

SPECIFICATION FOR IR CAMERA-BASED GAIT AND FOOT PRESSURE STUDIES LAB WITH ACCESSORIES

	COMPONENT SYSTEMS
A.	IR Camera system to acquire Gait & Motion Analysis
1	No. of IRCameras: 8 (Eight).
2	Should be expandable to up to 16 digital cameras.
3	Gigabit Ethernet communication.
4	Type of Camera: Infrared cameras.
5	Cameras should operate at 300 - 340Hz with full resolution.
6	Strobes should emit light by wavelength in a bandwidth of around 850 nm.
7	Camera resolution: Minimum 2048 x 1088 Pixel or higher.
8	Maximum acquisition frequency up to 2000 fps.
9	Marker detection system.
10	Processing: On Camera.
11	Camera Power: Directly supplied by the Data Station
12	Set of whole-body markers, which should be upgradeable, 100 Nos. of Extra markers to be supplied along with the System.
13	The system must be able to acquire complex movements in both indoor and outdoor conditions.
14	The system should be able to capture the marker trajectory (Unlimited number of markers).
15	The system should be supplied with markers to capture both the upper limb and lower limb bilaterally.
16	The system should be supplied with markers suitable for both pediatric as well as the adult population.
17	Necessary calibration apparatus. Bar-based calibration for a fast system set up even with obstacles in the field of view, 6 Tripod and 6 wall mount, cable, and all other necessary accessories to be supplied along with the system.
18	The system should be supplied with an independent spatial-temporal gait parameters evaluation device for scrutiny of the subjects/ patterns with the following features: <ul style="list-style-type: none"> a. System to be placed around the waist by an ergonomically designed belt. b. System should be able to analyze speed, acceleration pattern, and pelvic angles. c. System should include various types of tests, viz. walking test timed up and go, turning test, 6 minutes walking test indoor running test.

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	d. The software of the system should evaluate the following Spatio-temporal parameters speed, cadence, step length, stride length, gait cycle duration, stance duration, swing duration, and single and double support phase duration.
	e. Should evaluate the following pelvic girdle angle parameters viz. anterior-posterior rotations, anti-retroversion, lateral tilt (up/down), transversal rotations (internal/external).
	f. Sensor Typology: Tri-axial accelerometers, Multiple Tri-axial gyroscopes. Magnetometer, GPS.
	g. Connectivity: Bluetooth, Frequency: up to 200 Hz, Battery: rechargeable via USB.
	h. Should have internal memory.

B.	Foot Pressure Studies
1	The system should have a stand-alone platform for Stance and Roll-Off analysis.
2	The system should be connected to a USB PC/Notebook interface.
3	It should have more than 2500 capacitive sensors. The measuring system should function using high-quality capacitive force sensors that are arranged in a matrix and each sensor should produce its calibration curve.
4	It should have minimum sensing area (180-200) cm x (70-75) cm x (6-8) cm (L x B x H).
5	It should have a Sampling rate: of 300 Hz or more.
6	Calibration: Automatic 10-bit or more.
7	Sensors Dimensions: 1cm x 1 cm or less.
8	It should have a video out sync interface.
9	The measuring plate should enable the static and dynamic pressure distribution to be analyzed under the feet while standing and walking. The system is connected directly to a commercially available PC via a USB interface and should not require any additional electronics.
10	The gait parameters are displayed in the evaluation report. These should include amongst others the step length and step width, the stance, swing, and double stance phase as well as the cadence.
11	It should allow for the display of static posture during a standard examination.
12	It should have software for data collection, analysis, static load distribution analysis, basic function equilibrium analysis, roll-off analysis, and for coordination training.
13	The system should provide optional Bluetooth telemetry EMG for muscle function to analyze forces parallel to the ground reaction forces.
C.	Force Platforms: 2 Nos.

