Higher Education Quality Enhancement Project (HEQEP)

Request for Quotation
for
Supply and testing of Raw materials and Spares for Fab Lab machines

Bangladesh Agricultural University, Mymensingh-2202

Request of Quotation No : **UGC/HEQEP/BAU/CP-5002/Procurement/G6-2018**

Issued on : **25/06/2018**

Contract Package No : **G6**

Professor Dr. Md. Jasimuddin Khan
Fab Lab Sub Project Manager (FLSP)
Establishment of Fab Lab at BAU (CP-5002)
BAU, Mymensingh-2202

"Establishment of Community Based Fab Lab at BAU to Promote Innovations and Entrepreneurship (CP-5002)."
Bangladesh Agricultural University, Mymensingh-2202

REQUEST FOR QUOTATION
for
Supply and testing of Raw materials and Spares for Fab Lab machines

RFQ No.: UGC/HEQEP/BAU/CP-5002/Procurement/G6-2018 **Date: .....**

To

_____

_____

_____

1. The Bangladesh Agricultural University, Mymensingh has been allocated public funds and intends to apply a portion of the funds to eligible payments under the Contract for which this Quotation Document is issued.

2. Detailed Specifications and, Design & Drawings for the intended Goods and related services shall be available in the office of the Procuring Entity for inspection by the potential Quotationers during office hours on all working days.

3. Quotation shall be prepared and submitted using the 'Quotation Document'.

4. Quotation shall be completed properly, duly signed-dated each page by the authorized signatory and submitted by the date to the office as specified in **Para 6** below.

5. No Securities such as Quotation Security (i.e. the traditionally termed Earnest Money, Tender Security) and Performance Security shall be required for submission of the Quotation and delivery of the Goods (if awarded) respectively.

6. Quotation in a sealed envelope or by fax or through electronic mail shall be submitted to the office of the undersigned on or before **03/07/2018 at 02.00 pm.** The envelope containing the Quotation must be clearly marked Quotation for **Supply and testing of Raw materials and Spares for Fab Lab machines** and **DO NOT OPEN** before **03/07/2018 at 02.30 pm.** Quotations received later than the time specified herein shall not be accepted.

7. Quotations received by fax or through electronic mail shall be sealed-enveloped by the Procuring Entity duly marked as stated in **Para 6** above and, all Quotations thus received shall be sent to the Evaluation Committee for evaluation, without opening, by the same date of closing the Quotation.

8. The Procuring Entity may extend the deadline for submission of Quotations on justifiably acceptable grounds duly recorded subject to threshold of ten (10) days pursuant to Rule 71 (4) of the Public Procurement Rules, 2008.

9. All Quotations must be valid for a period of at least ***30 Days*** from the closing date of the Quotation.

10. No public opening of Quotations received by the closing date shall be held.

11. Quotationer's rates or prices shall be inclusive of profit and overhead and, all kinds of taxes, duties, fees, levies, and other charges to be paid under the Applicable Law, if the Contract is awarded.

12. Rates shall be quoted and, subsequent payments under this Contract shall be made in Taka currency. The price offered by the Quotationer, if accepted shall remain fixed for the duration of the Contract.

Professor Dr. Md. Jasimuddin Khan
Fab Lab Sub Project Manager (FLSPM)
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13. Quotationer shall have legal capacity to enter into Contract. Quotationer, in support of its qualification shall be required to submit certified photocopies of latest documents related to valid **Trade License**, **Tax Identification Number (TIN), VAT Registration Number** and **Financial Solvency Certificate** from any scheduled Bank; without which the Quotation may be considered non-responsive.

14. Quotations shall be evaluated based on information and documents submitted with the Quotations, by the Evaluation Committee and, at least three (3) responsive Quotations will be required to determine the lowest evaluated responsive Quotations for award of the Contract.

15. In case of anomalies between unit rates or prices and the total amount quoted, the unit rates or prices shall prevail. In case of discrepancy between words and figures the former will govern. Quotationer shall remain bound to accept the arithmetic corrections made by the Evaluation Committee.

16. The supply of Goods and related services shall be completed within ***15 days*** from the date of issuing the Purchase Order.

17. The Purchase Order that constitutes the Contract binding upon the Supplier and the Procuring Entity shall be issued within **3 days** of receipt of approval from the Approving Authority.

18. The Procuring Entity reserves the right to reject all the Quotations or annul the procurement proceedings.

Signature of the official inviting Quotation
Name: Professor Dr. Md. Jasimuddin Khan
Designation: Fab Lab Sub Project Manager (CP- 5002)
Bangladesh Agricultural University, Mymensingh-2202

Professor Dr. Md. Jasimuddin Khan
Fab Lab Sub Project Manager (FLSM)
"Establishment of Fab Lab at BAU (CP-5002)"
BAU, Mymensingh-2202

Date

Address:
Fab Lab BAU,
Workshop of Farm Power and Machinery
Bangladesh Agricultural University, Mymensingh-2202
Contact: 01718353743,
Email: fablab@bau.edu.bd

Distribution:
1. Notice Board
2. BAU website
3. Office file

[Use Official Pad]

Quotation Submission Letter

RFQ No.: UGC/HEQEP/BAU/CP-5002/Procurement/G6-2018 **Date: dd/mm/yy**

To
Fab Lab Sub-Project Manager (FLSM), CP-5002
Fab Lab BAU,
Workshop of Farm Power and Machinery
Bangladesh Agricultural University, Mymensingh-2202

I/We, the undersigned, offer to supply in conformity with the Terms and Conditions for delivery of the Goods and related services named **Supply and testing of Raw materials and Spares for Fab Lab machines**

The total Price of my/our Quotation is BDT [**insert amount both in figure and words]**

My/Our Quotation shall remain valid for the period stated in the RFQ Document and it shall remain binding upon us and, may be accepted at any time prior to the expiration of its validity period.

