

**FOR THE “Supply Installation and Commissioning of EMG (Electromyograph) Sensor kit (sensor, software, and data acquisition hardware) for human body muscle activation measurement and additional basic IMU data acquisition” AT INDIAN INSTITUTE OF TECHNOLOGY DHARWAD.p**

**NOTICE INVITING QUOTATIONS FOR LOCAL PURCHASE**

1.	LPC No.		IITDH/P1B/MMD/LPC/MMAE/2025-26/670
2.	Description		FOR THE “Supply Installation and Commissioning of EMG (Electromyograph) Sensor kit (sensor, software, and data acquisition hardware) for human body muscle activation measurement and additional basic IMU data acquisition” AT INDIAN INSTITUTE OF TECHNOLOGY DHARWAD.
3.	Specifications		Annexure Attached
4.	Quantity		01 set
5.	Procurement Category		OH-35, Scientific Research Equipment
6.	Procurement Type		Local Purchase
7.	<b>Submission of Quotation: by email to <a href="mailto:lpd@iitdh.ac.in">lpd@iitdh.ac.in</a></b> <b>Subject should be mentioned as “Quotation for IITDH/P1B/MMD/LPC/MMAE/2025-26/670”</b>		
8.	Cover No.	Cover Type	<b>Description</b>
	1	Technical Document	Compliances of specification with detailed catalogue/ brochure, MAF, Warranty Declaration, Bidders Information, Delivery Period etc.
	2	Financial Document	<b>Separate financial quote with password protection to be submitted (Annexure III) (If participant is technically qualified an official email will be sent requesting the password)</b>
9.	Form of Contract		Buy/Supply
10	Quotation validity (days):		30 Days
11	Period of Work/Delivery Period (Days)		Delivery period of materials 60 days from the date of PO
12	Payment Terms		Within 30 days (Ref Terms of Payment Section II of page no.3)
13	Delivery Location		Room Number 210 (2nd floor), Academic Block 1, IIT Dharwad Permanent Campus, ChikkamalligawAD, Dharwad-580011, Karnataka, India.
14	Pin Code		580011
15	Quotation Inviting Authority:		Assistant Registrar (MMD), IIT Dharwad Address: IIT Dharwad Permanent Campus, ChikkamalligawAD, Dharwad-580011, Karnataka, India

## Section – I: Instructions to participants

1. Indian Institute of Technology Dharwad invites Quotations for the item as mentioned in **SI. No. 2 of page 1** of this document and as per the **Technical Specifications** given in **Section III** of this document.
2. The participant should note that the **technical specifications** mentioned in **Section III** form the core of the product. The offers must strictly be as per the specifications given. At the same time, it must be kept in mind that mere copying of our specifications in the Quotation shall not make the Quotation eligible for consideration. A Quotation has to be supported with the **original catalogue** of the quoted item(s), duly signed by the **authorized person** participating. Non-compliance with the above shall be treated as **incomplete/ambiguous**, and the quote may be ignored without giving an opportunity to the participant for further **clarification/negotiation**, etc.
3. The participant shall ensure that the quote submitted by him includes **all accessories (as per annexures)** for full execution of the contract. The participant shall not charge extra for additional items required to meet the **operational requirement** at the stage of **installation and commissioning**.
4. Quotations can be submitted through **Email/Speed post/Courier/by Hand**.
5. The participant must submit **all documents required for evaluation of the techno-commercial Quotation**, duly signed and sealed by the **competent authority** of the firm. In the event of **non-receipt of any of the required documents**, the participant may be **disqualified** from the process. The **Quotation or any paper related to the Quotation** will not be accepted after the **given deadline** or the **last date published on the webpage of Local Purchase listings**. Further, any **separate correspondence** in this matter shall not be entertained.
6. During evaluation of the quote, the **committee** will scrutinize the documents mentioned above and may forward any or all the documents to the **concerned authorities** for **verification and authentication**. In case any document(s) as submitted by the participant is found/reported to be **fake**, the participant will be out of the **evaluation process** and suitable **legal action** may be initiated against the participant.
7. Besides, scrutinizing the documents submitted with the quote, the participant may be **interviewed by the Committee** to assess the **eligibility, capability, and suitability** of the participant.
8. The above-mentioned **basic eligibility conditions and additional clauses** are broad guidelines for **pre-qualification**, and the **Director, IIT Dharwad**, hereby reserves the right to **relax/alter/modify/add any or all the conditions**.

