

INFO TECH CORPORATION OF GOA LIMITED

(A Government of Goa Undertaking)

(An ISO 9001: 2015 & ISO 27001:2013 Certified Company)



Ref No: ITG-IT/1007/CARES-PROJECT/2023-24/ 2867

Date: 03/01/2024

Email: md-itg.goa@nic.in

CORRIGENDUM-I

Subject: "Supply, Delivery and Maintenance of Robotics Hardware Kits for implementation of Coding and Robotics Education in Schools (CARES) scheme in the State of Goa" on behalf of Directorate of Technical Education, Government of Goa".

Tender No. ITG-IT/1007/CARES-PROJECT/2023-24/2737 Dated: 20/12/2023

Following changes that are considered in the Tender Document.

Tender Document Page No	Tender Document Chapter No	Item No.	Present Clause Details	Changed Clause Details
11	Chapter 3: Scope Of work	Sr. No. 2	Total (No of Accessories Kits to be supplied) is 3136	Total (No of Accessories Kits to be supplied) is 3139
12	Chapter 3: Scope Of work	Sr. No. 3 IV. Output Components sr. no.3	Seven Seament Display	Seven Segment Display

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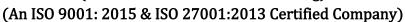


		Sr. No. 3 VI.	Sr.	Item name	quantity	Sr.	Item name	quantity
		Accessories	no.		-	no.		
			1	Chassis	02	1	Chassis	02
				3220 points Solderless	02		3220 points Solderless	02
			2	Breadboard		2	Breadboard	
			3	Wheels with rubber	06	3	Wheels with rubber	06
			4	Pulleys	02	4	Pulleys	02
			5	Propellor	02	5	Propellor	02
			6	Jumper Connectors	50 each	6	Jumper Connectors	50 each
				Small size box with	03		Small size box with	03
			7	and without lid		7	and without lid	
				Box/Ball Holder for	02		Box/Ball Holder for	02
			8	the Chassis			the Chassis with	
	Chapter 3:			USB Cable compatible	02		different friction levels	
13	Scope Of work			for Programming the		8	at the base	
	WOLK			microcontroller board			USB Cable compatible	02
				and charging the			for Programming the	
			9	battery	0.4		microcontroller board	
				Single strand wire	01		and charging the	
			10	suitable for breadboard			battery(1.5 metres	
			10	connections provided	0.1		minimum)	
				Plastic Material parts	01 set	9		
			11	for Construction of			Single strand wire	01
			11	robotic arm	02 1		suitable for breadboard	
				Insulation tapes, color- red. black-	02 each	10	connections provided	
			12	red, black- 16mmX7mX0.125mm			Good quality and rigid	01 set
			13	Interconnecting cables	20		Plastic Material parts	
			13	interconnecting cables	20		for Construction of	
						11	robotic arm	



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	Insulation red,	n tapes, color- 02 each black-	
		/mX0.125mm	
		necting cables 20	
	Aluminiu		
		th Magnetic	
		nuts and bolts vhile working	
		ville working	
		1 1 1 1 02	
		heel such that 02	
		imension that the chassis	
		on zero degree	
		pect to plane	
		wheels are	
	15 attached t	to the robot	
		size battery 02	
		ith Sliding In	
		r compatible	
		e expansion	
	16 board		



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		Sr. No. 3 VII.	Sr.	Item name	quantity		Sr.	Item name	quantity
		Tools	no.				no.		
			1	Multi-meter	01			Multi-meter with	
				Two in one Plus '+',				battery and fuse	
			2	minus '-', screwdriver	02	-	1	included	01
			3	Crimping tool	01			Two in one Plus '+',	
	Chapter 3:			Dupont 1x1 Pin			2	minus '-', screwdriver	02
13	Scope Of			Header with Female				Wire stripper cum	
13	work			Crimp Pins for			3	cutter	01
	WOIK		4	crimping	50				
				Dupont 1x1 Pin					
				Header with male					
				Crimp Pins for					
			5	crimping	50				
				Wire stripper cum					
			6	cutter	01				
		Sr. No. 3				F	Referer	ice Microcontroller Boa	ard Module:
						Λ	Note: T	he below diagram is for	reference purpose
	Chapter 3:					0	only.	The type of conne	ector architecture
14	Scope Of					6	malaffa	rmale) and rest all de	etailing should be
	work		Referen	nce Microcontroller Boa	rd Module:	()	тиге/је	maie) ana resi aii ae	elalling should be
						r	eferrea	from the technical speci	fications section.
			Note: T	he below diagram is for r	eference purpose				
			only.		<u> </u>				