I/We declare that I/we have the legal capacity to enter into a contract with you, and have not been declared ineligible by the Government of Bangladesh on charges of engaging in corrupt, fraudulent, collusive or coercive practices. Furthermore, I/we am/are aware of Para 21(b) of the Terms and Conditions and pledge not to indulge in such practices in competing for or completion of delivery of Goods.

I/We am/are not submitting more than one Quotation in this RFQ process in my/our own name or other name or in different names. I/We understand that the Purchase Order issued by you shall constitute the Contract and will be binding upon me/us.

I/We have examined and have no reservations to the RFQ Document issued by you on [**insert date]**

I/We understand that you reserve the right to reject all the Quotations or annul the procurement proceedings without incurring any liability to me/us.

Signature of Quotationer with Seal
Date:

Professor Dr. Md. Jasimuddin Khan
Fab Lab Sub Project Manager (FLSM)
"Establishment of Fab Lab at BAU (CP-5002)"
BAU, Mymensingh-2202

Price Schedule for Goods and Related Services

RFQ No.: UGC/HEQEP/BAU/CP-5002/Procurement/G6-2018 **Date:**

Package:G6 (Supply and testing of Raw materials and Spares for Fab Lab machines)

Sl no	Item no	Description of Items	Unit of Measurement	Quantity	Unit Rate or Price		Total Amount	Destination for Delivery of Goods
					In figure	In words	In figure In words	
1	2	3	4	5	6	7	8	9
1	1	Acrylic, Type-1	No	10				Office of the Fab Lab Sub-project Manager (FLSM) HEQEP-AIF, CP-5002 Fab Lab BAU, Workshop of Farm Power and Machinery, Bangladesh Agricultural University, Mymensingh-2202
2	2	Acrylic, Type-2	No	10				
3	3	Acrylic, Type-3	No	12				
4	4	Acrylic, Type-4	No	3				
5	5	Acrylic, Type-5	No	3				
6	6	Vinyl Film For Outdoor Use	No	5				
7	7	Vinyl Film For Decorative Use	No	3				
8	8	Vinyl Film For Transparent or Semi Transparent	No	4				
9	9	Vinyl Film For Fluorescent	No	4				
10	10	Vinyl Film For Reflective	No	5				
11	11	Vinyl Film For Car	No	4				
12	12	Hole saw Set	Set	1				
13	13	Circular saw	No	1				
14	14	Angle grinder	No	1				
15	15	Electric Jig Saw - Blue	No	1				
16	16	G-Clamp	No	4				
17	17	Stainless Steel Tri Square Role	No	2				
18	18	Hot Gun with Soldering Iron	No	1				
19	19	Electric Planner Machine	No	1				
20	20	Reversible Ratchet	No	1				
21	21	Screwdriver and Bit Set	No	1				
22	22	Mini Oscilloscope	No	1				
23	23	Arduino Uno	No	2				
24	24	Arduino Mega	No	5				

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25	25	PICkit 3	No	1				
26	26	AVR Trainer Kit	No	1				
27	27	PIC Trainer Kit	No	1				
28	28	Raspberry Pi 3	No	2				
29	29	Arduino Mini	No	2				
30	30	Reflective Optical Sensor	No	10				
31	31	Servo Motor	No	5				
32	32	Gear Motor	No	5				
33	33	Dual DC Motor Controller	No	2				
34	34	Stepper Motor Driver	No	5				
35	35	Digital IR Sensor Array 8	No	1				
36	36	Digital Line Following Sensor	No	2				
37	37	12V Solenoid Valve - 3/4"	No	2				
38	38	Infrared Proximity Sensor	No	2				
39	39	Servo - Full Rotation	No	1				
40	40	SIM900A Kit	No	1				
41	41	Spark Fun Venus GPS with SMA Connector	No	1				
42	42	Blue tooth module	No	5				
43	43	Rf Transmitter Reciver	No	2				
44	44	Wi-Fi Module	No	2				
45	45	4 Channel 5v Realy	No	5				
46	46	LCD Module	No	5				
47	47	7 Segment Display	No	10				
48	48	Dot Matrix Display(Bi-Color)	No	5				
49	49	Brushless Motor	No	5				
50	50	Turnigy AE-20A Brushless ESC	No	5				
51	51	Turnigynano-tech 6000mah	No	1				

