

# Section VI. Schedule of Requirements

The delivery schedule expressed as weeks/months stipulates hereafter a delivery date which is the date of delivery to the project site.

Item Number	Description	Quantity	Total	Delivered, Weeks/Months
1	<p><b>Robotics Set composed of the following:</b></p> <p><b>a. 10 Sets of Zumo Robot v1.2 (assembled with 75:1 hp Motors), includes:</b></p> <ul style="list-style-type: none"> <li>✓ dual motor driver</li> <li>✓ general-purpose I/O</li> <li>✓ buzzer</li> <li>✓ 3-axis accelerometer, compass and gyro</li> <li>✓ 300g</li> <li>✓ Size: 98mm x 98mm x 39mm</li> <li>✓ weight: 165g</li> </ul> <p><b>b. 15 Nos. of Arduino Uno Wifi Rev 2   ABX00021</b></p> <ul style="list-style-type: none"> <li>✓ Supply voltage: 5 V to 12 V</li> <li>✓ Microcontroller: ATmega4809</li> <li>✓ Maximum clock frequency: 20 MHz</li> <li>✓ SRAM: 6 KB</li> <li>✓ Flash memory: 48 KB (5 KB is reserved for bootloader)</li> <li>✓ EEPROM: 256 B</li> <li>✓ Wi-fi module U-block W102:</li> <li>✓ I/O Ports: 14</li> <li>✓ PWM outputs: 5</li> <li>✓ Number of analog inputs: 6</li> <li>✓ Serial interfaces: UART, SPI, I2C</li> <li>✓ USB A connector for programming</li> <li>✓ DC connector 5.3 x 2.1 mm for power</li> <li>✓ Dimensions: 69 x 53 x 14 mm</li> <li>✓ Weight: 25 g</li> </ul> <p><b>c. 5 Sets of 2WD Smart Robot Car Kit for Arduino with Wifi ESP32 Camera</b></p> <p>Component list :</p> <ul style="list-style-type: none"> <li>✓ 1 x ESP32 CAM</li> <li>✓ 1 x L298N Driver</li> <li>✓ 1 x Antenna</li> <li>✓ 1 x Battery Case</li> <li>✓ 1 x Power Supply Module</li> <li>✓ 1 x USB cable</li> <li>✓ 2 x Motors</li> <li>✓ 2 x Tires</li> <li>✓ 4 x Acrylics</li> <li>✓ 1 x Universal Wheel</li> <li>✓ 1 x 10 pin F-F Dupont Wire</li> <li>✓ 1 x Screwdriver</li> <li>✓ 1 x Ties</li> <li>✓ 1 x Screw Bag</li> </ul> <p><b>d. 10 Sets of Mechanical 4WD Robot Arm Car Kit for Arduino Smart Robot Car Set</b></p> <p>Component list :</p> <ul style="list-style-type: none"> <li>✓ 1 x R3 board</li> <li>✓ 1 x Expanding Board</li> <li>✓ 1 x Remote</li> <li>✓ 1 x Ultrasound Module</li> <li>✓ 3 x MG90S Servo</li> <li>✓ 1 x Bluetooth Module</li> <li>✓ 4 x Tires</li> <li>✓ 3 x Line Tracking Modules</li> <li>✓ 4 x Motors</li> <li>✓ 1 x Acrylic A1</li> <li>✓ 1 x USB Cable</li> <li>✓ 1 x Battery Case</li> <li>✓ 1 x Bottom Acrylic Layer</li> <li>✓ 1 x Upper Acrylic Layer</li> <li>✓ 1 x Adhesive Tape</li> <li>✓ 1 x AXK Plain Bearing</li> <li>✓ 1 x Cylinder Screwdriver</li> <li>✓ 1 x Screw bag Screwdriver</li> <li>✓ 1 x 4pin XH2.54to F Dupont Wire</li> <li>✓ 1 x 3pin Servo Extension Cable</li> <li>✓ 3 x 3pin F-F Dupont Wires</li> <li>✓ 3 x Ties</li> <li>✓ 1 x mini Screwdriver</li> </ul> <p><b>e. 5 Sets of 4WD PROGRAMMABLE MOBILE ROBOT WITH E-GRA &amp; PS2 WIRELESS CONTROLLER</b></p> <p>Specifications:</p> <ul style="list-style-type: none"> <li>✓ P-Bot Controller board with ATMEGA328P microcontroller and UNO compatible shield expansion slot.</li> <li>✓ Built-in IR collision sensor (3)</li> </ul>	1	914,765.00	4 months

