



ASTI – FM 03-17
REV 2 / 31 January 2020

PURCHASE ORDER

Supplier:	Jassen Harris Industries Corporation	PO No.:	ROAMER-22-01-001
Address:	1063 Tomas Mapua St., Brgy. 329 Zone 33, Sta. Cruz, Manila	PO Date:	January 04, 2022
TIN:	009-248-102-000	Mode of Procurement:	Competitive Bidding

Gentleman:

Please furnish this Office the following articles subject to the terms and conditions contained herein:

Place of Delivery:	ASTI Bldg., C.P. Garcia Ave., U.P. Technology Park Complex, U.P. Campus, Diliman, Quezon City 1101	Delivery Term:	One Hundred Twenty (120) calendar days upon issuance of NTP Government Terms
Date of Delivery:		Payment Term:	
		Warranty Term:	

Stock / Property No.	Unit	Description	Quantity	Unit Cost	Amount
	Lot	<p>Mobile Robot Platform (including sensors and peripherals) Mobile Robot Platform (including sensors and peripherals)</p> <p>1. General Statement/Background/Objectives 1.1. The Advanced Science and Technology Institute is seeking qualified and competent bidders for the supply and delivery of one (1) lot of mobile robot platform including sensors and peripherals. 1.2. The approved budget for the contract is inclusive of all applicable government taxes and services charges. 1.3. The mobile robot platform will be used in the development of a mobile robot model for mission-specific tasks as part of the objectives of the project. 1.4. The technical specifications indicated herein are minimum requirements, unless otherwise specified.</p> <p>2. Technical Specifications 2.1. Quantity: One (1) lot Mobile Robot Platform (including sensors and peripherals) 2.2. External Dimensions: 990 x 670 x 390 mm (39 x 26.4 x 14.6 in) 2.3. Internal Dimensions: 296 x 411 x 155 mm (11.7 x 16.2 x 6.1 in) 2.4. Weight: 50 kg (110 lbs) 2.5. Wheels: 330 mm (13 in) Lug Tread 2.6. Ground Clearance: 130 mm (5 in) 2.7. Max Payload: 75 kg (165 lbs) 2.8. All-Terrain Payload: 20 Kg (44 lb) 2.9. Max Speed: 1.0 m/s (2.2 mph) 2.10. Drivetrain / Drive Power: 4x4 Zero-Maintenance 2.11. Tires: Rugged and all-terrain 2.12. Max Climb Grade: 45° (100% Slope) 2.13. Max Traversal Grade: 30° (58% Slope) 2.14. Battery Chemistry: Sealed Lead Acid 2.15. Capacity: 24 V, 20 Ah 2.16. Runtime - Standby: 8 Hours 2.17. Runtime - Nominal Usage: 3 Hours 2.18. Charge Time: 4 Hours 2.19. User Power: 5 V, 12 V, 24 V Fused at 5 A each; 192 W total available power 2.20. Control Modes: Direct voltage, wheel speed, and kinematic velocity</p>	1	₱2,700,000.00	₱2,700,000.00

- 2.21. Feedback: Battery voltage, motor currents, wheel odometry, and control system output
- 2.22. Communication: RS232 @ 115200 baud
- 2.23. Encoders: Quadrature: 78,000 pulses/m
- 2.24. Drivers and APIs: ROS Kinetic (or later), C++, Python, Mathworks
- 2.25. Operating Ambient Temperature: -10 to 40 °C (14 to 104 °F) Not in direct sunlight
- 2.26. Storage Temperature: -40 to 60 °C (-40 to 140 °F)
- 2.27. Rating: IP 44 (upgrade to IP 55 available)