## **Section - II: General Conditions of Contract**

### **Evaluation of Quotation:**

- a) Techno-Commercial Quotation will be evaluated for suitability as per documentary validation, eligibility criteria, and technical specifications laid out in this document. The Quotations found suitable will be recommended by the Committee and, after approval of the competent authority, shall be deemed as technically suitable offers.
- b) In case any participant is silent on any clauses mentioned in this document, IIT Dharwad shall construe that the participant has accepted the clauses of this document, and no further claim will be entertained.
- c) No revision in the terms and conditions quoted in the offer will be entertained after the last date and time fixed for receipt of the Quotation.
- d) Any OEM (or their authorized resellers) from a country that shares a **land border with India** will be eligible to participate in this document only if the OEM is registered with the **Competent Authority** in compliance with the **Dept. of Expenditure, Ministry of Finance OM No. F.No.6/18/2019-PPD dated 23/07/2020**, as amended from time to time.

### **Corrupt & Fraudulent Practices:**

IIT Dharwad requires that participants, suppliers, contractors, and consultants, if any, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the terms set forth below are defined as follows:

- a) "Corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of in kind/value to influence the action of a public official in the procurement process or in contract execution.
- b) "Fraudulent practice" means a misrepresentation or omission of facts to influence a procurement process or the execution of a contract.
- c) "Collusive practice" means a scheme or arrangement between two or more participants, designed to establish QUOTATION prices at artificial, non-competitive levels; and
- d) "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract.
- e) IIT Dharwad will reject a proposal for award if it determines that the participant recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract in question.

### **Training and pre-installation checks:**

- a) The participant shall also submit training proposal for the operation and maintenance to the personnel of IIT Dharwad on the offered equipment/machinery.
- b) Wherever needed, our technical personnel should be trained by the supplier at the project site free of cost.
- c) The participant shall mention the pre-installation requirements for the equipment, like ambient temperature, humidity, civil work, weather specifications, power specifications, etc. When all items are provided, full performance satisfaction should be demonstrated to IIT Dharwad.

### **Terms of Payment: (For Indigenous Supplies):**

Payment within 30 days from the date of delivery, installation, commissioning, demonstration, training, testing and receipt of Acceptance Certificate of concerned Department/Section/ Materials Management Division, IIT Dharwad. Payment shall be made by electronic fund transfer or such other mode offered by the Bank. IIT Dharwad does not pay any advance payment to the party. Any request for Advance payment will be summarily rejected.

### **Transfer and Subletting:**

The seller shall not sublet, transfer, assign, or otherwise part with the acceptance to the contract or any part thereof, either directly or indirectly, without the prior written permission of the Purchaser.

### **Delivery terms (only DDP, IIT DHARWAD mode of shipment acceptable):**

Items should be delivered to the specified location in the permanent campus of IIT Dharwad, Karnataka, India – 580011, free of cost. The supplier should arrange for the entire process from the origin of equipment to the Stores at IIT Dharwad (including charges for safe packing, Marking & labelling, loading charges, road/air freight, insurance of goods, unloading charges, transport & unloading at buyer destination, installation, commissioning, demonstration and training; within the quoted price).

### **Freight & Insurance:**

No freight and insurance charges will be provided, and the materials are to be delivered at IIT Dharwad Permanent Campus, IIT Dharwad at the cost and risk of the supplier within the quoted price as per the delivery terms mentioned in the above paragraphs.

### **Warranty Condition:**

- a) The supplier must give a **comprehensive on-site support and maintenance** for a period specified as a part of the specifications in respect of the subject item (mentioned in Section III) from the date of commissioning and acceptance of the items.
- b) The warranty provided shall be comprehensive, meaning it must include the cost of the spares, materials, manpower, and any other incidental expenses thereto.
- c) Any deviation in the equipment and the specification from the accepted terms and conditions may lead to rejection and non-acceptance of stores. In such case, the participant/manufacturer is required to supply all the items in the specified form to the satisfaction/ specifications mentioned in the order and demonstrate at their own cost. The payments shall be made only after receiving the materials as per the required specification and quality to the satisfaction of the competent authority of IIT Dharwad.

### **Installation & Demonstration:**

- a) The supplier is required to carry out the supply, installation, commissioning & demonstration of the subject item at the permanent campus of IIT Dharwad installation site within the delivery period; otherwise, the penalty clause will be the same as per the supply of material (refer to the liquidated damages below).
- b) In case of any mishandling/damage to items and supplies during carriage from the origin of items to the installation site, the supplier has to replace it with new items/supplies

immediately at their own risk and cost. The supplier will settle his claim with the insurance company at their convenience. IIT Dharwad will not be liable for any type of losses in any form.

