



Indian Institute of Technology Kanpur

Department of Civil Engineering

Professor Vinod Tare Post Office: I.I.T Kanpur – 208016

Enquiry No- **CE/EEM/2015-16/RSS / 02** Date: **26-02-16**

Last Date: **04-03-16**

Subject: Quotation for supply of one Terrain mapping and imaging Rover System (including integrated GNSS, Robotic ETS, Panoramic camera, levelling machines) for river survey, as mentioned below.

Environmental Engineering Laboratory, IIT Kanpur plans to procure one Terrain mapping imaging Rover System (including GPS, Total station and panoramic cameras), for photogrammetry for on-going research activities. The set comprise the following equipment/SW:

The prospective suppliers are required to send quotation in two parts in separate sealed envelopes, as "**Technical Bid**" and "**Financial Bid**". The Technical Bid should contain detailed technical specification of the product being offered and should not mention any prices. The Financial Bid should include the detailed price quotation clearly including the cost of the equipment, taxes, service charges if any, shipping and handling charges. The two separate and sealed envelopes should be clearly marked appropriately as "**Technical Bid**" and "**Financial Bid**".

The general specifications for this system are provided below. This is followed by the technical specification and other details.

GENERAL AND OTHER SPECIFICATIONS:

While quoting the prices for various items, the following guidelines should be followed:

1. Full details of the *standard* configuration of equipment along with *accessories* and *technical literature* should be provided. The standard configuration must be accompanied by associated brochure giving the complete and clear configuration of the system offered.
2. The vendor must provide a compliance document which should clearly specify how each technical requirement is satisfied by the system suggested by him.
3. All the accessories to be offered along with Total Station should be OEM make only.

4. The *authorized certificate and propriety certificates* must be attached with the offer.
5. Please note that as per the present Govt. of India notification, IIT-Kanpur is expected to pay custom and excise duty as applicable for academic institutions. The offer should, therefore, clearly and separately mention: (i) cost of equipment, (ii) mode of payment, (iii) academic institution discount, (iv) country of origin, (v) freight charges for delivery of equipment at IIT-Kanpur, (vi) warranty period.
6. The quotation should be valid for *at least 6 months*.
7. The delivery of the equipment must be made within six weeks after payments as per institute rules.
8. The short listed vendor(s) may be asked to demonstrate the functionality of quoted equipment and associated software at IIT-Kanpur within two weeks of opening the Quotations.
9. Please clearly mention the arrangements and cost of the following:
 - a) Minimum warranty period (minimum one year and preferably five years or more).
 - b) The annual maintenance contract (AMC) facility or provision of extended warranty and provide details of other terms and conditions, if any.
 - c) Details of after-sales service, how will the services be provided, details of in-house facilities for the same, turn-around time with acceptable solution, availability of spare parts and their warranty (minimum five years). It is mandatory to quote the prices of each item separately otherwise the bids may be subject to rejection.
10. Training: Provision of training (*at least 5 days' duration*) by certified/qualified staff members/trainers of highest standards is one of the primary requirements in this work. Please mention number of persons who will conduct the training. One hard copy of handout and one softcopy of all training manuals should be provided, covering installation, operation, maintenance and calibration of the system, usage and the system application software at IIT Kanpur. The vendor should provide all operation, service and maintenance manuals (in English) along with necessary circuit diagrams.

Quotations are invited in two separate sealed envelopes, as "Technical Bid" and "Financial Bid" for the following item:

1. Imaging Rover to work with Robotic Total Station and RTK GPS. (1 nos)

The imaging rover with forward and downward looking cameras should be able to take 360-degree panorama of at least 60MP for terrestrial photogrammetry. The accuracy of the points collected from the rover should have the accuracy of at least 1 cm at a distance of 10m. The imaging rover should be supplied with rugged tablet PC with inbuilt camera, GPS and should have latest Windows OS. The rover should have tilt sensor, magnetic compass, gyrometer, accelerometer and inbuilt storage. The field software should be able to handle TS and RTK GPS together with imaging rover. The software to process the data should be supplied with capability to process GPS and ETS data together. The software should be able to automatically extract the point cloud from the panorama taken by the camera.