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I			
	Sr. No.2	<u>02 x Input connectors.</u> The Connector should be	<u>02 x Input connectors.</u> The Connector should be of
	.Microcontr	of 4 pins and should be of plug type with an	4 pins and should be of plug type with an architecture
	oller	architecture of 02x02 male pin headers or better.	of 02x02 female pin headers or better. The 4 pins
	Expansion	The 4 pins should be with arrangements such as	should be with arrangements such as VCC, Power,
	Board	VCC, Power, Signal, Ground.	Signal, Ground.
	i).	Naming Convention 'Input 1' & 'Input 2'	Naming Convention 'Input 1' & 'Input 2'
	Connectors	(Placement as shown in reference diagram 1)	(Placement as shown in reference diagram 1) VCC =
Cl 4 15	. g	VCC = +5VDC	+5VDC
Chapter 15:		Power = $+9$ VDC, which will be used to power the	Power = $+9$ VDC, which will be used to power the
 Technical		motors	motors
Bid Format		Signal = Input Pin of the Microcontroller (ADC	Signal = Input Pin of the Microcontroller (ADC Pin)
		Pin)	Ground = Should be connected to the Common
		Ground = Should be connected to the Common	Ground Pin.
		Ground Pin.	These pins should be mounted horizontally on to the
		These pins should be mounted horizontally on to	board. Sufficient spacing should be kept between
		the board. Sufficient spacing should be kept	two input connectors so as both the input connectors
		between two input connectors so as both the input	can be used at a time by the modules.
		connectors can be used at a time by the modules.	
	Sr. No.2	02 x Output connectors. The Connector should	<u>02 x Output connectors.</u> The Connector should be
	.Microcontr	be 4 pins and should be of plug type with an	4 pins and should be of plug type with an architecture
	oller	architecture of 02x02 female pin headers or better.	of 02x02 male pin headers or better. The 4 pins
	Expansion	The 4 pins should be with arrangements such as	should be with arrangements such as VCC1, VCC2,
	Board	VCC1, VCC2, Signal & Ground.	Signal & Ground.
Chapter 15:	i).Connector	Naming Convention Output 1 & Output	Naming Convention Output 1 & Output 2(Placement
Technical	s	2(Placement as shown in reference diagram 1)	as shown in reference diagram 1)
Bid Format	.h	VCC1 = +5VDC	VCC1 = +5VDC
	•11	Ground = Should be connected to the Common	Ground = Should be connected to the Common
		Ground Pin.	Ground Pin.
		Signal = PWM output pin of the microcontroller	Signal = PWM output pin of the microcontroller
		VCC2 = +3.3VDC	VCC2 = +3.3VDC
		I V L L ./. — 丁 1. 1 V I 八 .	VIII/ = TIIVIA



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60	Chapter 15: Technical Bid Format	Sr. No.2. Microcontro ller Expansion Board ii) Components	a.) Motor Driver IC arrangement such that at a time it should handle 04 motors connected to the expansion board. (Note: Motor Driver ICs present on the board can be more than one) b.) Any necessary Active Components, Passive components, accessories like ICs, Resistors, Capacitors etc can be included as per the requirements of the specifications of the Expansion board. **Note:- On every connector placed onto the expansion board (excluding the microcontroller connector) there should be the pin number printed besides it so as to understand which pin of the microcontroller is connected to the pins of the connector, incase of DC motor connectors such as M1,M2,M3 & M4 the pins going from the microcontroller to the motor driver controlling that dedicated motor should be printed.	a.) Motor Driver IC arrangement such that at a time it should handle 04 motors connected to the expansion board. (Note: Motor Driver ICs present on the board can be more than one) b.) Any necessary Active Components, Passive components, accessories like ICs, Resistors, Capacitors etc can be included as per the requirements of the specifications of the Expansion board. c.) Necessary hardware should be provided on the expansion board so that the four servo motors that will be connected to the expansion board should get sufficient amount of power when the servo will be operated in full load condition. **Note:- On every connector placed onto the expansion board (excluding the microcontroller connector) there should be the pin number printed besides it so as to understand which pin of the microcontroller is connected to the pins of the connector, incase of DC motor connectors such as M1,M2,M3 & M4 the pins going from the microcontroller to the motor driver controlling that dedicated motor should be printed. ** Motor driver IC circuit should be designed such that by changing the PWM value in the code we can adjust the speed of all 4 motors connected to the board.



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				** Sensor connectors S1, S2, S3 signal pin should be given to the ADC pins of the microcontroller. ** On the sliding In and sliding Out connectors proper naming should be printed on the board so as to indentify which pin is VCC, GND, 3V3, 9V, Signal etc
60	Chapter 15: Technical Bid Format	2. Input Components	Sr. No. 2	Sr. No.3 (Correction in Sr. No.)
63	Chapter 15: Technical Bid Format	2. Input Components 8. Push Button Switch Module	Push Button Switch Module Specifications Button Style: Round Insulation Resistance: >=100MΩ Life Expectancy: 50,000,000 cycles	Push Button Switch Module Specifications Button Style: Round Size $-12x12x12$ mm Insulation Resistance: >= $100MΩ$ Life Expectancy: $50,000,000$ cycles



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		2. Input	Push To Lock Switch Module	Push To Lock Switch Module
		Components 9. Push To	<u>Specifications</u>	<u>Specifications</u>
		Lock Switch Module	Button Style: Round	Button Style: Sliding Switch
			Insulation Resistance: $\geq 100 M\Omega$	Insulation Resistance: >=100MΩ
			Life Expectancy: 50,000,000 cycles	Life Expectancy: 50,000,000 cycles
			Connector Architecture	Connector Architecture
63	Chapter 15: Technical Bid Format		Connector (Input): This connector will be mounted horizontally onto the board and will slide into any of the Modules Connector2 (Output): This connector will be mounted horizontally onto the board and will slide into any of the Input pins of the expansion board. ** The switch when ON should make a contact between VCC and Signal.	Connector1 (Input): This connector will be mounted horizontally onto the board and will slide into any of the Modules Connector2 (Output): This connector will be mounted horizontally onto the board and will slide into any of the Input pins of the expansion board. ** The switch when ON should make a contact between VCC and Signal. ** The Connector1 architecture will be female type and the Connector2 architecture will be a male type.