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52	52	LDR	No	10				
53	53	LM35 Temperature Sensor	No	5				
54	54	Force Sensitive Resistor 0.5"	No	1				
55	55	Humidity Sensor Module	No	2				
56	56	Gas Sensor	No	5				
57	57	Grove - Moisture Sensor	No	2				
58	58	SMD IR Sensor	No	5				
59	59	Digital Thermometer	No	5				
60	60	Color Sensor	No	2				
61	61	PIR Sensor	No	2				
62	62	Solar Panel	No	2				
63	63	Ultra Sound Sensor	No	2				
64	64	Grove - 3-Axis Digital Accelerometer	No	1				
65	65	Microcontroller	No	13				
66	66	IC	No	64				
67	67	Rotary Attachment For Laser Cutter	No	1				
68	68	DC 12V Solenoid Electric Door Lock	No	2				
Total Amount for Supply of Goods and related services (inclusive of VAT and all applicable taxes; *see Note 2 below*)						In figure		
						In words		

Goods to be supplied to	Fab Lab BAU, Workshop of Farm Power and Machinery Bangladesh Agricultural University, Mymensingh-2202
Total Amount in Taka (in words)	**[enter the Total Amount as in Col.8 above for the delivery of Goods and related services].**
Delivery Offered	**[insert weeks/days] from date of issuing the Purchase Order]**
Warranty Provided	**[insert weeks/months from date of completion of the delivery; state none if not applicable]**

[insert number] number corrections made by me/us have been duly initialed in this Price Schedule. My/Our Offer is valid until dd/mm/yy [insert Quotation Validity date].

Signature of Quotationer with Seal	Date: dd/mm/yy

Professor Dr. Md. Jasimuddin Khan
Fab Lab Sub Project Manager (FLSM)
'Establishment of Fab Lab at BAU (CP-3002)'
BAU, Mymensingh-2202

Name of Quotationer	

Note:

1. Col. 1, 2, 3, 4, 5 and 9 to be filled in by the Procuring Entity and Col. 6, 7 & 8 by the Quotationer.
2. Rates or Prices shall include profit and overhead and, all kinds of taxes, duties, fees, levies, and other charges earlier paid or to be paid under the Applicable Law, if the Contract is awarded; including transportation, insurance etc. whatsoever up to the point of delivery of Goods and related services in all respects to the satisfaction of the Procuring Entity.

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Technical Specification of the Goods Required

RFQ No.: UGC/HEQEP/BAU/CP-5002/Procurement/G6-2018

Package: G6 (Supply and testing of Raw materials and Spares for Fab Lab machines)

Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
1	*2*	*3*	*4*	*5*	*6*
1	1	Acrylic, Type-1	Thickness: 2 mm Size: 4ft x 6 ft Color: Blue, Red, Green, White & Clear, should be given 2 unit/each color		
2	2	Acrylic, Type-2	Thickness: 3 mm Size: 4ft x 6 ft Color: Red, Green, Yellow, White & Clear, should be given 2 unit/each color		
3	3	Acrylic, Type-3	Thickness: 5 mm Size: 4ft x 6 ft Color: Black, Blue, Red, Green, Yellow, White & Clear (Red, Green, Yellow, White & Clear should be given 2 unit/each color) (Black & Blue should be given 1 unit/each color)		
4	4	Acrylic, Type-4	Thickness: 8 mm Size: 4ft x 6 ft Color: Clear, should be given 3 unit/color		
5	5	Acrylic, Type-5	Thickness: 10 mm Size: 4ft x 6 ft Color: Clear, should be given 3 unit/color		
6	6	Vinyl Film For Outdoor Use	Size: 2ft x 10 ft Color: Blue, Red, Yellow, Green & Black, should be given 1 unit/each color		
7	7	Vinyl Film For Decorative Use	Size: 2ft x 10 ft Color: Red, Green & Black, should be given 1 unit/each color		
8	8	Vinyl Film For Transparent or Semi Transparent	Size: 2ft x 10 ft Color: Blue, Red, Green & Black, should be given 1 unit/each color		

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Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
9	9	Vinyl Film For Fluorescent	Size: 2ft x 10 ft Color: Blue, Cyne, Red & White should be given 1 unit/each color		
10	10	Vinyl Film For Reflective	Size: 2ft x 10 ft Color: Blue, Megenda, Cyne, Red & Orange, should be given 1 unit/each color		
11	11	Vinyl Film For Car	Size: 2ft x 10 ft Color: Blue, Red, Yellow & Green, should be given 1 unit/each color		
12	12	Hole saw Set	Hole Saw Size:3/4"(19mm), 7/8"(22mm), 1-1/8"(29mm), 1-1/4"(32mm), 1-1/2"(38mm), 1-3/4" (44mm), 2"(51mm), 2-1/2"(64mm), Hex key wrench Size:2.5mm		
13	13	Circular saw	Voltage:220-240V~50/60Hz Input power:1400W No-load speed:4800rpm Blade diameter:185mm Cutting capacity: 45 degree:44mm, 90 degree:65mm Adjustable cutting depth Adjustable bevel cutting With 1pcs 185mm blade		
14	14	Angle grinder	Voltage:220-240V~50/60Hz Input power:1050W No-load speed:11000rpm Disc diameter:125mm Spindle thread: M14 With 1pcs auxiliary handle		
15	15	Electric Jig Saw - Blue	Watts: 580 Max Cutting Wood: 85mm Steel: 10mm Berel Cutting A ngle Left/Right 0-45 Degree Speed: 500-3100rpm		
16	16	G-Clamp	Size: 100 mm 4 Inch		
17	17	Stainless Steel Tri Square Role	Size: 24 Inch		

