarantee worth 2% of the quoted value payable to **"ITRA - Project DISARM NITD"** at Durgapur will be enclosed with the bid by the bidder towards the **Earnest Money Deposit (EMD)**. The EMD shall remain valid for a period of **105 days**.
- 15.** Settlement of any dispute will be made under the jurisdiction of Durgapur Court.
- 16.** You are requested to provide your offer latest by **11.00 hours on / before 3rd March 2014.**
- 17.** The bid document must be signed and sealed and enclosed with the bid as a token of acceptance of all terms and conditions in the bid document by the bidder.
- 18.** The items must be delivered within **60 days** from the date of placement of purchase order at the respective department.
- 19.** All other terms and conditions of GFR 2005 of the Government of India will be application.

I look forward to receiving your quotations and thank you for your interest in this project.

The bid must be addressed to:

Dr. Subrata Nandi
(Principal Investigator – ITRA Project DISARM)
Associate Professor,
Department of Computer Science & Engg.,
National Institute of Technology Durgapur
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Annexure – II

National Institute of Technology, Durgapur

Department of Computer Applications

Mahatma Gandhi Avenue, Durgapur 713209, West Bengal

Specification and Estimated Budget for DTN enabled devices (Desktop, Laptop, Smart Phone/TAB) & Networking Devices
(Reference: Specialized Facilities and Capital Equipment)

Sl. No.	Item Name & Brief Description	Purpose in brief	Qty
1.	Desktop Computer : <ul style="list-style-type: none"> ✓ Intel Core i5- 3470 3.1Ghz 6MB Cache Memory or higher ✓ Intel H67 Express Chipset ✓ 8 GB 1600 Mhz RAM or higher ✓ 500 GB SATA Hard Disk or higher ✓ DVD Writer ✓ 20" LED Colour Monitor ✓ Expansion slot – Full Height (1) PCI, 2 PCIe X1, 1 PCIe X16 ✓ Gigabit LAN inbuilt ✓ OS- DOS (Software compatible with Windows 7/ Windows 8 / Linux operating system) ✓ Wireless card enabled ✓ Adhoc mode Enabled in Linux OS ✓ 3 years onsite comprehensive warranty 	<p>Modeling, Simulation, Testing and verification of post disaster management architecture.</p> <p>Real Time Test Bed (Post Disaster Management Architecture) Implementation</p> <p>DTN Protocol stack implementation</p>	1 No
2.	High end Laptop <ul style="list-style-type: none"> ✓ Intel Core i5-3210M Processor or higher ✓ Intel HM 76 ✓ 8GB DDR3 RAM 1600 Mhz or higher ✓ 500 GB SATA 7200 RPM or higher ✓ DVD Writer ✓ 15.6 inch LED HD SVA Anti-Glare enabled for Webcam (1366x768) ✓ Intel HD Graphics ✓ Ports & Connectors : USB 3.0 ports, 2 USB 2.0 ports, 1 eSATA/USB 2.0 combo port, 1 VGA port, 1 DisplayPort (UMA v1.1a; discrete v1.2), 1 stereo microphone port, 1 stereo headphone port; 1 serial port; 1 1394a port, 1 RJ-45 (Ethernet) port, 1 docking connector, 1 secondary battery connector, 1 power connector ✓ 6 Cell Battery ✓ WLAN I 6205abgn / Bluetooth ✓ OS- Free DOS(compatible with Windows 7/ Windows 8 / Linux operating system) ✓ Adhoc mode Enabled in Linux OS ✓ Warranty – 3 year onsite comprehensive ✓ Back Pack /Carry Case 	<p>Modeling, Simulation, Testing and verification of post disaster management architecture.</p> <p>Real Time Test Bed (Post Disaster Management Architecture) Implementation</p> <p>DTN Protocol stack implementation – DTN routing</p>	1 No

