



NITI Aayog
Government of India

Procurement Guideline for suggestive ATL equipment Guideline for Schools

As was shared earlier, each ATL has to procure equipment to make it functional towards the larger goal of creating an innovation ecosystem in our country and build capacities in our youth to become innovators and solution providers.

Towards this aim we are sharing a set of guidelines to help support the process of procuring equipment.

1. All ATL Schools are required to purchase equipment, as per the list of ATL equipment, listed in Annex I. Please note this list is not exhaustive but only suggestive and indicative in nature.

All the equipment considered necessary as suggested by experts have been classified into the following four packages

P1- Electronics Development, Robotics, Internet of Things, and Sensors

P2- Rapid Prototyping Tools

P3- Mechanical, Electrical, and Measurement tools

P4- Construction kit, Power Supply, Consumables, Accessories and Safety equipment

Please keep the following as reference during the procurement process

- i. For Package P1, it is important to note that the various kinds of electronics/robotics platforms are likely to be on different platforms, and their sub-components are normally not inter-changeable. Therefore, schools are advised to evaluate all platforms for robotics, IoT, and electronics development, and pick any one/ more of the available P1 educational platforms, and buy all components on the same platform, so that the various components are compatible to each other.
- ii. As part of Package P1, it is advised that schools may purchase multiple units of some components, for eg- 5-10 microprocessor boards, 8-10 sensors of each type, 3-4 DIY robotic kits. The DIY kits may be targeted towards younger age groups and beginners.
- iii. For Package P2, it is advised that schools may purchase only one 3D printer per ATL.
- iv. For Package P3, it is advised that the schools may like to purchase multiple units of hot glue guns and pliers (3-4 units)
- v. For Package P4, it is advised that schools may purchase multiple units of construction kits (2-3 units), first aid kit and fire extinguisher (2 units each), safety goggles (25-30 units)

2. Out of the total funds - i.e. the twelve lakhs that have been transferred to the schools under the ATL grant, ten lakhs are for capital expenses and two lakhs are for Operational expenses for the financial year 2017-2018.
3. Out of the ten lakhs, schools are allowed to spend upto five lakhs on equipment from the attached list – Annex 1, in first 6 months of 2017-2018 financial year.
4. Schools are encouraged to spend the five lakhs in small and multiple tranches. They are encouraged to initially purchase limited quantity of the equipment, and thereafter, purchase additional quantity as per the school requirement, but all under five lakhs INR.
5. In addition, one lakh may be used for purchasing laptops and a projector, in case it is not already available in ATL/ school.
6. Further communication will be provided by AIM to utilize the remaining amount.
7. As per the recommendation of the Committee of Principals, an Indicative List of vendors providing four packages P1, P2, P3 and P4 along with their list prices has been prepared, listed in Annex 2. Please note that this is not an exhaustive list of vendors but only suggestive and indicative in nature.
8. The final decision with regard to selection of the vendor for purchasing the equipment and training services resides with the schools. The schools may select vendors outside this suggestive list, provided the quality, equipment specification and price of the vendors matches or are better than that of the suggestive list. The schools are also expected to follow their established procurement process and carry out their due diligence for price discovery and their specific requirement and local needs and conditions before placing the supply orders.

Guidelines for Vendors

1. It is mandatory for all vendors to provide installation and equipment training to the Schools, after the delivery of the equipment.
2. Vendors should clearly indicate the timeline for delivery of packages, installation and training. The delivery time should not be more than 2 months.
3. The vendors should maintain a supply chain of consumables and other items for 5 years
4. The vendors should provide 2 year warranty and 3 year AMC, wherever applicable, and clearly indicate the terms and conditions of the same.
5. The vendors should indicate both itemized prices and package wise pricing and provide detailed specification and brand name of all the equipment
6. The vendor should provide all required documents for verification by the school at the time of purchase of equipment. Authorized signatory must sign the documents
7. The vendors should have a mechanism for proper disposal of e-waste
8. In case the vendors are third party vendors or channel partners, they should ensure timely availability of all equipment and associated services to the School, to avoid any delay or inconvenience to the schools.
9. In case some schools are unhappy with the services of some selected vendors, they would not be permitted to provide services to other ATL schools.