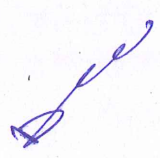
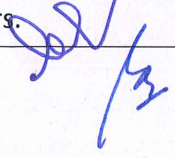

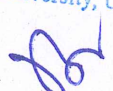
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1	Sensing area 800 mm x 600mm.
2	Should be able to acquire static and dynamic forces in the x, y, and z axes.
3	Digital output via Ethernet.
4	Self-calibration of platform position.
5	Force platforms should work on strain gauge technology.
6	Integratable software with kinematic and EMG data.
7	The platform should have the facility of measurement in real-time of the ground reaction forces overlaid on the video shoot of the moving patient.
8	Upgradability to an unlimited number of platforms in features if required.
D.	Software Features
1	To integrate, analyze, store, reproduce and report 3D Gait & Motion analysis, video picture, kinematic, kinetic (force plate), and EMG data in the same control system. Simultaneous visualization of all the above data in graphs. Long-duration motion captures facility.
2	Free software updates are mandatory
3	Real-time visualization of all integrated device data.
4	Immediate upload of data to workstation and storage
5	Easy drag-and-drop data processing software package for protocol creation, without any programming language knowledge.
6	To differentiate stance phase and swing phase kinematics, kinetics, EMG. Display of full perspective 3D representation of workspace, markers, and trajectories (mouse controllable).
7	Auto 3D reconstruction of marker trajectories.
E.	Surface EMG system (16 wireless EMG channels)
	Wireless probes:
1	Should be surface electrodes: variable geometry electrodes with mounting clip 16 bit resolution- acquisition frequency up to 4000 Hz
2	Data transmission should be wireless (probes-receiving unit)
3	Probes- receiving unit up to 50 meters (160 feet) in free space
4	Memory onboard solid-state buffer memory system
5	Weight <10 grams, including battery and satellite electrode identification labels
	Mobile receiving unit
1	EMG channels up to 16 wireless probes on each receiving unit
2	Data transmission wireless WiFi (receiving unit- workstation)

3	Display 4" VGA touch screen
4	Recording duration up to 9 hours with a single battery
5	Range receiving unit- workstation up to 30 meters (100 feet) indoor- up to 350 meters (380 yards) outdoor.
6	Weight 325 to 375 grams.
F.	System Necessities
1	IR Camera System should be supplied and installed on-site with all necessary accessories, and sufficient consumables with 2 weeks of training.
2	Service backup with a response time of 24 hours.
3	The supplier is responsible for the compatibility and integration with the already installed Force platform, Wireless EMG, and Video Camera with IR Camera System to make all components in a single system on a turnkey basis.
4	Letter of quality of performance to be furnished from reputed institutions (3 Nos.) using this system in India.
5	Acceptance and compliance of the above specifications are required from the parent manufacturing company.
6	The full System should be quoted as a full single package of one Manufacturer as designed for the present site.
7	Workstation with Monitor, UPS, DVD Writer, High-Speed RAM, and Color Laser Printer.
8	One No. of trained Physiotherapists for 5 years to be provided by the bidders to operate the system.
G.	Turnkey Solution
	Civil work: Necessary Civil work has to be done by the supplier/bidders to fulfill the installation requirements of the IR Camera, Force Plate, EMG System, Video Camera, and Foot Pressure System
1	Installation of the force plates by merging with the floor/ raised walkway as per the installation site condition.
2	A stabilized power source, including online UPS of suitable rating with a minimum 1-hour backup for the PC/ peripherals.
3	Basic electrical work to be done like plugs, cable housings, etc.
4	Human body height measuring devices – digital
5	Human body weight measuring devices – digital
6	Vinyl flooring of the walkway/ ramp
7	Blinds for windows and doors.

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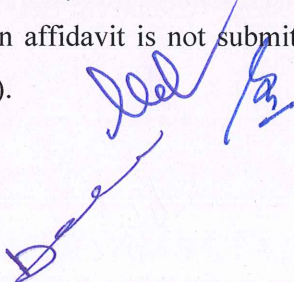

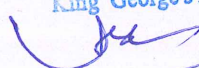

8	LCD Display of approx 50 inches
9	2 Nos. of split A/C each of 1.5 ton
10	If any other civil work is required should be listed separately by the supplier/bidders.