3.	Network Switch (8 Port Switch or Higher)	For networking	4 Nos
4.	Wireless Access Point (802.11 enabled)	Wireless Networking	4 Nos
5.	UPS <ul style="list-style-type: none"> ✓ Output Power Capacity – 600watt/ 1000 VA , Nominal ✓ Output/Input Voltage- 230V/2 years onsite warranty 	For Testing the devices	4 Nos
6.	Smart Phone/TAB Processor : Single Core Processor (1GHz) or higher RAM : 512MB or higher Internal Storage :8GB (expandable to 32/64 GB) or higher Back Camera: 4 MP or Higher Front Camera : .3 MP or Higher Android 2.3 or higher Sensors : Accelerometer, Magnetometer, proximity, GPS Interface : Bluetooth , WiFi , 3G * Wireless AdHoc mode support	DTN Protocol Stack Implementation, Road Geometry calculation, Application development for Post Disaster Management	2 Nos
7.	Smart Phone/TAB Processor : Quad Core Processor (1.2 GHz) or higher RAM : 1 GB or higher Internal Storage :16 GB (expandable to 32/64 GB) or higher Back Camera: 2 MP or higher Front Camera : 1MP or higher Android 4.2 or higher Sensors : Accelerometer, Gyroscope, Magnetometer, GPS Interface : Bluetooth , WiFi, With/Without 3G * Wireless AdHoc mode support	DTN Protocol Stack Implementation, Road Geometry calculation, Application development for Post Disaster Management	2 Nos

Annexure – II

National Institute of Technology, Durgapur

Department of Computer Applications

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Estimated Budget for Non Line of Sight/near Line of Sight Long Range Wireless Communication Devices & Towers

(Reference: Specialized Facilities and Capital Equipment)

Sl. No.	Item Name & Brief Description	Purpose in brief	Qty
1.	Non Line of Sight Product	Long Range WiFi Communication which will be use for voice, video and data communication.	2 Units
2.	Guided Towers for NLOS Product	15 to 18 Meter Movable Guyed Mast (Lattise heart tripod with guyed wire in 120 * each)	2 Nos

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Specification for Non Line of Sight/near Line of Sight Long Range Wireless
Communication Devices & Towers
(Reference: Specialized Facilities and Capital Equipment)

Sl. No.	Radio Specifications	Features
1	Frequency	ISM Band 5.725 GHz – 5.875 GHz
2	Operating Conditions	Radio link capable of operating in LOS, NLOS, nLOS conditions
3	Duplex	Symmetric fixedTime Division Duplex (TDD)
4	Channel Bandwidth :	5 MHz / 10 MHz / 15MHz
5	Max output power (at antenna port):	27dBm
6	Radio Technology:	Intelligent Orthogonal Frequency Division Multiplexing (i-OFDM) with 1024 sub carriers.
7	Modulation Scheme :	Dynamic adapting between BPSK & 64-QAM
8	Range:	Upto 250 Kms in LOS
9	Architecture :	End to End Point to Point Link
10	Latency:	Should be < 3 ms average each direction
11	Transmit Power Control	Automatic TPC
12	Receiver Sensitivity:	Adaptive, varying between -94 dBm and -69 dBm
13	Fade Handling Capacity	Using MIMO technology
14	Antenna	System should have 23dBi dual polarized integrated antenna or connectorized with with two N-Female connectors
15	Lightning Protection	System should have built in Lightning Protection and should also support external Lightning Protection units.
16	Channel Selection	By Intelligent Dynamic Frequency Selection (i-DFS)
17	Best Channel Selection	Using in built spectrum analyzer
18	User Data Throughput:	Dynamically variable upto 25 Mbps at the Ethernet (Aggregate), upgradeable to 52 Mbps and 105 Mbps
19	Error Correction:	FEC
20	Security:	Proprietary Scrambling mechanism Optional FIPS-197 complaint AES 128/256 bit encryption
21	Type Approval :	FCC, ETSI or Universal subject to sub-band
22	Wind Survival	325 kps
23	Maximum power consumption	50 W
24	Power supply:	AC/DC power. PIDU should be able to support both with AC and DC power supply (-48 V).
25	Operation Temperature -	-40°C to 60°C
26	Operating Humidity -	5% to 95%, non-condensing

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Specification of Guided Tower

(Reference: Specialized Facilities and Capital Equipment)

Sl. No.	Tower Specifications	Features
1	Length	18 Meter (6 Section each of 3 Meter)
2	Type of Material	ISI Mark GI pipe used for Tower
3	Guyed Rope	Made of steel
4	Foundation	Both for Tower and Guyed rope
5	Wind Load	150 Km /hour