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		2. Input	<u>Specifications</u>	<u>Specifications</u>
		Components 11. Power	Input type1: USB Charging	Input type1: USB Charging
		Module	Input Voltage1: +5VDC @ 500mA	Input Voltage1: +5VDC @ 500mA
			Input type 2: Barrel pin Connector	Input type 2: Barrel pin Connector
			Input Voltage2: +9VDC @ 1A	Input Voltage2: +9VDC @ 1A
			Output Voltage: +5VDC and +9VDC	Output Voltage: +5VDC and +9VDC
			Battery: Rechargeable	Battery: Rechargeable
			Type: Li-Ion or Li-Po	Type: Li-Ion
64	Chapter 15: Technical		Battery Voltage: 6V to 12V	Battery Voltage: 6V to 12V
04	Bid Format		Battery Capacity: 4000mAh or more	Battery Capacity: 4000mAh or more
			Connector Architecture This connector will be mounted horizontally onto the board and will slide into any of the Input pins of the expansion board. The Connector should be of 4 pins and should be of plug type with an architecture of 02x02 male pin headers or better. The 4 pins should be with arrangements such as +5VDC, Ground, Ground, +9VDC. When plugged the Contact of the Power Module to the expansion board will be as follows. +5VDC of the Power module —> +5VDC of the Input connector	Connector Architecture This connector will be mounted horizontally onto the board and will slide into any of the Input pins of the expansion board. The Connector should be of 4 pins and should be of plug type with an architecture of 02x02 male pin headers or better. The 4 pins should be with arrangements such as +5VDC, Ground, No Connection (open), +9VDC. When plugged the Contact of the Power Module to the expansion board will be as follows. +5VDC of the Power module —> +5VDC of the Input connector Ground of the Power module —> Ground of the Input connector



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			Ground of the Power module —> Ground of the Input connector No Connection (open) —> Signal of the Input connector +9VDC of the Power module —> +9VDC of the Input connector ** when plugged should charge the battery and also provide necessary output on the output pins. ** Should have an efficient battery management	No Connection (open) —> Signal of the Input connector +9VDC of the Power module —> +9VDC of the Input connector ** when plugged should charge the battery and also provide necessary output on the output pins. ** Should have an efficient battery management system with all the necessary protection circuit. ** Output current should be capable of driving all the
			system with all the necessary protection circuit. ** Output current should be capable of driving both the motors with full Load capacity. ** Including the batteries used in the power modules one more extra set of batteries to be included	motors (4xServo and 4xDC motors) with full Load capacity. ** Including the batteries used in the power modules two more extra set of batteries to be included ** The batteries included will be AA size and shouldn't be wrapped for series connection. ** Series connection of the batteries will be made when they will be put into the module
67	Chapter 15: Technical Bid Format	2. Input Components 18. Radar (Motion Sensor) Module	Radar (Motion Sensor) Module Specifications Operating Voltage : 4-28V (typically 5V) Operating Current : 2.8mA (typical); 3mA (Max) Detecting Range : 5-9m Connector Architecture This connector will be mounted vertically onto the board. The Connector should be of 3 pins and should only connect in one direction. The 3 pins should be with arrangements such as VCC, Signal, Ground.	Radar (Motion Sensor) Module Specifications Operating Voltage : 4-28V (typically 5V) Operating Current : 2.8mA (typical); 3mA (max) Detecting Range : 5-9m Connector Architecture This connector will be mounted vertically onto the board. The Connector should be of 3 pins and should only connect in one direction. The 3 pins should be with arrangements such as VCC, Signal, Ground. ** The Connector 2 Architecture of all the input components will be male type.



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-5	Chapter 15:	_	Sr. No. 3	Sr. No.4 (Correction in Sr. No.)
67	Technical Bid Format	Components		
69	Chapter 15: Technical Bid Format	3. Output Components 7. Servo Motor Module	Servo Motor Module Specifications Input Voltage: DC 4.8V to 6.5V Torque: 2.5kg/cm Connector Architecture This connector will be mounted vertically onto the board. The Connector should be of 3 pins and should only connect in one direction. The 3 pins should be with arrangements such as PWM, VCC, Ground. ** The Servo motor should be detachable from the module whenever required.	Servo Motor Module Specifications Input Voltage: DC 4.8V to 6.5V Torque: 20kg/cm Connector Architecture This connector will be mounted vertically onto the board. The Connector should be of 3 pins and should only connect in one direction. The 3 pins should be with arrangements such as PWM, VCC, Ground. ** The servo motor module will include a servo Motor ** The Servo motor should be detachable from the
70	Chapter 15: Technical Bid Format	3. Output Components 8. DC Motor Module	Connector Architecture This connector will be mounted vertically onto the board. The Connector should be of 2 pins and should only connect in one direction. The 2 pins should be with arrangements such as OUT_A, OUT_B. ** The DC motor should be detachable from the module whenever required.	module whenever required. Connector Architecture This connector will be mounted vertically onto the board. The Connector should be of 2 pins and should only connect in one direction. The 2 pins should be with arrangements such as OUT_A, OUT_B. ** The DC motor module will include a DC Motor ** The DC motor should be detachable from the module whenever required.
70	Chapter 15: Technical Bid Format	4. Interfacing Modules	Sr. No. 4	Sr. No.5 (Correction in Sr. No.)