Conditions for tenderer:

1. All accessories should be from the same Original Equipment Manufacturer for the main unit.
2. Instruments must be ISO certified and a copy should be enclosed. (The ISO Certificate must be issued by any organization accredited by the Bureau of Indian Standard or accredited by the international accrediting forum "IAF" (Certificate to be attached).
3. Should be USA FDA and European CE be approved by 4 digits notified body.
4. Other necessary certifications if any required will be provided by the bidder for the smooth functioning of the machine.
5. Installation process should be performed by O.E.M trained service engineers/ service representatives on OEM letterhead or Service Report within 15 days of supply, with the mandatory provision of providing preventive services visit of OEM trained Service Engineer/ Service Representative quarterly per year till the completion of warranty period (i.e., 20 visits for the first 05 years) & further quarterly visits (04 visits/year) year till the completion of CMC period.
6. The equipment should have a Brand name/ Model Number embossed/etched on the equipment.
7. All the technical specifications in the compliance statement must be supported by Original Literature from the firm/ O.E.M with highlighting Numbering & flagging of all technical certificates.
8. Offered Equipment should have a strong Government Installation base.
9. Offered Equipment should have a Regional Sales Service Centre of the Original Equipment Manufacturer in the region for a 95 % uptime guarantee.
10. For the offered main unit, the essential, optional required consumables'/accessories' shelf life should be declared on the Original Equipment Manufacturer's letterhead.
11. In case of technical snag/failure/breakdown the response time for the inspection should be within 24 hours and repair within 05 days otherwise provide a service

machine/ alternate arrangement to be made till the period of recovery of the breakdown of the unit, failing which attracts penal action as per the decision of institute/ hospital.

12. For offered equipment the Training of technical staff and users should be performed by Original Equipment Manufacturer trained Service Engineers at the proper designated place- at bidders' cost.
13. Company should quote their latest model and need to provide an affidavit for the same.
14. As a tendering process the Demonstration of the offered Equipment is Mandatory at hospital/institute premises or other designated places at the bidder's cost.
15. The bidder must comply with the General Financial Rules and their modifications if any issued by the Government of India- 2017.
16. Any bidder from a country that shares a land border with India will be eligible to bid in the tender only if the bidder is registered with the Competent Authority (i.e., Registration certificate issued by the Ministry of Commerce and Industry (Department for Promotion of Industry and Internal Trade- DPIIT after October 2020). If any such bidder is not registered with DPIIT they will be liable for technical disqualification.
17. Principal (OEM) must authorize only one agent to be quoted in the bid otherwise multiple quotes through different agents in the same bid will be canceled.
18. The Bidder and its OEM both have to submit a notarized affidavit on the Indian Non-Judicial Stamp Paper of Rs.100/- that the bidder has not quoted the price higher than the current financial year and last financial year supplied to any government Institute/ Organization/ reputed Private Organization. OEM also has to submit that the price quoted by the bidder in the bid is on its behalf and the lowest in the current and last financial year in the country. Therefore, if at any stage it has been found that the supplier and its OEM have quoted lower rates than those quoted in this bid; the Institute (the purchaser) would be given the benefit of lower rates by the Supplier and any excess payment if any, will become immediately payable to the Institute (the purchaser). If such an affidavit is not submitted, the bid will be outrightly rejected. (Part of technical bid).





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19. Guarantee / Warranty Period: Separate offers of Comprehensive Maintenance Contract (CMC on main equipment) and Annual Maintenance Contract (AMC on main equipment) for further 5 years after expiry of 5 years of warranty (i.e., 6th, 7th, 8th, 9th and 10th years) in rupees only (and on basis of percentage of price) should be included in a financial bid in the absence of which the offer is liable to be rejected. Payment for CMC/AMC shall be made only after the expiry of the warranty of 5 years, in case the Institute (the purchaser) decides for availing of CMC/AMC services. Contract for CMC/AMC shall be decided on expiry of warranty but rates (not more than 5% inclusive of all taxes for 6th to 10th year) will be frozen at the price of an issued purchase order before the release of payment by the Institute (the purchaser). However, the Institute (the purchaser) may decide not to enter into any CMC/AMC contract without assigning any reason for the same, which shall be binding upon the bid.
20. Should provide 5-year CMC. CMC cannot be more than 5% of the contract value.
21. System configured application-specific educational video tutorials shall be provided as standard with the system.
22. Details of service outlet in India to render services during 5 years warranty period.
23. The principals must give a certificate if the supplier/vendor is changed during the course of the guarantee/warranty period, the principals would be responsible for the upkeep/maintenance of the quote/supplied equipment, besides honouring all the terms and conditions of CMC/AMC in letter and spirit.

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