	<ul style="list-style-type: none"> <li>✓ Line Sensor for line tracking robot application</li> <li>✓ 4 channel servo motor driver and controller</li> <li>✓ 2 channel motor driver</li> <li>✓ 4 drive motors</li> <li>✓ Dedicated port for Ultrasonic sensor and wireless modules</li> <li>✓ Rechargeable Li-ion battery with on-board charging circuit</li> <li>✓ With charger 9V 0.6A adaptor and USB cable Included</li> </ul> <p><b>f. 10 Sets of MINIBOT PRIME</b></p> <ul style="list-style-type: none"> <li>✓ with 3 IR Proximity Sensor, rechargeable batteries and automatic charging circuit</li> </ul> <p><b>g. 5 Sets of Enhanced Robotics Coding Kit with AI</b> An entry-level wheeled-robot with integration of AI and IoT</p> <ul style="list-style-type: none"> <li>✓ CyberPi Main Control Board</li> <li>✓ ESP32-WROVER-B core processor</li> <li>✓ Supports Python and Block-based programming</li> <li>✓ With Programming Software Installer</li> <li>✓ WiFi, USB Type-C, and Bluetooth Connection Method</li> <li>✓ 1 x 5-Direction Control Joystick</li> <li>✓ 1 x Built-in Microphone and Speaker</li> <li>✓ 1 x Built-in Light Sensor</li> <li>✓ 1 x Built-in Gyro and Accelerometer</li> <li>✓ 1 x Built-in 1.44" Full-color Display</li> <li>✓ 5 x Built-in RGB LED</li> <li>✓ 2 x Encoder Motor</li> <li>✓ 1 x Ultrasonic Sensor</li> <li>✓ 1 x Quad RGB Line Follower Sensor</li> <li>✓ 4 x Servo and Analog Sensors and Outputs</li> <li>✓ 1 x Chassis</li> <li>✓ 2 x Wheels</li> </ul> <p><b>h. 3 Sets of Dynamic Robotics Builder and Coding Kit</b></p> <ul style="list-style-type: none"> <li>✓ A 10-in-1 educational robot kit based on Arduino Mega solution that has 550+ mechanical parts and electronic modules that allows you to build 10+ models from one set.</li> </ul> <p><b>i. 3 Sets of Robotics Mobility Explorer</b></p> <ul style="list-style-type: none"> <li>✓ A 3-in-1 educational robot kit based on Arduino Mega with more than 100 mechanical parts and electronic modules that allows you to build 3+ models from one set</li> </ul> <p><b>j. 1 No. of 2024 MakeX Explorer Competition Package</b></p> <ul style="list-style-type: none"> <li>✓ competition kit and arena</li> </ul> <p><b>k. 3 Sets of High-End Laptop</b></p> <p>Specs:</p> <ul style="list-style-type: none"> <li>✓ AMD Ryzen 5 6600H (6 Cores, 12 Threads)</li> <li>✓ NVIDIA RTX 3050</li> <li>✓ 15.6" FHD 120Hz</li> <li>✓ 8GB DDR5 RAM</li> <li>✓ 512GB SSD</li> <li>✓ WIN 11</li> </ul>				
2	<p><b>Robotics Consumables:</b></p> <p><b>a. 15 Sets of Rechargeable Pro Battery Charger With 4 pcs AA Battery</b></p> <ul style="list-style-type: none"> <li>✓ can charge 2 or 4 AA or AAA NiMH batteries</li> </ul> <p><b>b. DC Geared Motor 6V</b></p> <p><b>c. L293D Motor Driver</b></p> <ul style="list-style-type: none"> <li>✓ 4-channel driver with an Arduino shield form factor</li> </ul> <p><b>d. 65mm Yellow Wheel</b></p> <p><b>e. Ultrasonic sensor HC-SR04</b></p> <p><b>f. 30cm Male-Male Jumper Wire (Dupont Wire)</b></p> <ul style="list-style-type: none"> <li>✓ 40 pcs</li> </ul> <p><b>g. 30cm Female-Female Jumper Wire (Dupont Wire)</b></p> <ul style="list-style-type: none"> <li>✓ 40 pcs</li> </ul> <p><b>h. 30cm Female-Male Jumper Wire (Dupont Wire)</b></p> <ul style="list-style-type: none"> <li>✓ 40 pcs</li> </ul>	1	33,000.00	4 months	

[Use this form for Framework Agreement:]

## ***Framework Agreement List***

Limited to repeatedly required goods and services that are identified to be necessary and desirable, but, by its nature, use or characteristic, the quantity and/ or exact time of need cannot be accurately pre-determined and are not advisable to be carried in stock.