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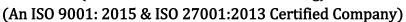


		4. Interfacing	Connector Architecture	Connector Architecture
		Modules 2 AND,NOT,	Connector1:	Connector1(Input Connector):
		OR Modules	This connector will be mounted vertically onto the board. The Connector should be of 3 pins and	a.) <u>Input Connector 1</u>
			should only connect in one direction. The 3 pins should be with arrangements such as VCC, Signal, Ground. Connector2:	This connector will be mounted vertically onto the board. The Connector should be of 3 pins and should only connect in one direction. The 3 pins should be with arrangements such as VCC, Signal, Ground.
			a.)Input Connector	b.)Input Connector 2
71	Chapter 15: Technical Bid Format		This connector will be mounted horizontally onto the board on the left side of the module and will slide into any of the output pins of the expansion board or any other module.	This connector will be mounted vertically onto the board. The Connector should be of 3 pins and should only connect in one direction. The 3 pins should be with arrangements such as VCC, Signal, Ground.
			b.)Output Connector This connector will be mounted horizontally onto	Connector2:
			the board on the right side of the module and will slide into any of the input pins of the other	a.)Input Connector 1
			module.	This connector will be mounted horizontally onto the board on the left side of the module and will slide
			**For AND gate & OR gate modules there should be two input connectors and one output connector per module	into any of the output pins of the expansion board or any other module.
				b.)Input Connector 2



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	This connector will be mounted horizontally onto the board on the left side of the module and will slide into any of the output pins of the expansion board or any other module.
	c.) Output Connector
	This connector will be mounted horizontally onto the board on the right side of the module and will slide into any of the input pins of the other module.
	**For AND gate & OR gate modules there should be two input connectors and one output connector per module



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		4.	Sensor Base/Threshold Module	Sensor Base/Threshold Module
		Interfacing Modules 3	<u>Specifications</u>	<u>Specifications</u>
		Sensor Base/Thresh	Supply voltage: 5 V	Supply voltage: 5 V
		old Module	Input Signal : Analog from the sensor	Input Signal : Analog from the sensor
			Potentiometer for Sensor Threshold adjustment	Potentiometer for Sensor Threshold adjustment
			Connector Architecture	The Potentiometer used should be of 5 K ohms
			Connector1: This connector will be mounted vertically onto the board. The Connector should be of 3 pins and	Connector Architecture
			should only connect in one direction. The 3 pins	Connector1:
	Chapter 15:		should be with arrangements such as VCC,	This connector will be mounted vertically onto the
71	Technical		Signal, Ground.	board. The Connector should be of 3 pins and should
	Bid Format		Connector2:	only connect in one direction. The 3 pins should be
			a.)Input Connector	with arrangements such as VCC, Signal, Ground.
			This connector will be mounted horizontally onto	<u>Connector2</u> :
			the board on the left side of the module and will	a.)Input Connector
			slide into any of the output pins of the expansion	This connector will be mounted horizontally onto the
			board or any other module.	board on the left side of the module and will slide
			b.)Output Connector	into any of the output pins of the expansion board or
			This connector will be mounted horizontally onto	any other module.
			the board on the right side of the module and will	b.)Output Connector
			slide into any of the input pins of the other	This connector will be mounted horizontally onto the
			module.	board on the right side of the module and will slide
				into any of the input pins of the other module. ** Should contain a necessary potentiometer to
				** Should contain a necessary potentiometer to adjust the threshold
				** Potentiometer value should be 5K OHM



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				** Should contain the necessary electronic ICs to adjust the threshold
72	Chapter 15: Technical Bid Format	4. Accessories	Sr. No. 5	Sr. No.6 (Correction in Sr. No.)

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		4.	Sr.	Item name	quantity		Sr.	Item name	quantity
		Accessories	no.				no.		
			1	Chassis	02		1	Chassis	02
				3220 points Solderless	02			3220 points Solderless	02
				Breadboard that could				Breadboard that could	
				easily fit the				easily fit the	
				microcontroller				microcontroller	
				provided and should				provided and should	
				have sufficient space				have sufficient space	
				on the breadboard for				on the breadboard for	
				jumper wires to				jumper wires to	
			2	connect			2	connect	
				Wheels with rubber for	06			Wheels with rubber for	06
				good traction (As per				good traction (As per	
	Chapter 15:		3	reference diagram 2)			3	reference diagram 2)	
72	Technical			Pulleys (The size	02			Pulleys (The size	02
	Bid Format			should be in				should be in	
				proportion with the				proportion with the	
				chassis provided in				chassis provided in	
			4	reference diagram 2)		_	4	reference diagram 2)	
				Propellor (Max	02			Propellor (Max	02
				diameter including				diameter including	
				blades should be 5 cm				blades should be 5 cm	
				and should be				and should be	
				attachable-plug and				attachable-plug and	
				play to fan module				play to fan module	
			5	provided)			5	provided)	
				Jumper connectors	50 each			Jumper connectors	50 each
				(Male to Male, Female				(Male to Male, Female	
				to Female, Male to				to Female, Male to	
			6	Female)			6	Female)	



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	T			T	
	Small size box with	03		Small size box with	03
	and without lid.			and without lid.	
7	(5cmx5cmx5cm)		7	(5cmx5cmx5cm)	
	Box/Ball Holder for	02		Box/Ball Holder for	02
	the Chassis (Max			the Chassis (Max	
	diameter of ball should			diameter of ball should	
8	be 4 cm)			be 4 cm) with different	
	USB Cable compatible	02		friction levels at the	
	for Programming the		8	base	
	microcontroller board			USB Cable compatible	02
	and charging the			for Programming the	
9	battery			microcontroller board	
	Single strand wire	01		and charging the	
	suitable for breadboard		9	battery (1.5 metres)	
	connections provided			Single strand wire	01
10	(5 metres			suitable for breadboard	
	Appropriate plastic	01 set		connections provided	
	material parts for		10	(5 metres)	
	construction of robotic			Appropriate plastic	01 set
	arm			material parts for	
	- Base			construction of robotic	
	- Shoulder			arm	
	- Elbow			- Base	
	- gripper			- Shoulder	
	** compatible with the			- Elbow	
	specifications of the			- gripper	
	servo motors provided			** compatible with the	
	_			specifications of the	
	above			servo motors provided	
	** should be provided			*	
	-		11	above	
11	with proper nuts, bolts		11		



