



Schedule of
Tender For
Autonomous Mobile Robots

**Central Manufacturing Technology Institute Tumkur
Road, Bangalore-560022, India**

P. Narendar Reddy

**Central Manufacturing Technology Institute
Tumkur Road, Bangalore-560022,India**

TENDER FOR

Autonomous Mobile Robots

**Annexure- I:
Schedule of Tender**

(To be filled in by the tenderer and returned and duly signed along with enclosure to the
Schedule of Tender)

1.	Name of Purchaser	Central Manufacturing Technology Institute Tumkur Road, Bangalore 560022
2.	TenderNo:	
3.	Place of delivery	Central Manufacturing Technology Institute Tumkur Road, Bangalore 560022
4.	Delivery of Autonomous Mobile Robot Required	Within 12 weeks from the date of receipt of purchase order
5.	Date of receipt of The Tender	
6.	Validity of the tender	Tender should be valid for a period of not less than 2 months from the date of offer and unless otherwise specified by the tenderer, the tender shall be treated as valid even thereafter.
7.	Technical details / Requirements for which the tender is invited	a) As per technical specifications/ Requirements in Annexure-II & Annexure-III (enclosed). b) All details that are required in the specification must be included in the offer. Incomplete tenders are liable to be rejected. c) Wherever numerical values are specified, tenderer shall respond with numerical values that actually correspond to the product. Any additional features/details pertaining to the product should be enclosed separately

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8.	Price offered	<p>The quotation should be furnished in TWO parts in the following manner.</p> <p>a) The first part should contain complete technical details of the item offered along with name and address of the manufacturer, full name and address of the authorized agent, guaranteed delivery period and 2sets of the latest Catalogues. This part should not contain the price details. This part should be super scribed with "Tender Enquiry Reference and Date" and "Technical Bid for Autonomous Mobile Robots"</p> <p>c) The second part should contain the Price and other commercial terms. The price should be quoted F-O-R, Bangalore. This part should be super scribed with "Tender Enquiry Reference and Date" and "Price and Commercial Bid for Autonomous Mobile Robots"</p> <p>d) Both these parts should be submitted with "Tender Enquiry Reference and Date" and "Autonomous Mobile Robots".</p> <p>e) Breakup cost for optional features and optional Equipment/accessories are to be clearly indicated in the price& commercial bid.</p>
9.	Payment Terms	<p>80% after successful installation and integration at CMTI Site 20% after completion of comprehensive training of the software</p>
10.	GST Payment	<p>GST payments will be subjected to GST regulations. Payment will be made only for the basic value of the invoice and the balance GST amount will be cleared only after submission of GSTR1 report. (GST Exemption Letter will be provided.)</p>
11.	Transit Insurance	<p>To be arranged by the supplier from supplier's warehouse to The place of delivery.</p>
12.	Notes	<p>a) Late offers will not be entertained or accepted. b) All the items in the tender Specifications are to be filled in. Incomplete Tender Specifications may not be considered. c) The Director of the Institute reserves the right to reject any tender/all tenders without assigning any reason.</p>
13.	General Terms and	<p>a) Only Autonomous Mobile Robots OEM & authorized resellers / distributor scan participate in the tender. Resellers / distributors need to furnish authorization certificate from the OEM, along with the technical bid. b) Software to be supplied on CD-ROM/DVD-ROM media. c) All software's supplied should be latest version with perpetual license and floating type (network license). All modules supplied shall be network version, scalable (both additional users &</p>

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Conditions	<p>software).</p> <p>d) Warranty support for 1 year is required; it includes automatic up-gradation / maintenance, Enhancement.</p> <p>e) Training Manuals and other support content for the autonomous mobile robot to be provided</p> <p>f) Detailed drawings to be provided for the autonomous mobile robot and other accessories for operation & maintenance</p> <p>g) Autonomous mobile robot component spares and toolkits to be provided for the operation & maintenance</p> <p>h) AMC support to be provided for one year after the warranty period vendor requested to quote it separately as an optional item</p> <p>i) All modules of the system necessary for the implementation and operation of the total system shall be-quoted. Additional modules of software & hardware, not mentioned in the specification, but required for the comprehensive functioning of the total system, should be quoted.</p> <p>j) Breakup cost for each and every component of the system shall be furnished with detailed specifications and catalogues.</p> <p>k) Comprehensive and full-fledged corporate training to be provided for 10 days at CMTI, in phases, after installation & commissioning.</p> <p>l) Quote should be accompanied by a compliance statement sheet indicating compliance / non-compliance item-wise. In case of compliance, name of module supporting the functionality the type & number of licenses quoted and the number of users who can access it to be clearly mentioned. Absence of comprehensive compliance statement will lead to disqualification of vendor.</p> <p>m) Vendor to obtain clarity on all issues/points in the Specifications prior to forwarding quotation.</p>
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Annexure-II:**Technical Specifications for Autonomous Mobile Robots**