Prepared by the End-User, attached to the APP and submitted to the BAC for the approval of the HOPE.

<b>FRAMEWORK AGREEMENT LIST (AGENCY)</b>			
<b><i>Item / Service Type and nature of each item/service</i></b>	<b><i>Cost per item or service</i></b>	<b><i>Maximum Quantity</i></b>	<b><i>Total Cost per Item</i></b>
<b><i>TOTAL (Approved Budget for the Contract)</i></b>			
<i>Expected delivery timeframe after receipt of a Call-Off.</i>	<i>Within [no. of days] calendar days upon issuance of Call-off.</i>		
<i>Remarks</i>	<i>Indicate here any other appropriate information as may be necessary.</i>		
<b><i>SIGNATURE OVER PRINTED NAME</i></b>	<b><i>POSITION</i></b>	<b><i>DEPARTMENT/DIVISION</i></b>	

## ***Section VII. Technical Specifications***

### **Notes for Preparing the Technical Specifications**

A set of precise and clear specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Procuring Entity without qualifying their Bids. In the context of Competitive Bidding, the specifications (*e.g.* production/delivery schedule, manpower requirements, and after-sales service/parts, descriptions of the lots or items) must be prepared to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done will the objectives of transparency, equity, efficiency, fairness, and economy in procurement be realized, responsiveness of bids be ensured, and the subsequent task of bid evaluation and post-qualification facilitated. The specifications should require that all items, materials and accessories to be included or incorporated in the goods be new, unused, and of the most recent or current models, and that they include or incorporate all recent improvements in design and materials unless otherwise provided in the Contract.

Samples of specifications from previous similar procurements are useful in this respect. The use of metric units is encouraged. Depending on the complexity of the goods and the repetitiveness of the type of procurement, it may be advantageous to standardize the General Technical Specifications and incorporate them in a separate subsection. The General Technical Specifications should cover all classes of workmanship, materials, and equipment commonly involved in manufacturing similar goods. Deletions or addenda should then adapt the General Technical Specifications to the particular procurement.

Care must be taken in drafting specifications to ensure that they are not restrictive. In the specification of standards for equipment, materials, and workmanship, recognized Philippine and international standards should be used as much as possible. Where other particular standards are used, whether national standards or other standards, the specifications should state that equipment, materials, and workmanship that meet other authoritative standards, and which ensure at least a substantially equal quality than the standards mentioned, will also be acceptable. The following clause may be inserted in the Special Conditions of Contract or the Technical Specifications.

#### **Sample Clause: Equivalency of Standards and Codes**

Wherever reference is made in the Technical Specifications to specific standards and codes to be met by the goods and materials to be furnished or tested, the provisions of the latest edition or revision of the relevant standards and codes shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national or relate to a particular country or region, other authoritative standards that ensure substantial equivalence to the standards and codes specified will be acceptable.

Reference to brand name and catalogue number should be avoided as far as possible; where unavoidable they should always be followed by the words "*or at least equivalent.*" References to brand names cannot be used when the funding source is the GOP.

Where appropriate, drawings, including site plans as required, may be furnished by the Procuring Entity with the Bidding Documents. Similarly, the Supplier may be requested to provide drawings or samples either with its Bid or for prior review by the Procuring Entity during contract execution.

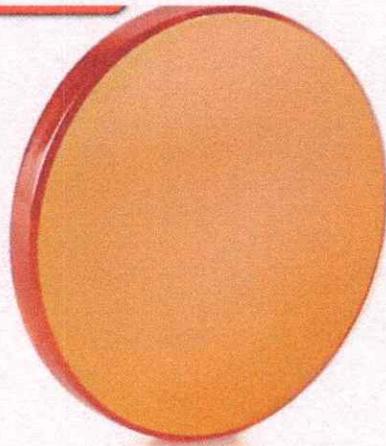
Bidders are also required, as part of the technical specifications, to complete their statement of compliance demonstrating how the items comply with the specification.