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Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
18	18	Hot Gun with Soldering Iron	DC Output: 24V Hot Gun power consumption: 650W Hot Gun temperature control: 100-480°c Hot Gun Frequency: 50-60Hz Solder iron power consumption: 60W Solder iron temperature control: 200-480°c Solder iron Output voltage: 24V		
19	19	Electric Planner Machine	Planing Depth: 1mm No Load Speed(RPM): 16,000 Overall Length: 290mm Net Weight: 2.7kg(6lbs) Power Supply Cord 2.0m(6.6ft)		
20	20	Reversible Ratchet	1/2 Inch,Satin finish, Two-component ergonomic ratchet handle 72T CrV quick release		
21	21	Screwdriver and Bit Set	4" ABS Plastic Handle with Rubberized Grip 5" Flexible Extension Neck 5" Steel Extension Bar Torx T4, T5, T7, T6, T8, T10, T15, T20 Hex Socket 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4 Tri-Wing 1.5, 2.0 Triangle 2.0, 2.3 Star 1.5, 2.0 Center Dot 1.0 PZ0, PZ1 M 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5 H 2.3 Slotted 1.3, 1.5, 2.0, 2.5, 3.0, 4.0 Phillips PH00, PH0, PH1, PH2		
22	22	Mini Oscilloscope	Ultra-portable, light weight 2.8 "color display 320 * 240 Micro SD Kaposi-shaped storage Bandwidth of 200kHz 1Msps sampling rate Measurements can be adjusted Multiple trigger mode Built-in test signal UBS rechargeable battery		

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BAU, Mymensingh-2202

Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
23	23	Arduino Uno	• Microcontroller: ATmega328 • Operating Voltage: 5V • Input Voltage (recommended): 7-12V • Input Voltage (limits): 6-20V • Digital I/O Pins: 14 (of which 6 provide PWM output) • Analog Input Pins: 6 • DC Current per I/O Pin: 40 mA • DC Current for 3.3V Pin: 50 mA • Flash Memory: 32 KB of which 0.5 KB used by boot loader • SRAM: 2 KB (ATmega328) • EEPROM: 1 KB (ATmega328) • Clock Speed: 16 MHz		
24	24	Arduino Mega	Microcontroller: ATmega2560 Operating Voltage: 5V Input Voltage : 7-12V Input Voltage (limits): 6-20V Digital I/O Pins: 54 (of which 15 provide PWM output) Analog Input Pins: 16 DC Current per I/O Pin: 40 mA DC Current for 3.3V Pin: 50 mA Flash Memory: 256 KB of which 8 KB used by bootloader SRAM: 8 KB EEPROM: 4 KB Clock Speed: 16 MHz		

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BAU, Mymensingh-2202

Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
25	25	PIC kit 3	• USB (Full speed 12 Mbits/s interface to host PC) • Real-time execution • MPLAB IDE compatible (free copy included) • Built-in over-voltage/short circuit monitor • Firmware upgradeable from PC/web download • Fully enclosed • Supports low voltage to 2.0 volts (2.0v to 6.0v range) • Diagnostic LEDs (power, busy, error) • Read/write program and data memory of microcontroller • Erase of program memory space with verification • Freeze-peripherals at breakpoint		
26	26	AVR Trainer Kit	1) ZIF Socket for ATmega16A/32A, with accessible I/O, grouped by PORT. 2) On board Programmer. 3) USB connector, connection with PC. 4) Crystal Oscillator (Default 16MHz). It's replaceable. 5) External Supply Socket (5V). 6) SPI Pinout. 7) ISP Pinout. 8) USART Pinout. 9) I2C Pinout. 10) Seven Segment Display Interfacing. 11) LCD Interfacing Connector. 12) LCD Contrast. 13) ADC Interfacing. 14) Push Button (x2) Interfacing. 15) I/O Expander. 16) RESET Circuitry. 17) 8 LEDs for general use. 18) Buzzer Interfacing. 19) Infrared Interfacing. 20) 1-Wire Communication Interfacing. 21) Power Switch. 22) Vcc-GND power pin.		

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BAU, Mymensingh-2202

Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
27	27	PIC Trainer Kit	1) ZIF Socket for PIC16F877A and PIC16F452, with accessible I/O, grouped by PORT. 2) On board Programmer. 3) USB connector, connection with PC. 4) Crystal Oscillator (Default 16MHz). It's replaceable. 5) External Supply Socket (5V). 6) SPI Pinout. 7) ICSP Pinout. 8) USART Pinout. 9) I2C Pinout. 10) Seven Segment Display Interfacing. 11) LCD Interfacing Connector. 12) LCD Contrast. 13) ADC Interfacing. 14) Push Button Interfacing. 15) I/O Expander. 16) RESET Circuitry. 17) 8 LEDs Interfacing. 18) Buzzer Interfacing. 19) Infrared Interfacing. 20) 1-WireCommunication Interfacing. 21) Power Switch. 22) Vcc-GND power pin.		
28	28	Raspberry Pi 3	• BCM2837, 1.2GHz 64-bit quad-core ARM Cortex-A53 • 1GB RAM • 10/100 Ethernet port • 802.11n WiFi NIC • Bluetooth 4.1 & Bluetooth Low Energy (BLE) • HDMI port • USB 2.0 interface x 4 • Micro SD card slot • Combined 3.5mm audio jack and composite video • 40-pin GPIO interface • Camera interface (CSI) • Display interface (DSI) • Upgraded power management, supports more peripherals (requires a 2.5A power supply or above)		