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and corresponding			** should be provided	
tools			with proper nuts, bolts	
** Size should be in			and corresponding	
			tools	
accordance to the size			** C:11.1 1 :	
of the chassis as			** Size should be in	
illustrated below such			accordance to the size	
that it can be mounted			of the chassis as	
on the chassis			illustrated below such	
** Proper manual			that it can be mounted	
should be provided for			on the chassis	
the construction of the			** Proper manual	
robotic arm.			should be provided for	
1 /	02 each		the construction of the	
colour- red,black- 16mmX7mX0.125mm			robotic arm.	
	20		Insulation tapes,	02 each
cables should be		12	colour- red,black- 16mmX7mX0.125mm	
provided that will fit		12	Proper interconnecting	20
into the connectors			cables should be	20
provided on the boards			provided that will fit	
and modules			into the connectors	
and modules			provided on the boards	
** referring to the			and modules	
connectors that will			and modulos	
only go in one			** referring to the	
direction on			connectors that will	
		1.0	only go in one	
		13	direction on	



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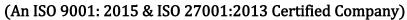


					Aluminum Screw Tray	01
					with Magnetic Plate	01
					for nuts and bolts to	
					stick while working on	
				14	it	
					Castor wheel such that	02
					it is of dimension that	
					makes the chassis	
					inclination zero degree	
					with respect to plane	
					when wheels are	
				15	attached to the robot	
				13	4 x AA size battery	02
					holder with Sliding In	02
					connector compatible	
					with the expansion	
				16	board	
	Chapter 15:	6. Tools	Sr. No. 6	Sr. No.	7 (Correction in Sr. No.)	
73	Technical					
	Bid Format					



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		6. Tools	Sr.	Item name	quantity	Sr.	Item name	quantity
			no.	Multi-meter		no.	Multi-meter with battery and fuse	
				Minimum Specifications			battery and fuse included	
				1.) Clear LCD Display			Minimum Specifications	
				Equipped with Comfortable			1.) Clear LCD Display	
				Protective Cover			Equipped with Comfortable	
				2.) Test Probe Holder 2 Metres Drop Test			Protective Cover	
73	Chapter 15: Technical			3.) Two Pair of probes one red and other black			2.) Test Probe Holder 2 Metres Drop Test	
	Bid Format			3.) Precision			3.) Two Pair of probes one red and other black	
				Protection			3.) Precision	
				4.) Auto Power Off & Auto Backlight Off			Protection	
				5.) 80DB Buzzer Sound			4.) Auto Power Off & Auto Backlight Off	
				6.) Knobs Shift			5.) 80DB Buzzer Sound	
				Smoothly			6.) Knobs Shift	
			1		01	1	Smoothly	01



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Minimum Functions	Minimum Functions
1.) DC Current, AC/DC Voltage	1.) DC Current, AC/DC Voltage
2.) Continuity Test, Diode PN junction Test	2.) Continuity Test, Diode PN junction Test
3.) Display Count:1999 Min	3.) Display Count:1999 Min
4.) DC Max Voltage: 250V Voltage Measure	4.) DC Max Voltage: 250V Voltage Measure
5.) AC Max Voltage: 250V Current Measure	5.) AC Max Voltage: 250V Current Measure
6.) Max Current: 10A Current Measure	6.) Max Current: 10A Current Measure
7.) Resistance Measure Max: 0.2Gohm	7.) Resistance Measure Max: 0.2Gohm
Two in one Plus '+', minus '-', screwdriver minimum 100 mm	** with battery and fuse included
2 length Standard Piece 02	Two in one Plus '+', minus '-', screwdriver 02



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	stainless steel with a			minimum 100 mm	
	good grip.			length Standard Piece	
	Crimping tool suitable			stainless steel with a	
	for crimping dupont			good grip.	
3	pins and more	01		Wire stripper cum	
	Dupont 1x1 Pin			cutter with suitable for	
	Header with Female			the AWG standard	
	Crimp Pins for			wire provided with the	
4	crimping	50	3	kit	01
	Dupont 1x1 Pin				_
	Header with male				
	Crimp Pins for				
5	crimping	50			
	Wire stripper cum				
	cutter with suitable for				
	the AWG standard				
	wire provided with the				
6	kit	01			



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Note under	Notes	Note:
Note under Technical Bid Format	 Note: All the sensor and push button modules (Input and output modules) should have max dimensions of 5cm*4cm. All the output modules should support plug and play setup (directly connectable to input and output ports of microcontroller expansion board and sensor/servo/motor pins whichever is applicable) The Microcontroller specifications and functionalities along with several input and output components specified above are intended to execute basic tasks as well as complex tasks such as drone applications with a small form factor of the microcontroller. The Microcontroller expansion / layout board is designed symmetrically to allow learners to easily plugin the provided modules and understand pin connections of each module. The Microcontroller provided by the vendor should be programmable via Arduino IDE with required packages and libraries. The microcontroller board architecture should necessarily be Open Source and proper Schematic should be available. The solder used on the boards should be lead free. 	 and output modules) should have maximum dimensions of 5cm*4cm. More than this size can only be accepted in certain cases where smaller size sensors are not available within those dimensions All the output modules should support plug and play setup (directly connectable to input and output ports of microcontroller expansion board and sensor/servo/motor pins whichever is applicable) All the sliding in input connectors of the modules should be female and the sliding output connectors should be male.