# Technical Specifications

Item No.	Unit	Item Description	Quantity	Statement of Compliance
1	lot	<p><b>Robotics Set composed of the following:</b></p> <p><b>a. 10 Sets of Zumo Robot v1.2 (assembled with 75:1 hp Motors),</b> includes:</p> <ul style="list-style-type: none"> <li>✓ dual motor driver</li> <li>✓ general-purpose I/O</li> <li>✓ buzzer</li> <li>✓ 3-axis accelerometer, compass and gyro</li> <li>✓ 300g</li> <li>✓ Size: 98mm x 98mm x 39mm</li> <li>✓ weight: 163g</li> </ul> <p><b>b. 15 Nos. of Arduino Uno Wifi Rev 2   ABX00021</b></p> <ul style="list-style-type: none"> <li>✓ Supply voltage: 5 V to 12 V</li> <li>✓ Microcontroller: ATmega4809</li> <li>✓ Maximum clock frequency: 20 MHz</li> <li>✓ SRAM: 6 KB</li> <li>✓ Flash memory: 48 KB (5 KB is reserved for bootloader)</li> <li>✓ EEPROM: 256 B</li> <li>✓ Wi-fi module U-block W102:</li> <li>✓ I/O Ports: 14</li> <li>✓ PWM outputs: 5</li> <li>✓ Number of analog inputs: 6</li> <li>✓ Serial interfaces: UART, SPI, I2C</li> <li>✓ USB A connector for programming</li> <li>✓ DC connector 5.5 x 2.1 mm for power</li> <li>✓ Dimensions: 69 x 53 x 14 mm</li> <li>✓ Weight: 25 g</li> </ul> <p><b>c. 5 Sets of 2WD Smart Robot Car Kit for Arduino with Wifi ESP32 Camera</b> Component list :</p> <ul style="list-style-type: none"> <li>✓ 1 x ESP32 CAM</li> <li>✓ 1 x L298N Driver</li> <li>✓ 1 x Antenna</li> <li>✓ 1 x Battery Case</li> <li>✓ 1 x Power Supply Module</li> <li>✓ 1 x USB cable</li> <li>✓ 2 x Motors</li> <li>✓ 2 x Tires</li> <li>✓ 4 x Acrylics</li> <li>✓ 1 x Universal Wheel</li> <li>✓ 1 x 10 pin F-F Dupont Wire</li> <li>✓ 1 x Screwdriver</li> <li>✓ 1 x Ties</li> <li>✓ 1 x Screw Bag</li> </ul> <p><b>d. 10 Sets of Mechanical 4WD Robot Arm Car Kit for Arduino Smart Robot Car Set</b> Component list :</p> <ul style="list-style-type: none"> <li>✓ 1 x R3 board</li> <li>✓ 1 x Expanding Board</li> <li>✓ 1 x Remote</li> <li>✓ 1 x Ultrasound Module</li> <li>✓ 3 x MG90S Servo</li> <li>✓ 1 x Bluetooth Module</li> <li>✓ 4 x Tires</li> <li>✓ 3 x Line Tracking Modules</li> <li>✓ 4 x Motors</li> <li>✓ 1 x Acrylic AI</li> <li>✓ 1 x USB Cable</li> <li>✓ 1 x Battery Case</li> <li>✓ 1 x Bottom Acrylic Layer</li> <li>✓ 1 x Upper Acrylic Layer</li> <li>✓ 1 x Adhesive Tape</li> <li>✓ 1 x AXK Plain Bearing</li> <li>✓ 1 x Cylinder Screwdriver</li> <li>✓ 1 x Screw bag Screwdriver</li> <li>✓ 1 x 4pinXH2.54to F Dupont Wire</li> <li>✓ 1 x 3pin Servo Extension Cable</li> <li>✓ 3 x 3pin F-F Dupont Wires</li> <li>✓ 3 x Ties</li> <li>✓ 1 x mini Screwdriver</li> </ul> <p><b>e. 5 Sets of 4WD PROGRAMMABLE MOBILE ROBOT WITH E-GRA &amp; PS2 WIRELESS CONTROLLER</b> Specifications:</p> <ul style="list-style-type: none"> <li>✓ P-Bot Controller board with ATMEGA328P microcontroller and UNO compatible shield expansion slot.</li> <li>✓ Built-in IR collision sensor (3)</li> <li>✓ Line Sensor for line tracking robot application</li> <li>✓ 4 channel servo motor driver and controller</li> <li>✓ 2 channel motor driver</li> </ul>	1	<p>[Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]</p>