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BAU, Mymensingh-2202

Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
29	29	Arduino Mini	Microcontroller: ATmega328P Operating Voltage: 5V Input Voltage: 7-9 V Digital I/O Pins: 12 (of which 5 provide PWM output) Analog Input Pins: 8 DC Current per I/O Pin :40 mA Flash Memory: 32 KB (of which 2 KB used by bootloader) SRAM: 2 KB EEPROM: 1 KB Clock Speed: 16 MHz		
30	30	Reflective Optical Sensor	Input(Emitter) Reverse Voltage:5V Forward Current:60mA Forward Surge Current:3A Power Dissipation:100mW Junction Temperature:100°C Output(Detector) Collector emitter voltage:70V Collector Current:100mA Power Dissipation:100mW Junction Temperature:100°C		
31	31	Servo Motor	Dimension 23x12.2x29mm Stall torque 1.8kg/cm(4.8V) Operating speed 0.1sec/60degree(4.8v) Operating voltage 4.8V Temperature range0 -55C Dead band width 10us		
32	32	Gear Motor	Operating voltage: 3V ~ 6V DC (recommended value 5V) Maximum torque: 800g.cm Speed without load: 180±10rpm at 6V Reduction ratio: 1:48 No Load current: 190mA(max.250mA) continuous, 700mA at no load start Stall Current: ~1A Strong anti-interference on this motor keeps it safe around micro-controllers.		

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Establishment of Fab Lab at BAU (CP-5[illegible])
BAU, Mymensingh-2202

Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
33	33	Dual DC Motor Controller	Supply Voltage 36 V Logic Supply Voltage 36 V Input Voltage 7 V Enable Voltage 7 V Peak Output Current (100 µs non repetitive) 1.2 A Total Power Dissipation at Tpins = 90 °C 4W Storage and Junction Temperature – 40 to 150 °C		
34	34	Stepper Motor Driver	Motor driver: L298N Motor channels: 2 Maximum operating voltage: 46 V Peak output current per channel: 2 A Minimum logic voltage: 4.5 V Maximum logic voltage: 7 V		
35	35	Digital IR Sensor Array 8	Optical Sensor TCRT5000 Opamp LM358		
36	36	Digital Line Following Sensor	Reflective Object Sensor LTH-1550 LM358 Dual Op amp		
37	37	12V Solenoid Valve - 3/4"	Thread Size: 1/2" BSP inlet and outlet Material: PET Working Temp:0-40℃ Working Pressure: 0.02~0.8MPa Voltage: DC12V,DC24V,AC220V Voltage Range: 15% Style: Closed Valve Working Environment: Water, Gas and Oil Lifespan: More than 200,000 times		
38	38	Infrared Proximity Sensor	Range: 10cm (4") to 30cm (30")		
39	39	Servo - Full Rotation	Size: 39.5 x 20.5 x 42 mm Weight:44 g Speed @ 6V: 0.14 sec/60°(1) Stall torque @ 6V: 66.7 oz·in Speed @ 4.8V: 0.16 sec/60°(2) Stall torque @ 4.8V: 45.8 oz·in Lead length: 11 in		
40	40	SIM900A Kit	Size:49mm x 47mm Net Weight:28g Weight: 38g		

Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
41	41	Spark Fun Venus GPS with SMA Connector	Up to 20Hz update rate -148dBm cold start sensitivity -165dBm tracking sensitivity 29 second cold start TTFF 3.5 second TTFF with AGPS 1 second hot start 2.5m accuracy Multipath detection and suppression Jamming detection and mitigation SBAS (WAAS / EGNOS) support 67mW full power navigation Works directly with active or passive antenna Internal flash for optional 75K point data logging Supports external SPI flash memory data logging Complete receiver in 10mm x 10mm x 1.3mm size Contains LNA, SAW Filter, TCXO, RTC Xtal, LDO Single 2.7-3.3V supply Dimensions: 1.15 x 0.7 inches		
42	42	Blue tooth module	Bluetooth protocal: Bluetooth Specification v2.0+EDR • Frequency: 2.4GHz ISM band • Modulation: GFSK(Gaussian Frequency Shift Keying) • Emission power: ≤4dBm, Class 2 • Sensitivity: ≤-84dBm at 0.1% BER • Speed: Asynchronous: 2.1Mbps(Max) / 160 kbps, Synchronous: 1Mbps/1Mbps • Security: Authentication and encryption • Profiles: Bluetooth serial port • Power supply: +3.3VDC 50mA • Working temperature: -20 ~ +75 Centigrade • Dimension: 26.9mm x 13mm x 2.2 mm		

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"Establishment of Fab Lab at BAU" (CP-5902)
BAU, Mymensingh-2202

Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
43	43	Rf Transmitter Receiver	Transmitter: JMR-TX1 Operating voltage: 3-12V Operating frequency:433MHZ Transmission distance:300-500m Operating temperature :-20℃~60℃ Dimensions:11*16*5.5mm Input signal :TTL level Modulation system :ASK modulate rate:3KB/S frequency stability:±75KHZ Transmitted Power : ≥10mw Pins :4 Receiver Specs: Receiver:RXB6 Working voltage: 5.0VDC +0.5V Working current: ≤2.5mA (5.0VDC) Working principle: superheterodyne Working method: OOK/ASK Operating frequency: 433MHz		
44	44	Wi-Fi Module	• 802.11 b/g/n • Wi-Fi Direct (P2P), soft-AP • Integrated TCP/IP protocol stack • Integrated TR switch, balun, LNA, power amplifier and matching network • Integrated PLLs, regulators, DCXO and power management units • +19.5dBm output power in 802.11b mode • Power down leakage current of <10uA • 1MB Flash Memory • Integrated low power 32-bit CPU could be used as application processor • SDIO 1.1 / 2.0, SPI, UART • STBC, 1×1 MIMO, 2×1 MIMO • A-MPDU & A-MSDU aggregation & 0.4ms guard interval • Wake up and transmit packets in < 2ms • Standby power consumption of < 1.0mW (DTIM3)		

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BAU, Mymensingh-2202

Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
45	45	4 Channel 5v Realy	• Rated coil Voltage: 5V DC • Operating Frequency: 50/60HZ • Nominal Current: 10A AC, 10A at 28V DC • Maximum Switching Voltage: 250V AC, 28V DC. • Power Required by the board: Vcc= 5V DC (For relay coils), 5V DC (For energizing every relay individually)		
46	46	LCD Module	Pin: 16 Pin Resolution LCD: 20x4 resolution LCD		
47	47	7 Segment Display	Configuration:Common Cathode Dimension:0.75'x0.5'		
48	48	Dot Matrix Display(Bi-Color)	2.379"x2.379" bi-colour DOT Matrix.Colour:Red and Green.		
49	49	Brushless Motor	• Rpm/V: 1400kv • Shaft: 3.17mm • Voltage: 2S~3S (7.4v to 11.1v) • Weight: 50g • Watts: 205w • Max Current: 21A • ESC: 40A • Suggested Prop: 7x4(3S) ~ 9x4.7 (2S) • Mounting Hole Bolt Circle: 16mm or 19mm		
50	50	Turnigy AE-20A Brushless ESC	Output: Continuous 20A, burst 25A up to 10 seconds. Input Voltage: 2-4 cells lithium battery or 5-12 cells NIMH battery. BEC: Linear 2A @ 5V Control Signal Transmission: Optically coupled system. Max Speed: 2 Pole: 210,000rpm 6 Pole: 70,000rpm 12 Pole: 35,000rpm Size: 50mm (L) * 26mm (W) * 12mm (H). Weight: 19g.		

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Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
51	51	Turnigynano-tech 6000mah	• Capacity: 6000mAh • Voltage: 2S1P / 2 Cell / 7.4V • Discharge: 25C Constant / 50C Burst • Weight: 333g (including wire, plug & case) • Dimensions: 155x49x20mm • Balance Plug: JST-XH • Discharge Plug: 4mm Bullet-connector		
52	52	LDR	Light Dependent Resistor		
53	53	LM35 Temperature Sensor	Calibrated Directly in Celsius (Centigrade) • Linear + 10-mV/°C Scale Factor • 0.5°C Ensured Accuracy (at 25°C) • Rated for Full −55°C to 150°C Range • Suitable for Remote Applications • Low-Cost Due to Wafer-Level Trimming • Operates From 4 V to 30 V • Less Than 60-µA Current Drain • Low Self-Heating, 0.08°C in Still Air • Non-Linearity Only ±¼°C Typical • Low-Impedance Output, 0.1 Ω for 1-mA Load		
54	54	Force Sensitive Resistor 0.5"	• Overall length: 2.375" • Overall width: 0.75" • Sensing diameter: 0.5"		
55	55	Humidity Sensor Module	Input voltage range : DC 5.0±0.2V Output voltage range : DC 1-3.19V Measurement Accuracy : ±5% RH Operating Current (Maximum) : 2mA		
56	56	Gas Sensor	• Circuit voltage :5V±0.1 • Heating voltage :5V±0.1 • Load resistance: can adjust • Heater resistance :33Ω±5% • Heating consumption: less than 800mw		
57	57	Grove - Moisture Sensor	Voltage: 3.3-5V Current: 0-35mA Output Value: 1.Sensor in dry soil 0-300 2. Sensor in humid soil 300-700 3. Sensor in water 700-950		