- c) Supplier shall be responsible for installation/demonstration wherever applicable and for after-sales service during the warranty period and thereafter as mentioned in the contract.
- d) Installation demonstration to be arranged by the supplier within the quoted price, and the same is to be done within 15 days of the arrival of the equipment at the site or whenever informed by IIT Dharwad.

### **Liquidated Damages:**

The equipment should be delivered/dispatched to destination and ready for use not later than the delivery period specified. If the supplier fails to deliver any or all the stores or perform the service by the specified date, liquidated damages @0.5% per week or part thereof in respect of the value of the delayed stores will be deducted from the bill, subject to a maximum of 10% value. The same terms are applicable for the installation, training, and demonstration clause mentioned above.

### **Dispute and Jurisdiction:**

Any legal disputes arising out of any breach of contract pertaining to the whole process of this procurement shall be settled in the court of competent jurisdiction in the district of Dharwad, Karnataka.

### **Cancellation of Notice Inviting Quotation:**

- a) Notwithstanding anything specified in this document, the **Purchaser/IIT Dharwad**, at its sole discretion, unconditionally and without assigning any reasons, reserves the rights:
  - 1. To accept or reject the lowest Quotation or any other Quotation or all the Quotations.
  - 2. To accept any Quotation in full or in part.
  - 3. To reject any Quotation or offer not confirming to the terms mentioned in this document.
  - 4. To cancel the Notice Inviting Quotation at any stage during the evaluation and before the award of work.
- b) Offers which deviate from the **vital conditions** (as illustrated below) of the Quotation shall be rejected:
  - 1. Non-submission of complete offers as mentioned in this document.
  - 2. Receipt of offers after the due date and time and/or by email/fax (unless specified otherwise).
  - 3. Receipt of offers in open condition.
  - 4. Conditional Quotations and unsigned Quotations will also be rejected. The Supplier shall not be liable for imposition of liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of

### **Force Majeure.**

- a) For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- b) If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

### **Supervision of Commissioning:**

The supplier shall depute concerned specialists for the supervision of the commissioning of the machine to be carried out. The Supplier shall make necessary arrangement at their own expenses for stay, transport and other expenses of their specialist during their stay in Dharwad which also includes imparting free of cost training to IIT Dharwad personnel.

### **The Institute Reserves the Right to:**

- a) Increase or decrease the quantity of the item(s) as per requirement.
- b) Reject the QUOTATION in absence of not furnishing the documentary evidence in respect of GST and Income Tax clearance certificates together with the performance of supplies in various branches/institutions.
- c) Reject the QUOTATION in the event of non-furnishing the authentic documentary evidence in respect of Testing reports / Performance report of the concerned Govt. Organization / Institutions about the products being manufactured and marketed. The performance test of the product can be conducted at Institute level also for which charge will have to be borne by the suppliers.
- d) Reject the supplies already made, if not found up to the mark. Thorough checking may be adopted to test the correctness of the supply. In such an event further, action may call to conform or discard the supply.

### **Performance Guarantee (as per GFR 2017 Rule 171):**

- a) Suppliers shall furnish 5% of the contract value as a performance security for a period of 02 months beyond the expiry of all warranty and maintenance contract related obligations within 15 days of acceptance of the Purchase Order.
- b) Performance Security may be furnished in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt from a Commercial bank, Bank Guarantee from a Commercial bank or online payment in an acceptable form, safeguarding the purchaser's interest in all respects as per GFR 2017, Rule 171, and as amended from time to time

### **LOSS OR DAMAGE:**

If goods supplied are found defective either in material or workmanship or do not conform to the specifications or unsuitable for the purpose for which they are meant for, the seller has to replace the required goods at free of cost. However, IIT Dharwad reserves right to reject the goods and repudiate.

**Table-1**

Sl. No.	Terms and Conditions	IIT Dharwad Procurement requirements	Response by vendor M/s _____
1.	Unconditional acceptance to all the Terms and conditions set out herein	Declaration to be provided	
2.	Price QUOTATION Format	As per Annexure-III (on the Firm's Letterhead)	
3.	Price QUOTATION Currency	INR	
4.	Delivery terms	Ref Delivery terms Section II of page no.4	
5.	GST Rate (If Local supply in India)	@ Applicable rates	
6.	Warranty	Submit a declaration in this regard (as per Annexure-I)	
7.	Blacklisting status	Submit a declaration in this regard (as per Annexure-II)	