		<ul style="list-style-type: none"> <li>✓ 4 drive motors</li> <li>✓ Dedicated port for Ultrasonic sensor and wireless modules</li> <li>✓ Rechargeable Li-ion battery with on-board charging circuit</li> <li>✓ With charger 9V 0.6A adaptor and USB cable included</li> </ul> <p><b>f. 10 Sets of MINIBOT PRIME</b></p> <ul style="list-style-type: none"> <li>✓ with 3 IR Proximity Sensor, rechargeable batteries and automatic charging circuit</li> </ul> <p><b>g. 5 Sets of Enhanced Robotics Coding Kit with AI</b> An entry-level wheeled-robot with integration of AI and IoT</p> <ul style="list-style-type: none"> <li>✓ CyberPi Main Control Board</li> <li>✓ ESP32-WROVER-B core processor</li> <li>✓ Supports Python and Block-based programming</li> <li>✓ With Programming Software Installer</li> <li>✓ WiFi, USB Type-C, and Bluetooth Connection Method</li> <li>✓ 1 x 5-Direction Control Joystick</li> <li>✓ 1 x Built-in Microphone and Speaker</li> <li>✓ 1 x Built-in Light Sensor</li> <li>✓ 1 x Built-in Gyro and Accelerometer</li> <li>✓ 1 x Built-in 1.44" Full-color Display</li> <li>✓ 5 x Built-in RGB LED</li> <li>✓ 2 x Encoder Motor</li> <li>✓ 1 x Ultrasonic Sensor</li> <li>✓ 1 x Quad RGB Line Follower Sensor</li> <li>✓ 4 x Servo and Analog Sensors and Outputs</li> <li>✓ 1 x Chassis</li> <li>✓ 2 x Wheels</li> </ul> <p><b>h. 3 Sets of Dynamic Robotics Builder and Coding Kit</b></p> <ul style="list-style-type: none"> <li>✓ A 10-in-1 educational robot kit based on Arduino Mega solution that has 550+ mechanical parts and electronic modules that allows you to build 10+ models from one set.</li> </ul> <p><b>i. 3 Sets of Robotics Mobility Explorer</b></p> <ul style="list-style-type: none"> <li>✓ A 3-in-1 educational robot kit based on Arduino Mega with more than 100 mechanical parts and electronic modules that allows you to build 3+ models from one set</li> </ul> <p><b>j. 1 No. of 2024 MakeX Explorer Competition Package</b></p> <ul style="list-style-type: none"> <li>✓ competition kit and arena</li> </ul> <p><b>k. 3 Sets of High-End Laptop</b></p> <p>Specs:</p> <ul style="list-style-type: none"> <li>✓ AMD Ryzen 5 6600H (6 Cores, 12 Threads)</li> <li>✓ NVIDIA RTX 3050</li> <li>✓ 15.6" FHD 120Hz</li> <li>✓ 8GB DDR5 RAM</li> <li>✓ 512GB SSD</li> <li>✓ WIN 11</li> </ul>		
2	lot	<p><b>Robotics Consumables:</b></p> <p><b>a. 15 Sets of Rechargeable Pro Battery Charger With 4 pcs AA Battery</b></p> <ul style="list-style-type: none"> <li>✓ can charge 2 or 4 AA or AAA NiMH batteries</li> </ul> <p><b>i. DC Geared Motor 6V</b></p> <p><b>j. L293D Motor Driver</b></p> <ul style="list-style-type: none"> <li>✓ 4-channel driver with an Arduino shield form factor</li> </ul> <p><b>k. 65mm Yellow Wheel</b></p> <p><b>l. Ultrasonic sensor HC-SR04</b></p> <p><b>m. 30cm Male-Male Jumper Wire (Dupont Wire)</b></p> <ul style="list-style-type: none"> <li>✓ 40 pcs</li> </ul> <p><b>n. 30cm Female-Female Jumper Wire (Dupont Wire)</b></p> <ul style="list-style-type: none"> <li>✓ 40 pcs</li> </ul> <p><b>o. 30cm Female-Male Jumper Wire (Dupont Wire)</b></p> <ul style="list-style-type: none"> <li>✓ 40 pcs</li> </ul>	1	

laser focal lens



**Φ12 18 19.05 20**  
F38.1 50.8 63.5 76.2 101.6 127

laser 3-wire photoelectric magnetic sensor



[Use this form for Framework Agreement:]

## **Technical Specifications**

<b>TECHNICAL SPECIFICATIONS</b>			
<b>Item / Service</b>	<b>Maximum Quantity</b>	<b>Technical Specifications / Scope of Work</b>	<b>Statement of Compliance</b>
			<p><i>[Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution.]</i></p>