- 3. Accessories
- 3.1. One (1) lot of mobile robot platform must include the following items with the following specifications:
 - 3.1.1. One (1) Robot Base Unit:
 - 3.1.1.1. One (1) UGV Chassis
 - 3.1.1.2. One (1) Payload Mounting Framework
 - 3.1.1.3. One (1) Onboard Microcontroller
 - 3.1.1.4. Three (3) User Power Ports (VBat, 12V, 5V fused at 5A each)
 - 3.1.1.5. Two (2) Gear Motors with Wheel Encoders
 - 3.1.1.6. One (1) Current and Voltage Sense Package
 - 3.1.1.7. One (1) Temperature Diagnostics Package
 - 3.1.1.8. One (1) 24V 20Ah SLA Battery Pack
 - 3.1.1.9. One (1) 24v DC Battery Charger
 - 3.1.1.10. Compatibility: serial communications
 - 3.1.1.11. with ROS driver
 - 3.1.2. One (1) Top Plate
 - 3.1.2.1. Diameter: 1/4" Aluminium top plate (for mounting sensing and computing payloads)
 - 3.1.3. One (1) IMU/AHRS OpenIMU UM7
 - 3.1.3.1. Three axes
 - 3.1.3.2. 500Hz EKF with 100Hz Output
 - 3.1.3.3. $\pm 2^\circ$ Static pitch / roll accuracy
 - 3.1.3.4. $\pm 5^\circ$ Static pitch / roll accuracy
 - 3.1.3.5. 0.01° Angular resolution
 - 3.1.3.6. ARM Cortex processor
 - 3.1.3.7. Open Firmware
 - 3.1.3.8. Serial interface
 - 3.1.3.9. With Vehicle mounting and wiring
 - 3.1.4. One (1) Computer Board
 - 3.1.4.1. CPU: At least 2.7GHz Intel i5-4570TE or equivalent/better
 - 3.1.4.2. Memory: At least 8 GB RAM
 - 3.1.4.3. Storage: At least 120GB SATA2 SSD
 - 3.1.4.4. Minimum connectivity: 2x RS-232, 10x USB 2.0, 2x GigE, PCI Express
 - 3.1.4.5. 120W power supply or better
 - 3.1.4.6. WiFi adapter included
 - 3.1.4.7. Wireless controller included
 - 3.1.4.8. ROS/Ubuntu configuration files included
 - 3.1.4.9. Vehicle mounting and wiring included
 - 3.1.5. One (1) Wireless Access Point
 - 3.1.5.1. 802.11a/g/n
 - 3.1.5.2. Four (4) Gigabit LAN Ports
 - 3.1.5.3. Three (3) External Antenna
 - 3.1.6. One (1) Depth Camera
 - 3.1.6.1. Vision processor D4
 - 3.1.6.2. Up to 1280x720 active stereo depth resolution
 - 3.1.6.3. Up to 1920x1080 RGB
 - 3.1.6.4. Up to 90 FPS global shutter
 - 3.1.6.5. Range: 0.2m up to 10m
 - 3.1.6.6. FOV: 90 degrees
 - 3.1.6.7. Built-in 6DOF IMU
 - 3.1.6.8. With Integration, software, and URDF setup
 - 3.1.7. One (1) 3D LiDAR
 - 3.1.7.1. FOV: 360° x 30°
 - 3.1.7.2. 16 Channel
 - 3.1.7.3. Range: 100+m
 - 3.1.7.4. Dual return
 - 3.1.7.5. 300,000 points per second
 - 3.1.7.6. With Vehicle mounting and wiring

	<p>3.1.8. One (1) Spare Kit 3.1.8.1. One (1) MC + user power board 3.1.8.2. One (1) Brushed DC Motor Controller 3.1.8.3. One (1) Geared Motor 3.1.8.4. One (1) Belt Replacement Package 3.1.8.5. One (1) Bumper 3.1.8.6. Two (2) Wheels 3.1.8.7. One (1) Lead-Acid Battery Pack (24V @ 20Ah)</p> <p>4. Aftersales/Technical Support Service 4.1. Technical support service must be available 9 hours per day, Monday to Friday (including holidays), during business hours, 9AM-6PM Philippines Standard Time (UTC+8) 4.2. End-user must be able to request technical support by phone, email or through a website 4.3. Technical support must respond within four (4) business hours, and for unresolved issues exceeding one (1) business day, updates must be made available to the end-users every three (3) business days. 4.4. Any repair or replacement service must be successfully performed within twenty (20) business days</p> <p>5. Terms of delivery, payment, and warranty 5.1. Must be shipped with 60-calendar day return for advanced replacement on DOA parts and components, and 1-year limited warranty that covers defects in materials and workmanship 5.2. Delivery of the Goods shall be made by the Supplier within One Hundred Twenty (120) calendar days upon issuance of Notice to Proceed (NTP) 5.3. The price of bid must be inclusive of government tax. 5.4. Payment shall be made only upon certification/acceptance by the End User to the effect that the Goods have been rendered or delivered in accordance with the terms of this Contract and have been duly inspected and accepted. No payment shall be made for services not yet rendered or for supplies and materials</p> <p><i>(Please see attached offer.)</i></p>			
			TOTAL:	₱2,700,000.00
(Total Amount in Words)	Two Million Seven Hundred Thousand Pesos Only			

The contract price is inclusive of taxes and other fees or charges. In case of failure to make the full delivery within the time specified above, a penalty of one-tenth (1/10) of one percent for every day of delay shall be imposed on the undelivered item/s. Once the cumulative amount of liquidated damages reaches ten percent (10%) of the amount of the contract, DOST-ASTI may rescind or terminate the contract, without prejudice to other courses of action and remedies available under the circumstances and in accordance with the provisions of the latest implementing rules and regulations of RA 9184.

Conforme:

Very Truly Yours,

(Signature over Printed Name of Supplier)

for
FRANZ A. DE LEON, Ph.D.

Director, DOST-ASTI

(Date)

Fund Cluster:	<u>07</u>	ORS / BURS No.: <u>073086012022-01-000009</u>
Funds Available:	<u>Php 2,700,000.00</u>	ORS / BURS Date: <u>January 24, 2022</u>
		Amount: <u>₱ 2,700,000.00</u>
<p>_____ GAY CONCEPCION S. BUGAGAO Accountant III</p>		