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		free.



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		Table B (List	Sr. No	List of Non-Consumables items	Sr. No	List of Non-Consumables items			
		of Non-							
		Consumable	1	ESP 32 (32 bit)	1	ESP 32 (32 bit)			
		s items)	2	Microcontroller Expansion Board	2	Microcontroller Expansion Board			
			3	IR Sensor Module	3	IR Sensor Module			
			4	Ultrasonic Sensor Module	4	Ultrasonic Sensor Module			
			5	Sound Sensor Module	5	Sound Sensor Module			
			6	Light(Photoresistor) Sensor Module	6	Light(Photoresistor) Sensor Module			
			7	Magnetic Sensor Module	7	Magnetic Sensor Module			
			8	Color Sensor Module	8	Color Sensor Module			
			9	Potentiometer(10KOhm) Module	9	Potentiometer(10KOhm) Module			
			10	Push Button Switch Module	10	Push Button Switch Module			
			11	Push To Lock Switch Module	11	Push To Lock Switch Module			
	Cl. 4 15		12	Limit Switch Module	12	Limit Switch Module			
75	Chapter 15: Technical		13 Power Module 13	13	Power Module				
75	Bid Format		14	Power Adapter	14	Power Adapter			
	Dia Format		15	Temperature Sensor Module	15	Temperature Sensor Module			
			16	Moisture Sensor Module	16	Moisture Sensor Module			
			17	Solar Panel Module	17	Solar Panel Module			
			18	Vibration Sensor Module	18	Vibration Sensor Module			
			19	Water Level Sensor Module	19	Water Level Sensor Module			
			20	Radar(Motion Sensor) Module	20	Radar(Motion Sensor) Module			
			21	LED Module	21	LED Module			
			22	LED Matrix Module with Driver Chip	22	LED Matrix Module with Driver Chip			
			23	Seven Segment Display Module	23	Seven Segment Display Module			
			24	OLED Display Module	24	OLED Display Module			
			25	Buzzer Module	25	Buzzer Module			
				2	2	26	Fan Module with Driver	26	Fan Module with Driver
						27	Servo Motor Module	27	Servo Motor Module
			28	DC Motor Module	28	DC Motor Module			



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29	Stepper Motor Module	29	Stepper Motor Module
30	Nrf WiFi Module	30	Nrf WiFi Module
31	AND, NOT, OR Modules	31	AND, NOT, OR Modules
32	Sensor Base/Threshold Module	32	Sensor Base/Threshold Module
33	Chassis	33	Chassis
34	MultiMeter	34	MultiMeter
35	Two in one Plus, minus Screwdriver	35	Two in one Plus, minus Screwdriver
36	Crimping tool for crimping dupont	36	Wire Striper cum cutter
30	pins	37	Magnetic Aluminium Screw tray
37	Wire Sripter cum cutter	38	Castor wheel
		39	AA size battery holder



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		Table B(List	Sr. No	List of Consumables items	Sr. No	List of Consumables items
		of				
		Consumable	1	Power Module(Battery in Power	1	Power Module(Battery in Power
		s items)	1	Module is consumable)	1	Module is consumable)
			2	3220 points Solderless Breadboard	2	3220 points Solderless Breadboard
			3	Wheels	3	Wheels
			4	Pulleys	4	Pulleys
			5	Propellor	5	Propellor
			6	Jumper connectors	6	Jumper connectors
			7	Small size box with & without lid	7	Small size box with & without lid
			8	Box/Ball Holder for the Chassis	8	Box/Ball Holder for the Chassis
	Chapter 15:		9	USB Cable Compatible for		USB Cable Compatible for
76	Technical		9	Programming the microcontroller	9	Programming the microcontroller (1.5
	Bid Format		10	Single Strand wire for breadboard		metres)
			10	connections	10	Single Strand wire for breadboard
				Small size plastic box	10	connections
			11	5cmX5cmX5cm made of plastic cut		Small size plastic box
				outs, for holding servo motors	11	5cmX5cmX5cm made of plastic cut
			12	Insulation tapes		outs, for holding servo motors
			13	Interconnecting Cables	12	Insulation tapes
			14	Dupont 1x1 Pin Header with Female	13	Interconnecting Cables
			14	Crimp Pins	14	Kit Covering Box
			15	Dupont 1x1 Pin Header with Male		
			13	Crimp Pins		
			16	Kit Covering Box		



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		Table-F1: - List of items per Robotics Hardware Kit (Indicative	Sr. No.	Item Description	Consu mables / non- consu mables	Qty per Robotics Hardwa re Kit	Sr No		Item Description	Consu mables / non- consu mables	Qty per Robotics Hardwa re Kit
		Format)		N/C	N.T.				N/1	NT.	
				Microcontrolle r &	Non- Consu				Microcontrolle r &	Non- Consu	
				r & Microcontrolle	mables				r & Microcontrolle	mables	
			I	r Board	madies	02	I		r Board	mables	02
			1	Microcontrolle	Non-	02	1		Microcontrolle	Non-	02
				r Expansion	Consu				r Expansion	Consu	
			II	Board	mables	02	II		Board	mables	02
	Chapter			Input	maores	02			Input	maores	02
	15:		III	Components			III	[Components		
76	Financial			1	Non-				F	Non-	
	Bid Format			IR Sensor	Consu				IR Sensor	Consu	
			1	Module	mables	04	1		Module	mables	04
					Non-					Non-	
				Ultrasonic	Consu				Ultrasonic	Consu	
			2	Sensor Module	mables	04	2		Sensor Module	mables	04
					Non-					Non-	
				Sound Sensor	Consu				Sound Sensor	Consu	
			3	Module	mables	02	3		Module	mables	02
				Light	Non-				Light	Non-	
				(Photoresistor	Consu				(Photoresistor	Consu	
			4	Sensor)	mables	02	4		Sensor)	mables	02
					Non-				3.6	Non-	
				Magnetic Sensor	Consu				Magnetic Sensor	Consu	02
			5	Module	mables	02	5		Module	mables	02