### Section – III Complete Schedule of Requirements and Compliance

**This section has following compliance requirements:**

i	Compliance for technical specifications of the equipment to be supplied
---	---

**Table of compliance for technical specifications of the equipment to be supplied (to be filled by participant).**

**Annexure (EMG)**

#### **Obligations for the bidding entity:**

1. In addition to the specifications given below the vendor/bidder must provide catalogue/brochure/manuals and necessary technical documents in respect of salient line items.
2. **If required, the committee reserves the right to request a product demo on site to prove the machine's capability, accuracy and performance as a part of technical compliance evaluation.**
3. The vendor will be responsible for delivery and installation of the equipment.
4. Specify the OEM/make and unique model along with specifications.
5. All the connectivity cables need to be provided, including power and data transfer cables so that the system is readily operable from a computer system with any other requirement.

**Note:** Simply copy-pasting the specifications for quoted product from the required specifications column or just entering a casual response such as 'yes' or "compiled" without any specification details **may lead to disqualification of the bid**. Kindly mention the specifications of the **quoted product** in detail in the specified column.

Technical Features EMG (Electromyograph) Sensor kit			
Sr. No.	Feature	Specifications	Product Specific values
1	<b>No. of Sensor</b>	The system should include 8 independent channels with Built-in IMU should be provided in each EMG sensors.	
2	<b>Sensor Design</b>	1. Should be shielded lead based sensors and not just the contact points. The whole sensor has to be in touch with the muscle to be measured. Should offer no movement artifacts in the EMG data.	
		2. Sensors should have shielded EMG leads. Systems should be offered with interchangeable lead architecture, be able to select the specific lead lengths to minimize motion artifacts.	
		3. Should be able to work with extensions for the existing sensor for collecting EMG, ECG, respiration, Linear Force, Footswitch, Goniometer, Insoles,	

		biomonitor, accelerometer etc.	
		4. Should be able to record from prosthesis by modifying the lead length without drilling holes in the prosthesis.	
		5. The system must support variable inter-electrode distances to accommodate different muscle sizes (e.g., small facial muscles vs. large quadriceps) using standard disposable snap electrodes connected via flexible leads.	
		6. Sensors with fixed inter-electrode spacing or integrated rigid contact bars are not acceptable due to skin curvature limitations."	
3	<b>Embed IMU</b>	The IMU embedded within the sensor should sample data upto 400 Hz.	
4	<b>Integrated Physiological signal recording</b>	<ol style="list-style-type: none"> <li>1. Each single wireless sensor node must be capable of measuring multiple types of physiological signals simply by swapping the external input probe.</li> <li>2. A single wireless transmitter unit must be able to record EMG, 2D Goniometry, In-line Force, or general Analog signals without requiring a completely different sensor hardware unit. The system must automatically detect the type of probe connected.</li> </ol>	
5	<b>Markers</b>	<ol style="list-style-type: none"> <li>1. Should be able to add manual markers for events - to mark important changes in positions or initiation or completion of motion.</li> <li>2. Should be able to sync with any standard research equipment by sending TTL triggers including EEG data, and camera for tracking so that everything is recorded in Sync.</li> <li>3. Real time data streaming should be possible via TCP/IP so that data can be sent online to other systems or actuators for controlling Exoskeletons.</li> </ol>	
6	<b>Impedance check</b>	The system must feature a built-in, real-time impedance check function that measures and displays the skin-electrode impedance (in kOhms) for every channel before recording	

		begins, ensuring signal quality compliance i.e <5 kOhm. This feature must be integrated directly into the acquisition software.	
7	<b>ADC Resolution</b>	24-bit resolution	
8	<b>Sampling Rate</b>	4,000 Hz or more	
9	<b>Input Range</b>	$\pm 24,000 \mu\text{V}$ EMG input range	
10	<b>Signal Bandwidth</b>	Selectable between 5-1500 Hz	
11	<b>Input Impedance</b>	> 100 M Ohm	
12	<b>High Pass Filter</b>	Upto 20hz	
13	<b>Low Pass Filter</b>	Upto 1500hz	
14	<b>Accelerometer</b>	Integrated 16g accelerometer	
15	<b>EMG Baseline Noise:</b>	<1 $\mu\text{V}$	
16	<b>CMRR</b>	Min 100dB or above	
17	<b>Internal Memory</b>	250MB or greater typically to suffice for 16 Hours)	
18	<b>Operational Runtime</b>	>8 Hours.	
19	<b>Upgradeability</b>	upgradable upto 32 wireless sensors.	
20	<b>Data transmission</b>	<ol style="list-style-type: none"> <li>1. should be wireless (from sensors to receiving unit). It should also offer an onboard solid state buffer memory system for lossless data recording, even when the sensor is out of range of the receiving unit. It should also offer both offline and Real-time (Online) Recovery as well.</li> </ol>	