RTK-enabled kinematic GPS with two receivers, control unit, radio modem, tripod and other accessories and processing software with the following specifications

Advanced GNSS chip with 400 channels, high precision multiple correlators for pseudorange measurements, signal-to noise ratio in dB-Hz, suitable for low elevation tracking. The receiver should be able to track all signals from GPS, GLONASS, Galileo, QZSS, Omnistar and BeiDou. The post processing software should also have capability to post process GPS, GLONASS, QZSS and BeiDou data for static, fast static and RTK survey. The receiver should have the following accuracies:

Static: -- Hz: 3mm+0.1ppm, V: 3mm+0.4ppm
RTK: -- Hz: 8mm+1ppm, V: 15mm+1 ppm
The receiver should have inbuilt webUI accessible through serial and Bluetooth ports. It should be able to act as wifi hotspot to be able to configure through mobile phone in field using any Android device. The control unit should also have inbuilt GPS and camera. The receiver should have inbuilt tilt sensor to apply automatic tilt corrections and satellite RTK functionality. The receiver and camera should have mounting facility to attach them together.

IP65 complied
Robotic total station with detachable/ attachable control unit and software to control TS and RTK GPS simultaneously in field. Automatic rotation speed of the machine should be at least 100 degrees per second. The control unit should be able to operate the machine in robotic mode and data sync services on web in real time.

Minimum Specifications: LEAST COUNT: Standard mode -Distance 2 mm or better

ACCURACY: ANGLE 5" or better

COMPENSATOR: Dual Axis

COMPENSATOR RANGE: Should be 5' or better

DISTANCE MEASUREMENTS: Accuracy with or without reflector in standard mode:

In prism mode 2 mm + 2 ppm

In DR mode 2 mm + 2 ppm

Using 1 prism: Up to 5 km or more

DR mode on White Card (90% reflective): Up to 2 km or more

Robotic Range to passive prisms: 600m or more

The total station should have detachable control unit, Optical Plummet, should have Laser Class 2 Pointer, and should be able to apply atmospheric corrections.

2. Digital Level (1 nos)

Digital Level (32X magnification) with 0.3mm accuracy with levelling methods BF, BFFB, BFBF, BBFF, FBBF, aBF, aBFFB, aBFBF, aBBFF, aFBBF. Functionality for Two-way data transfer using USB drive and internal memory of 30,000 points. Battery operation up to 3 days on single battery. The components should have tripod, 2 level staff and necessary parts to successfully operate the instrument. Inbuilt display: 240x160, Inclination range: $\pm 15'$

3. Handheld GPS (10 nos)

Handheld DGPS system with post processing accuracy of 1-3m. Inbuilt camera of 5MP with geotagging and minimum of 256MB RAM and at least 2GB memory. Display: 3.5 inch colored touch display along with post processing GIS software.

4. Auto Level (1nos)

Magnification: 24x, Accuracy: 2mm or better, Field of view: 1°30', Minimum focusing distance: 0.75m, Compensation range: ±16' including all accessories like measuring staff (2nos with each instrument) and tripod.

5. Echo Sounder (1nos)

Suitable compact echo sounder including all accessories which can be integrated with the control unit supplied with item 1 to integrate RTK GPS readings, inbuilt Bluetooth, frequency 200-KHz, beam width: 4°, ping rate: 6-Hz, depth accuracy: 1cm / 0.1% of depth, output formats: NMEA, ASCII, range: 0.3m–75m, I/O: serial, Bluetooth· power: rechargeable 12v battery

You are requested to submit your quotation in **two separate sealed envelopes, as "Technical Bid" and "Financial Bid"** with complete product description, technical literature, price, warranty period, delivery time and other terms and conditions by 12.00 pm of **March 04, 2016** to the following address:-

Kindly write the Enquiry No. on the top of envelop.

Dr. Vinod Tare,

Environmental Engineering Laboratory (WL-116),

Department of Civil Engineering

IIT Kanpur-208016

Thanking You

Sincerely,

(Vinod Tare)