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		Non-		П			Non-	
	Color Sensor	Consu				Color Sensor	Consu	
			02					02
6	Module	mables	02		6	Module	mables	02
	Potentiometer	Non-				Potentiometer	Non-	
	(10K Ohm	Consu				(10K Ohm	Consu	
	Linear	mables				Linear	mables	
	Potentiometer)					Potentiometer)		
7	Module		04		7	Module		04
		Non-					Non-	
	Push Button	Consu				Push Button	Consu	
8	Switch Module	mables	04		8	Switch Module	mables	04
		Non-					Non-	
	Push To Lock	Consu				Push To Lock	Consu	
9	Switch Module	mables	04		9	Switch Module	mables	04
		Non-					Non-	
	Limit Switch	Consu				Limit Switch	Consu	
10	Module	mables	04		10	Module	mables	04
	Power Module	Consu				Power Module	Consu	
	(Inbuild-	mables				(Inbuild-	mables	
11	Battery)		02		11	Battery)		02
	3 /	Non-				J /	Non-	
		Consu					Consu	
12	Power Adapter	mables	02		12	Power Adapter	mables	02
		Non-					Non-	
	Temperature	Consu				Temperature	Consu	
13	Sensor Module	mables	01		13	Sensor Module	mables	01
	2011001 11100010	Non-				Z III JOI 1,10 daile	Non-	
	Moisture Sensor	Consu				Moisture Sensor	Consu	
14	Module Module	mables	01		14	Module Module	mables	01
11	Solar Panel	Non-	01		<u> </u>	Solar Panel	Non-	
	Module with	Consu				Module with	Consu	
15	Solar Panel	mables	02		15	Solar Panel	mables	02
13	Solal Fallel	mautes	UZ		13	Solal Fallel	madies	02



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					T	Π	1
		Non-				Non-	
	Vibration Sensor	Consu			Vibration Sensor	Consu	
16	Module	mables	01	16	Module	mables	01
		Non-				Non-	
	Water Level	Consu			Water Level	Consu	
17	Sensor Module	mables	01	17	Sensor Module	mables	01
		Non-				Non-	
	Radar (Motion	Consu			Radar (Motion	Consu	
18	Sensor) Module	mables	01	18	Sensor) Module	mables	01
	,	Non-			,	Non-	
	Output	Consu			Output	Consu	
IV	Components	mables		IV	Components	mables	
		Non-				Non-	
		Consu				Consu	
1	LED	mables	02	1	LED	mables	02
	LED Matrix	Non-	02		LED Matrix	Non-	02
	Module with	Consu			Module with	Consu	
2	Driver chip	mables	01	2	Driver chip	mables	01
		Non-	01	2	•	Non-	01
	Seven Segment	Consu			Seven Segment	Consu	
3	Display	mables	01	3	Display	mables	01
3		Non-	01	3		Non-	01
		Consu				Consu	
4	OLED Display	mables	01	4	OLED Display	mables	01
4	OLED Display	Non-	01	4	OLED Display	Non-	01
		Consu				Consu	
_	Duggon	mables	02	_	Duggan	mables	02
5	Buzzer		02	5	Buzzer		02
	Fan Module with	Non-			Fan Module with	Non-	
	Driver	Consu			Driver	Consu	0.1
6		mables	01	6		mables	01



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T T		1				1			
			Non-					Non-	
			Consu					Consu	
	7	Servo Motor	mables	04		7	Servo Motor	mables	04
			Non-					Non-	
			Consu					Consu	
	8	DC Motor	mables	04		8	DC Motor	mables	04
			Non-					Non-	
			Consu					Consu	
	9	Stepper Motor	mables	02		9	Stepper Motor	mables	02
		Intonfo sin a	Non-		IF		Intoufooin a	Non-	
		Interfacing Modules	Consu				Interfacing Modules	Consu	
	V	Modules	mables			\mathbf{V}	Modules	mables	
			Non-					Non-	
		Nrf Wi-Fi	Consu				Nrf Wi-Fi	Consu	
	1		mables	02		1		mables	02
			Non-					Non-	
		AND.NOT.OR	Consu				AND.NOT.OR	Consu	
	2		mables	01		2		mables	01
			Non-					Non-	
		Sensor	Consu				Sensor	Consu	
	3	Base/Threshold	mables	01		3	Base/Threshold	mables	01
	VI	Accessories				VI	Accessories		
			Non-					Non-	
			Consu					Consu	
	1	Chassis	mables	02		1	Chassis	mables	02
		3220 points	Consu				3220 points	Consu	
		Solderless	mables				Solderless	mables	
	2	Breadboard		02		2	Breadboard		02
		Wheels with	Consu				Wheels with	Consu	
	3	rubber	mables	06		3	rubber	mables	06
			Consu					Consu	
	4	Pulleys	mables	02		4	Pulleys	mables	02