Annex I – Revised List of Equipment

(*Suggested Quantity is for a class of 20-30 students, could be scaled up as needed)

Package 1: Electronics Development, Robotics, Internet of Things and Sensors

Category	Name	Description	Suggested Quantity*	Type
Electronics Development	Arduino UNO or compatible Microprocessor and microcontroller LINK	<ul style="list-style-type: none"> Hardware development board with Memory and IO ports 	20	Consumable
Electronics Development	Breadboards & Mini Breadboard LINK	<ul style="list-style-type: none"> Solderless 400 points and 800 points Self-adhesive proto shield 	20	Consumable
Electronics Development	General Purpose solderable Board	<ul style="list-style-type: none"> Boards of each size of A1, A2 and A3 	10	Consumable
Electronics Development	16x2 LDC display LINK	<ul style="list-style-type: none"> Dot matrix LDC display with 16 characters x 2 lines 	10	
Electronics Development	USB Cables	<ul style="list-style-type: none"> USB Cable Set (A to B) 	20	Consumable
Electronics Development	9 Volt battery, multiple resistors and capacitors for electronic projects (various sizes)	<ul style="list-style-type: none"> Amperage Range of resistance Capacity of capacitor 	20 kits	Consumable
Internet of Things & Sensors	IR Sensors Obstacle sensor LINK	<ul style="list-style-type: none"> Detection range Detection angle 	10	Consumable
Internet of Things & Sensors	Triple Axis Magnetometer LINK	<ul style="list-style-type: none"> 3-Axis Magneto-resistive Sensors I2C Digital Interface Integrated 12-bit ADC Range of -8 to +8 Gauss 160 Hz Maximum Output Rate 	5	Consumable
Internet of Things & Sensors	Humidity Sensor LINK	<ul style="list-style-type: none"> Operating range: 20 - 95 % RH Temperature: 0 - 60 Celsius Power supply: 1.5V AC(Max sine) Operating frequency: 500Hz - 2kHz 	5	Consumable

Internet of Things & Sensors	MQ-4 Natural Gas sensor LINK	<ul style="list-style-type: none"> • High sensitivity to Methane, Natural gas • Small sensitivity to alcohol, smoke • Fast response • Stable and long life • Simple drive circuit 	3	Consumable
Internet of Things & Sensors	IR (transmitter) receiver -TSOP 1738 LINK	<ul style="list-style-type: none"> • Switching rate – 38 KHz 	10	Consumable
Internet of Things & Sensors	Ultrasonic Sensor Module HC-SR-04 or compatible LINK	<ul style="list-style-type: none"> • Power supply • Quiescent current • Working current • Effectual angle • Ranging distance • Resolution • Working angle & dimension 	20	Consumable
Internet of Things & Sensors	Triple Axis accelerometer- LINK	<ul style="list-style-type: none"> • 3-axis sensing • Small, low profile package • 4 mm × 4 mm × 1.45 mm LFCSP • Low Power : 350 μA (typical) • Single-supply operation: 1.8 V to 3.6 V • Temperature stability 	5	Consumable
Internet of Things & Sensors	PIR Motion Detector Module LINK	<ul style="list-style-type: none"> • High digital pulse when motion detected • Low digital pulse when idle /no motion detected • Sensitivity range (upto 6 m) • Power supply: 5V – 12V 	5	
Internet of Things & Sensors	CMOS IR Camera Module - 728x488 LINK	<ul style="list-style-type: none"> • 728 x 488 Resolution • 6V to 20V input • 50mA (at 12V) 	2	Consumable
Internet of Things & Sensors	RFID Reader – Tags LINK	<ul style="list-style-type: none"> • Current :13-26mA / DC 3.3V • Idle Current :10-13mA / DC 3.3V • Sleep Current<80uA • Peak Current<30mA • Operating Frequency: 13.56MHz<30mA 	3	Consumable

		<ul style="list-style-type: none"> Read range between 20 cm to 1 m 		
Internet of Things & Sensors	RF Modules Tx & Rx 315 MHz ASK LINK	<ul style="list-style-type: none"> Frequency Range: 433.92/315 MHz Supply Voltage: 3 – 6 V Output Power : 4 – 16 Dbm Low power consumption Easy application 	5	Consumable
Internet of Things & Sensors	Voice Recognition LINK	<ul style="list-style-type: none"> Works on 4.5 to 5.5VDC Digital Interface: 5V TTL level UART interface Working Current < 40mA Small size Can recognize 5 commands at one time Can record up to 15 commands 	1	Consumable
Robotics	Stepper motor with Driver board LINK	28BYJ-48 ULN2003 5V Stepper Motor + ULN2003 Driver Board	5	Consumable
Robotics	DC motor LINK	3-6 V, 2000 RPM for electric toy car, EK2153 or equivalent	5	Consumable
Robotics	4 Wheel robot car chassis kit LINK	Car kit with DC motors, encoder, battery case LINK	3	Consumable
Robotics	Servo motors LINK	3 types <ul style="list-style-type: none"> Positional rotation servo Continuous rotation servo Linear servo 	20	Consumable
Robotics	DIY Robotic kits		3-5	Consumable