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<table>
<tr><th>Sl no</th><th>Item no</th><th>Description of Items</th><th>Full Technical Specification and Standards</th><th>Country of Origin</th><th>Make and Model</th></tr>
<tr><td>58</td><td>58</td><td>SMD IR Sensor</td><td>
<table>
<tr><td rowspan="3">Input</td><td>Parameter</td><td>Symbol</td><td>Ratings</td><td>Unit</td></tr>
<tr><td>Power Dissipation at (or below) 25 C Free Air Temperature</td><td>Pd</td><td>75</td><td>mW</td></tr>
<tr><td>Reverse Voltage</td><td>V_R</td><td>5</td><td>V</td></tr>
<tr><td></td><td>Peak Forward Current (*1) Pulse width ≦ 100μs, Duty cycle =1%</td><td>I_{FP}</td><td>1</td><td>A</td></tr>
<tr><td rowspan="3">Out put</td><td>Collector Power Dissipation</td><td>P_c</td><td>75</td><td>mW</td></tr>
<tr><td>Collector Current</td><td>I_c</td><td>50</td><td>mA</td></tr>
<tr><td>Collector-Emitter Voltage</td><td>B V_{CEO}</td><td>30</td><td>V</td></tr>
<tr><td></td><td>Emitter -Collector Voltage</td><td>B V_{CEO}</td><td>5</td><td>V</td></tr>
<tr><td colspan="2">Operating Temperature</td><td>T_{OPR}</td><td>-25~+85</td><td>°C</td></tr>
<tr><td colspan="2">Storage Temperature</td><td>T_{stg}</td><td>-30~+90</td><td>°C</td></tr>
<tr><td colspan="2">Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)</td><td>T_{sol}</td><td>260</td><td>°C</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>59</td><td>59</td><td>Digital Thermometer</td><td>• Voltage Range on Any Pin Relative to Ground:-0.5V to +6.0V
• Operating Temperature Range : -55°C to +125°C
• Storage Temperature Range : -55°C to +125°C</td><td></td><td></td></tr>
<tr><td>60</td><td>60</td><td>Color Sensor</td><td>1. Convert intensity of red, green, blue colors to voltages.
2. Independent gain selection options for each R,G,B channel (smaller pot)
3. Overall gain selection option (bigger pot)
4. Supply Voltage: 5VDC
5 . Maximum output voltage swing: 4V
6. Strong support for the sensor.</td><td></td><td></td></tr>
<tr><td>61</td><td>61</td><td>PIR Sensor</td><td>1. Digital output: 3.3v High/Low TTL
2. Working voltage: 5V-20V DC Effective angle: < 120°
3. Ranging distance : 3-7M (adjustable)
4. Delay: 0.3s - 18s (adjustable)
5. Trigger: H repeatable (default), L unrepeatable.</td><td></td><td></td></tr>
<tr><td>62</td><td>62</td><td>Solar Panel</td><td>Size: 53*30*3mm</td><td></td><td></td></tr>
</table>

Sl no	Item no	Description of Items	Full Technical Specification and Standards	Country of Origin	Make and Model
63	63	Ultra Sound Sensor	Power Voltage: 5V Output Level: High 5V Output Level: Low 0V Maximum Sensing Distance:1.5 Feet		
64	64	Grove - 3-Axis Digital Accelerometer	• Working voltage: 3.0 - 5.5V • Off Mode Current: 0.4μA • Standby Mode Current: 2μA • Active Mode Current: 47 μA at 1 ODR • Test Range: ±1.5g • Sensitivity: 21LSB/g • Suli-compatible Library		
65	65	Microcontroller	ATmega8A, PIC18F452, Atmega32A, ATmega328P chip with Arduino Bootloader, atmega8A(SMD), PIC18F2550, ATtiny45, PIC18F4550, ATTiny85 (SMD), PIC16F876A(SMD), ATmega3290A, PIC16F628A (SMD) , PIC16F877A		
66	66	IC	NE555, LM358,ULN2003, LM386, 3843, LM318, 7611, 7404, 7408, CD4017, HT12E,7402, 74595, 7432, 4094,4051,7411,7400, 4081, 4071, CD4016, 74273, 4001,CD4046, 7476, 4050, MAX7219, 74169,DAC0800, 4007,CD4040,ADCO804.		
67	67	Rotary Attachment For Laser Cutter	fourth axis to rotate your object 360° The minimum/maximum diameter and length of the working object is 90/180mm and 450mm respectively maximum weight should not exceed 4kgs		
68	68	DC 12V Solenoid Electric Door Lock	Voltage: 12VDC Current: 0.8A Size:54*41mm (L*W) Latch telescopic length: 10mm Energized forms: intermittent; Unlocking time: 1S continuously energized <10S; Temperature: -40 C ~ +50 C		

I/We declare to supply Goods and related services offered by me/us fully in compliance with the Technical Specifications and Standards mentioned hereinabove

Signature of Quotationer with Seal	Date: dd/mm/yy
Name of Quotationer	

Professor Dr. Md. Jasimuddin Khan
Fab Lab Sub Project Manager (FLSM)
"Establishment of Fab Lab at BAU" (CP-5002)"
BAU, Mymensingh-2202

"Establishment of Community Based Fab Lab at BAU to Promote Innovations and Entrepreneurship (CP-5002)."
Bangladesh Agricultural University, Mymensingh-2202

PURCHASE ORDER FOR THE Package: G6 (Supply and testing of Raw materials and Spares for Fab Lab machines)

Purchase Order No._____ **Date: dd/mm/yy**

RFQ No: UGC/HEQEP/BAU/CP-5002/Procurement/G6-2018	**Date: dd/mm/yy**
To: [name and address of the Supplier]	
Delivery Date: [insert completion date]	**Order Value: TK.** [insert Contract Price]
Delivery: As per Terms and Conditions	

The Purchaser has accepted your Quotation dated [insert date] for the supply of Goods and related services as listed below and requests that you supply the Goods and related services within the delivery date stated above, in the quantities and units in conformity with the Technical Specifications under the Terms and Conditions as annexed.