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		Consu					Consu	
5	Propellor	mables	02		5	Propellor	mables	02
	Jumper	Consu				Jumper	Consu	
6	Connectors	mables	50 each		6	Connectors	mables	50 each
	Small size box	Consu				Small size box	Consu	
	with and without	mables				with and without	mables	
7	lid		03		7	lid		03
	Box/Ball Holder	Consu				Box/Ball Holder	Consu	
8	for the Chassis	mables	02			for the Chassis	mables	
	USB Cable	Consu				with different		
	compatible for	mables				levels of friction		
	Programming				8	at the base		02
	the					USB Cable	Consu	
	microcontroller					compatible for	mables	
	board and					Programming		
	charging the					the		
9	battery		02	41		microcontroller		
	Single strand	Consu				board and		
	wire suitable for	mables				charging the		
	breadboard				9	battery		02
	connections					Single strand	Consu	
10	provided		01	4		wire suitable for	mables	
	Small	Consu				breadboard		
	boxes/body of	mables	0.4		10	connections		0.1
11	the robotic arm	_	01	41	10	provided	~	01
	Insulation tapes,	Consu				Small	Consu	
	color- red,	mables				boxes/body of	mables	
	black-				11	the robotic arm		01
	16mmX7mX0.1		0.2			Insulation tapes,	Consu	
12	25mm		02	41	10	color- red,	mables	
	Interconnecting	Consu	20		12	black-		02
13	cables	mables	20					



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VII	Tools					16mmX7mX0.1		
***	10015	Non-				25mm		
		Consu				Interconnecting	Consu	
1	Multi-meter	mables	01		13	cables	mables	20
	Two in one Plus	Non-				Aluminum		
	'+', minus '-',	Consu				Screw Tray with		
2	screwdriver	mables	02			Magnetic Plate		
		Non-				for nuts and		
		Consu				bolts to stick		
3	Crimping tool	mables	01			while working	Non-	
	Dupont 1x1 Pin	Consu				on it	Consu	
	Header with	mables			14		mables	01
	Female Crimp					Castor wheel		
	Pins for					such that it is of		
4	crimping		50			dimension that		
	Dupont 1x1 Pin	Consu				makes the		
	Header with	mables				chassis		
	male Crimp Pins					inclination zero		
5	for crimping		50			degree with		
		Non-				respect to plane		
	Wire stripper	Consu				when wheels are	Non-	
6	cum cutter	mables	01		1.5	attached to the	Consu	0.2
	Kit Covering			-	15	robot	mables	02
	Box (durable)					4 x AA size		
	of plastic					battery holder		
	material for	Non-	-			with connector	Non	
VIII	placing	Consu	Per kit			compatible with the expansion	Non- Consu	
	packaging all	mables			16	the expansion board	mables	02
	above items with form			- 1 ⊢	VII	Tools	madies	02
					V 11	1 0018		
	based							



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			partitioned within box		1	Multi-meter Two in one Plus	Non- Consu mables Non-	01
					2	'+', minus '-', screwdriver	Consu mables	02
					3	Wire stripper cum cutter	Non- Consu mables	01
					VIII	Kit Covering Box (durable) of plastic material for placing packaging all above items with form based partitioned within box	Consu	Per kit
79	Chapter 15: Financial Bid Format	Table-F2: Financials Project (Tentative Format)	Table F2:-Financials Project (T Format)	entative	Financi Table	Annexure-Y for ials Project (Ten F3: Financial Pro Fentative Format)	tative Fo	ormat) and



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		Table-F3:	Table F3: Financial Project of Consumables	
		Financial	items (Tentative Format)	
	CI 4	Project of		
	Chapter 15:	Consumable		
79	Financial	s items of		
	Bid Format	table-		
		F1(Tentative		
		Format)		
		,		

Note:

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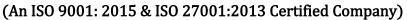
Sd/-

Managing Director



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Annexure-Y

Table F2: - Financials Project (Tentative Format)

Sr. No.	Item Description	Qty of Kits	Unit Base Price per Kit (INR Exclusive of taxes)	Total price of Kit (Exclusive of taxes)	@ GST (in INR)	Total (in INR + inclusive of taxes)
A	В	C	D	E=C*D	F	G=E+F
A.1	01(Single) Robotics Hardware Kit with 03(three) year Warranty: ❖ Microcontroller & Microcontroller Board ❖ Microcontroller Expansion Board ❖ Input Components ❖ Output Components ❖ Interfacing Modules ❖ Accessories ❖ Tools Details of items as per revised table-F1	3139				



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Table F3: Financial Project of Consumables items (Tentative Format)

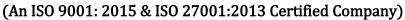
Sr. No.	Item Description	Qty.	Unit Base Price (INR Exclusive of taxes) per item	@GST (in INR)	Total (in INR + inclusive of taxes)
A	В	C	D	E	F=C*D+E
1	Power Module (Battery in Power Module is consumable)	1			
2	3220 points Solderless Breadboard	1			
3	Wheels	1			
4	Pulleys	1			
5	Propellor	1			
6	Jumper connectors	1			
7	Small size box with & without lid	1			
8	Box/Ball Holder for the Chassis with different levels of friction at the base	1			

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	USB Cable Compatible for	1		
	Programming the microcontroller	1		
9	(1.5 metres)			
	Single Strand wire for breadboard	1		
10	connections			
	Small size plastic box 5cm X 5cm			
	X 5cm made of plastic cut outs, for	1		
11	holding servo motors			
12	Insulation tapes	1		
13	Interconnecting Cables	1		
14	Kit Covering Box	1		