Sl. No.	Item Description	Supplier Compliance
1	General Specification	
1.1	Towing Capacity	1000kg
1.2	Payload Surface Area	Equivalent to AMR's footprint or better
1.3	Navigation Direction	Bidirectional
1.4	Navigation Technology	Lidar (3D and 2D), Camera, IMU, Wheel Encoder
1.5	Total Working Area	40m * 15m = 600m ²
1.6	Usage	For transporting metal components using trolley.
2	Performance	
2.1	Positional Accuracy	Better than ± 2 to 5 cm
2.2	Docking Accuracy	Better than ± 2 cm
2.3	Maximum Speed	≥ 1.5 m/s
3	Battery	
3.1	Battery type	Lithium Ion
3.2	Charging Type	Manual Swap
3.3	Charging Time	<2 Hours
3.4	Power Supply Voltage	12/24 V
3.5	Active operation time with maximum payload	≥ 7 Hours
3.6	Active operation time with no payload	≥ 8 Hours
4	Communications	
4.1	Wireless	Wifi (802.11 ,2.4Ghz, 5Ghz)
4.2	Bluetooth	4.0 LE, range: 10-20 m
4.3	USB	3.0 or better
5	Safety	
5.1	Emergency Stop	Required
5.2	3D Safety Camera	Required
5.3	Emergency breaking distance	<0.5 meters
6	Compliance	
6.1	Safety standards for industrial vehicles	CE, EN1525, ANSI B56.5, RIA15.08, ISO13849-1, or ISO 3691-4
6.2	IP Class	65 or better.
7	Software	

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7.1	Basic Software for map generation, path planning and dashboard, health monitoring	Required	
SCOPE OF AUTONOMOUS MOBILE ROBOTS			
I.	Delivering Raw Materials		
II.	Work-In-Process Movement		
III.	End of Line Handling		
IV.	Transporting Waste Materials		
V.	Staging Loads for Shipping		
VI.	Delivering/Replenishing Empty Pallets		
VII.	On-Demand Material Transport		
Warranty			
<p>a) The Autonomous Mobile Robots should have a standard warranty of 12 months from the date of installation, commissioning & acceptance at CMTI. Supplier modification (s) / software updates and upgrades shall be intimated and same should be made available free of cost during the warranty period.</p> <p>b) The access to online learning resources shall be made available free of cost during the warranty period.</p> <p>n) AMC support to be provided for one year after the warranty period and also vendor is requested to quote it separately as an optional item</p>			

P. Sankar Reddy

P. Sankar Reddy
29/09/2022

Annexure-III

**BOQ FOR
Autonomous Mobile Robots**

SL. No	Main components description	Qty	Units
1	Autonomous Mobile Robots: Towing Capacity: > 1000 kg, Active Operation Time: > 7 Hours, Safety Features: Emergency Stop, safety LIDAR and safety 3D camera, included with swappable battery	1	No
2	Charging Dock	1	No
3	Swappable Battery	1	No
4	Markers for localization improvement	2	No



Annexure– IV
ACCEPTANCE CRITERIA FOR
Autonomous Mobile Robots

Sl. No.	Item	Description
1.	Autonomous Mobile Robots (AMR)	All modules, features & functionalities should meet as per Annexure–II: Technical specifications
2.	Installation	<ul style="list-style-type: none"> • Installation & commissioning of AMR must be done at CMTI and working of licenses and modules should be demonstrated, at free of cost. • Detailed drawings to be provided for the AMR and other accessories for operation & maintenance • AMR component spares and toolkits to be provided for the operation & maintenance
3.	Training	<ul style="list-style-type: none"> • Suppliers to provide comprehensive on usage, operation & maintenance of AMR at CMTI at free of cost within 1month of installation • Training Manuals and course content for the AMR to be provided
4.	Documents/Manuals	2 sets of hard copy with 1set of soft copy in English a) Operation & Maintenance manual b) Training manual c) Drawings
5.	Service & Maintenance Support	AMC support to be provided for one year after the warranty period and also vendor is requested to quote it separately as an optional item

Note:

The AMR will be finally accepted based on the compliance in above acceptance criteria. Hence, the bidder has to go through the acceptance criteria and convey their acceptance unambiguously. The compliance statement against all points of tender to be submitted along with technical bid.

P. S. S. M.

SCHEDULE OF REQUIREMENTS

TO BE FILLED BY BIDDER AND ENCLOSED WITH THE TECHNO-COMMERCIAL BID

Brief Description of Goods and Services	Quantity
Autonomous Mobile Robots: [Technical Specifications and Other Details as per Bidding Documents]	1 Set
Place of Delivery and Installation	CMTI-Central Manufacturing Technology Institute, Tumkur Road, Bengaluru-560022, Karnataka, India
Period of Delivery shall count from	<TOBEFILLEDBYBIDDER>
Delivery Period [Goods to be delivered in one lot at final destination CMTI – Central Manufacturing Technology Institute, Tumkur Road, Bengaluru, Karnataka, India-560022]	<TOBEFILLEDBYBIDDER>
Time frame required for installation of the software etc. after receipt at CMTI	<TOBEFILLEDBYBIDDER>
Payment Terms	80% after successful installation and integration 20% after completion of comprehensive training of the software

NOTE: The party has to offer their product/equipment strictly based on the specifications asked in the Bidding Documents