ORDER ITEMS
Attached Certified photocopy of approved Priced Schedule for Goods and related services Attached Certified photocopy of approved Technical Specification of the Goods Required Attached Certified photocopy of Terms and Conditions
For the Purchaser: Name: Professor Dr. Md. Jasimuddin Khan Designation: Fab Lab Sub Project Manager (CP- 5002) Bangladesh Agriculture University, Mymensingh-2202
Date: .....

Attachments: As stated above

Professor Dr. Md. Jasimuddin Khan
Fab Lab Sub Project Manager (FLSM)
Establishment of Fab Lab at BAU (CP-5002)
BAU, Mymensingh-2202

Terms and Conditions
for
Supply of Goods and Payment

1. Terms and Conditions contained herein shall be binding upon both the Procuring Entity and the Supplier for the purpose of administration and management of this Contract.

2. Implementation and interpretation of these Terms and Conditions shall, in general, be under the purview of the Public Procurement Act, 2006 and the Public Procurement Rules, 2008.

3. The Supplier shall have to complete the delivery in all respects within **15 days** of issuing the Purchase Order in conformity with the Terms and Conditions.

4. The Supplier shall be entitled to an extension of the Delivery Schedule if the Procuring Entity delays in receiving the Goods and related services or if Force Majeure situation occurs or for any other reasons acceptable to the Procuring Entity on justifiable grounds duly recorded.

5. All delivery under the Contract shall at all times be open to examination, inspection, measurements, testing, commissioning, and supervision of the Procuring Entity or his/her authorized representative.

6. The Procuring Entity shall check and verify the delivery made by the Supplier in conformity with the Technical Specifications and notify the Supplier of any Defects found.

7. If the Goods are found to be defective or otherwise not in accordance with the specifications, the Procuring Entity may reject the supplies by giving due notice to the Supplier, with reasons.

8. The Supplier shall be entirely responsible for payment of all taxes, duties, fees, and such other levies under the Applicable Law.

9. Notwithstanding any other practice, the payment shall be based on the actual delivery of goods on the basis of the quantity of each item of Goods in accordance with the Priced Schedule and Specifications. 100% of the Contract price of the Goods and related services shall be paid after submission and acceptance of the Delivery Chalan.

10. The Supplier's rates or prices shall be inclusive of profit and overhead and, all kinds of taxes, duties, fees, levies, and other charges to be paid under the Applicable Law.

11. The total Contract Price is BDT **[insert figure] [in words].**

12. The Procuring Entity shall retain or in other words deduct from the Payment due to the Supplier, at the rate of **5 (five) percent** of the contract price as security Deposit and kept it until expiration of the Warranty Period.

13. The minimum Warranty Period of the Supplies shall be **[12 month]** starting from the date of completion of delivery in the form of submission by the Supplier and acceptance by the Procuring Entity, of the Delivery Chalan.

14. The Security deposit shall be returned to the Supplier within twenty one (21) days after expiry of the Warranty Period.

15. The Supplier shall remain liable to fulfil the obligations pursuant to Rule 40 (5) of the Public Procurement Rules, 2008.

16. The Supplier shall keep the Procurement Entity harmless and indemnify from any claim, loss of property or life to himself/herself, his/her workmen or staff, any staff of the Procurement Entity or any third party while delivering the Goods and related services .

17. Any claim arising out of delivery of Goods and related services shall be settled by the Supplier at his/her own cost and responsibility.

18. Damage to the Goods during the Warranty Period shall be remedied by the Supplier at the Supplier's own cost, if the damage arises from the supply and installation by the Supplier.

19. No modification to Scope of Supply and no Variations to the quantities ordered shall be permissible under any circumstances.

20. The Procuring Entity contracting shall amend the Contract incorporating required approved changes subsequently introduced to the original Terms and Conditions in line with Rules, where necessary.

21. The Procuring Entity may, by written Notice sent to the Supplier, terminate the Contract in whole or in part at any time, if the Supplier:

    a. fails to deliver Goods and related services as per Delivery Schedule and Specifications.
    b. in the judgement of the Procuring Entity, has engaged in any corrupt, fraudulent, collusive or coercive practices in competing for or in delivery of goods and related services.
    c. fails to perform any other obligation(s) under the Contract.

22. The Procuring Entity and the Supplier shall use their best efforts to settle amicably all possible disputes arising out of or in connection with this Contract or its interpretation.

23. The Supplier shall be subject to, and aware of provision on corruption, fraudulence, collusion and coercion in Section 64 of the Public Procurement Act, 2006 and Rule 127 of the Public Procurement Rules, 2008.

For the Purchaser:	**For the Supplier:**
Signature of the Procuring Entity with name and Designation Name: Professor Dr. Md. Jasimuddin Khan Designation: Fab Lab Sub Project Manager (CP- 5002) Bangladesh Agriculture University, Mymensingh-2202	Signature of the Supplier with name Designation
Date	Date

Professor Dr. Md. Jasimuddin Khan
Fab Lab Sub Project Manager (FLSM)
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