		<ol style="list-style-type: none"> <li>2. The system must automatically detect dropped data packets during wireless transmission (due to range or interference) and <b>automatically backfill</b> the missing data segments from the sensor's onboard memory immediately upon reconnection, without user intervention</li> </ol>	
21	<b>Range</b>	EMG signal receiving unit range at least 30 meters.	
22	<b>Battery Replacement</b>	The vendor should include atleast 6 years free battery replacement of sensors in case of issue.	
23	<b>Trigger INPUT and Output</b>	Should have synchronisation trigger input and output in the Receiver unit.	
24	<b>Weight</b>	<20 grams including battery.	
25	<b>Output to Analog Data</b>	Receivers should have the option to output analog data upto 32 channels.	
26	<b>Software</b>	<ol style="list-style-type: none"> <li>1. The software should be able to integrate and visualise DATA from all the modalities simultaneously to measure kinematic, kinetic, finger kinematics video, and neuromuscular data in one software without the need of external programming.</li> </ol>	
		<ol style="list-style-type: none"> <li>2. The software should allow display of data from EMG and motion tracking on the same interface and can even overlay data.</li> </ol>	
27	<b>Data Reporting and Comparison</b>	<ol style="list-style-type: none"> <li>1. Software should have above 40 report templates to analyze recorded data with customization.</li> </ol>	
		<ol style="list-style-type: none"> <li>2. It should offer DATA comparison and the ability to create or apply reference curves for a quick visualization of differences between recordings or normative data sets.</li> </ol>	
28	<b>Software</b>	<ol style="list-style-type: none"> <li>1. Frequency-fatigue Analysis</li> </ol>	

	<b>Analysis features</b>	2. Spectrum Analysis	
		3. Wavelet Toolbox	
		4. Biofeedback Analysis	
		5. Symmetry & Coordination Tests	
		6. Average Activation Patterns	
		7. EMG Standard Analysis	
		8. Feedback Training	
		9. Gait Analysis	
		10. Template Training	
29	<b>Computer</b>	Should be supplied with a compatible laptop	
30	<b>Installation</b>	The Same model should have been installed in at least 3-5 Indian universities/IITs in the past 1-2 years.	
31	<b>Mandatory Compliance</b>	Bidders should clearly mention and highlight specs with page no in the supporting document which will be enclosed for compliance checking.	
32	<b>Warranty</b>	Should be supplied with 3 years of warranty.	

In addition to above specification the vendor has to provide catalogue/ brochure/ manuals and necessary technical documents in respect to the line item.

I/We M/s \_\_\_\_\_ hereby declare and certify that we comply with all the above specifications.

Authorized Signatory with Seal

**Annexure I**

**DECLARATION OF COMPREHENSIVE WARRANTY AND MAINTENANCE VISITS**

I/We M/s \_\_\_\_\_ hereby declare that items to be supplied against this participant shall be covered as comprehensive warranty as given in the specifications document with scheduled maintenance visit on call basis/regular basis/quarterly basis. This warranty shall cover defects in materials, workmanship, and performance for a period of \_\_\_\_\_ (as mentioned in specification Section III) from the date of acceptance/installation.

**Date:**

**(Authorised signature & seal of the participant)**

**Annexure-II**

**UNDERTAKING REGARDING BLACKLISTING / NON-DEBARMENT**

We hereby confirm and declare that we, M/s \_\_\_\_\_, is/are not under any active debarment from Ministry of Finance and/or Ministry of Education as on the date of QUOTATION submission.

Any change in the above status during the evaluation of the present quote shall be intimated to IIT Dharwad immediately.

**Date:**

**(Authorised signature & seal of the participant)**

**(Annexure-III)**

**Price QUOTATION**

Sl. No	Description of Item & Specification	Qty	HSN Code / SAC Code	Total QUOTATION Price* (in INR & DDP Basis)
1.	<b>Supply Installation and Commissioning of EMG (Electromyograph) Sensor kit (sensor, software, and data acquisition hardware) for human body muscle activation measurement and additional basic IMU data acquisition</b>	01 set		
2.	Discount offered (if any), on base price quoted			
3.	Sub-Total			
4	IGST / CGST / SGST@ applicable Rates			
5.	<b>GRAND TOTAL QUOTATION PRICE</b>			

Authorised Signatory and seal