Package 2: Rapid Prototyping Tools

Category	Name	Description	Suggested Quantity	Type
Rapid Prototyping Tools	3D Printer Kit and tools	1.75 mm PLA Printer, With 180mm ×200mm ×160mm Build Volume, Spatula, Tweezers, Cutter, Screwdriver, Wrench etc.	1	Equipment
Rapid Prototyping Tools	Filament for 3D printer	1.75mm PLA filament. 750-1000 g spools	5	Consumable

Rapid Prototyping Tools	Set of Arts & Crafts Accessories – eg- stationary items and basic prototyping material	Cardboard, foam core boards, string, rubberband, popsicle sticks, wood glue, balsawood sheets & rods	5 5 50m 100 100 1 btl assort	Consumable
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Package 3: Mechanical, Electrical and Measurement tools

Category	Name	Description	Suggested Quantity	Type
Mechanical Tools	Hacksaw	Junior	1	Equipment
Mechanical Tools	Micro Chisel Set		1	Equipment
Mechanical Tools	Pliers	<ul style="list-style-type: none"> External Straight Nose Circlip Plier Long Nose Plier Combination Mini Plier Wire stripping pliers Bent nose plier Needle nose pliers 	1 set	Equipment
Mechanical Tools	Mini Hack Saw		1	Equipment
Mechanical Tools	Ball Pen Hammer		1	Equipment
Mechanical Tools	Steel Shaft Claw Hammer		1	Equipment
Mechanical Tools	Fiber Glass Nail Hammer		1	Equipment
Mechanical Tools	Rubber Mallet		1	Equipment
Mechanical Tools	C-Clamp		5	Equipment
Mechanical Tools	Allen Key Set		1	Equipment
Mechanical Tools	Workstation for drilling		1	Equipment
Mechanical Tools	12 piece combination Spanner Set		1	Equipment
Mechanical Tools	12 Piece Open ended Spanner Set		1	Equipment

Mechanical Tools	30 Piece Ratcheting Screwdriver Set		1	Equipment
Mechanical Tools	Baby Vice 60 mm		1	Equipment
Mechanical Tools	6 Piece Precision Screw Driver Set		3	Equipment
Mechanical Tools	Adjustable Spanner		2	Equipment
Mechanical Tools	Wire Strippers	Wire Stripper Cutter Plier With Spring -26x6x20 Cms (LxWxH)	5	Equipment
Mechanical Tools	Screwdriver	Multi-purpose	5	Equipment
Mechanical Tools	Tool Set	Multi-purpose	3	Equipment
Electric Tools	Hot glue gun + Glue Sticks	Range in open space (Standard Conditions) : 100 Meters	2	Equipment
Electric Tools	Soldering Iron Kit Temperature Controlled Soldering Station	Variable Wattage of Soldering Iron: 15-30 watts/230 volts Soldering Iron Temperature Range: 280°C to 450°C	2	Equipment
Electric Tools	DC Power Supply	0 - 30 V, 1 A digital DC power supply with variable adjustment	3	Equipment
Electric Tools	Cables	Micro USB, Mini USB, USB A-USB B, USB - USB. Each 10 pieces	10	Consumable
Electric Tools	Adapters	DC power Adapter with 5V, 12V. Each 10	10	Consumable
Electric Tools	Electric Screw Driver Set		1	Equipment
Electric Tools	1800 W Dual Temperature Heat Gun		1	Equipment
Measurement Tools	Return measuring tape 5Mx19mm		2	Equipment
Measurement Tools	Stainless Steel 12" / 150 mm Rule		5	Equipment
Measurement Tools	150 mm / 6" Digital Vernier Caliper		2	Equipment
Measurement Tools	12" Spirit Level		1	Equipment

Measurement Tools	Digital Pen electric Tester	Voltage		Equipment
Measurement Tools	Digital Multi Meter	<ul style="list-style-type: none"> Digital Multi Meter Voltage Current Resistance-7 functions + 19 ranges to cover DC voltage 200mV to 1kV, AC voltage 200 V - 750 V, DC current 200 μA - 10 A Resistance 200 -2 M Ohm and Transistor & diode test. 	5	Equipment

Package 4: Construction kit, Power Supply, Consumables, Accessories and Safety Equipment

Category	Name	Description	Suggested Quantity	Type
Construction kit	STEM Modular Construction kits		2	Equipment
Power Supply & accessories	9 volt battery clips		20	Consumable
Power Supply & accessories	Hookup Wires	Red & Black set 100 Meters each	2	Consumable
Power Supply & accessories		Jumper Cable: Male-Male Male-Female Female-Female	400 80 50	Consumable
Power Supply & accessories	Power Strip for power adaptors		10	Consumable
Safety equipment	Standard first aid kit		1	Consumable
Safety equipment	Fire extinguisher (handy units)		1	Consumable
Safety equipment	Safety goggles (with/without LED torch)		10	Consumable

Annex 2

Indicative List of Vendors with their List Prices

(Please note- this is not an exhaustive list)

S.No	Name of Vendor	Location of vendor	Platform	Packages	P1 List Price (INR)	P2 List Price (INR)	P3 List Price (INR)	P4 List Price (INR)	Total List Price (INR)	Regions
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1	Evobi	Bangalore	Arduino uno, nano, Raspberry pi 3, Bibox startling	All	28,611	79,100	125,853	14,195	247,759	West- Goa, South- Karnataka, Kerala, Tamil Nadu, Puducherry, North- NCR
2	Saran	New Delhi	Galileo 11-12 class/ Edison 8-10 class, Genuino 5-7 class, Arduino nano 5-7 class, uno 8-10 class, mega 11-12 class, raspberry-11-12 class	All	64,749	111,000	170,578	10,220	356,547	North- NCR, Haryana, Punjab, Uttarakhand, Himachal Pradesh, Uttar Pradesh, South-Karnataka, Kerala, Tamil Nadu
3	Tech B	New Delhi	Arduino uno, Raspberry	All	18,482	71,250	38,900	54,765	183,397	North- Uttar Pradesh, Punjab, Uttarakhand, Haryana, Jammu & Kashmir, Delhi, Himachal Pradesh, Madhya Pradesh, South- Andhra Pradesh, Tamil Nadu, East- Bihar, Chhattisgarh, Jharkhand, West Bengal, Orissa, North East, West- Maharashtra
4	Srjna/ Elation edtech	Jaipur	Not specified	All	11,680	63,750	69,989	5,174	150,593	North- NCR, Rajasthan, Punjab, Haryana, Uttar Pradesh, Himachal Pradesh, Chandigarh, Uttarakhand, Madhya Pradesh West- Gujarat, Maharashtra, North East-Assam

5	Grey sim	Mumbai	Arduino, Galileo	All	16,754	124,595	170,233	6,013	317,595	North- Delhi, Himachal Pradesh, Uttar Pradesh, Punjab, Haryana, South- Tamil Nadu, Kerala, Karnataka, Telangana, Andhra Pradesh, West- Goa, Maharashtra, Gujarat, East- West Bengal, Chhattisgarh
6	Building blocks	New Delhi	Arduino	All	500,450	73,990	195,575	35,090	805,105	North- Delhi, Haryana, Punjab, Uttar Pradesh, Uttarakhand, Jammu & Kashmir, South- Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Telangana, Andaman & Nicobar Islands, West- Goa, Rajasthan, East- Bihar, West Bengal, Orissa, Jharkhand, Assam
7	TPO	Bangalore	Arduino	All	28,577	79,000	86,293	74,059	267,929	South- Kerala, Tamil Nadu, Karnataka, AP, West- Maharashtra, Goa
8	Robospecies	New Delhi	Arduino	All	8,763	77,000	97,594	3,816	187,172	Pan India - 12-15 schools per month
9	Edutech	Chennai	Arduino uno	P1, P2, P4	151,786	200,750		34,972	387,508	South – Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Telangana
10	Daksha	Hyderabad	Not specified	All	18,225	199,000	163,505	22,850	403,580	Pan India - 250-300 schools over 12-18 months
11	Comp system	New Delhi	Not specified	All	20,625	59,500	99,105	13,237	192,467	North- Delhi, Haryana, Punjab, Uttar Pradesh, Uttarakhand, West - Rajasthan, Gujarat, Maharashtra, Goa
12	Robotech	New Delhi	arduino	All	38,290	54,900	64,564	18,167	175,921	North - Delhi, Haryana, Punjab, Rajasthan, Uttar Pradesh, Chandigarh

13	Robokids	Pune	Not specified	P1,P3,P4	340000		300000	50000	690,000	West - Maharashtra, Gujarat, Goa, East – West Bengal, Chhattisgarh, South -Kerala, North - Delhi, Punjab
14	Biolink Overseas company	Agra	Not specified	All					780,000 (Detailed Breakup Not Provided)	Uttar Pradesh, Madhya Pradesh, Rajasthan
15	Stemrobo	Noida	Arduino	P1,P2	51870	72000			123,870	Delhi, Haryana, Punjab, Uttar Pradesh, Maharashtra, Assam
16	Trinity	New Delhi	Not specified	All	146501	102060	109476	20055	378,092	North and East India