



## TERMS AND CONDITIONS

**[All pages (BoQs & Terms & Conditions) are mandatory to be signed /stamped, Rates should be quoted on our prescribed format, failing which the bid may be rejected]**

1. The contract will be executed and handed over in satisfactory conditions up to the entire satisfaction of COMSATS Institute of Information Technology, Lahore Campus.
2. Documents along with Pay Order / Demand Draft amounting **Rs. 1000/-** as a tender documents fee (Non-Refundable) in favor of COMSATS Institute of Information Technology, Lahore to the address given below. No bid will be accepted without tender documents' fee.
3. Part / Advance payments is not allowed.
4. The exact completion/delivery time from the date of the purchase / work order will be **90 days**. The handing over / completion time for this contract is of critical importance.
5. Any addition, deletion or modification of any clause of the procurement terms & conditions of CIIT by any vendor will not be acceptable and may lead to rejection of the bid.
6. The bid proposal should be inclusive of freight and all taxes delivered at COMSATS Institute of Information Technology, Lahore Campus's premises.
7. COMSATS Institute of Information Technology, Lahore Campus, will follow the PPRA rule of **single stage two envelope procedure**:
  - i. The bid shall comprise a single package containing **two separate envelopes**. Each envelope shall contain separately the **financial proposal** and the **technical proposal**;
  - ii. The envelopes shall be marked as **"FINANCIAL PROPOSAL"** and **"TECHNICAL PROPOSAL"** in bold and legible letters to avoid confusion;
  - iii. Initially, only the envelope marked **"TECHNICAL PROPOSAL"** shall be opened;
  - iv. The envelope marked as **"FINANCIAL PROPOSAL"** shall be retained in the custody of the procuring agency without being opened;
  - v. The procuring agency shall evaluate the technical proposal in a manner prescribed in advance, without reference to the price and reject any proposal which does not conform to the specified requirements;
  - vi. During the technical evaluation no **amendments** in the technical proposal shall be permitted;
  - vii. The financial proposals of bids shall be opened publicly at a time, date and venue announced and communicated to the bidders in advance;
  - viii. After the evaluation and approval of the technical proposal the procuring agency, shall at a time within the bid validity period, publicly open the financial proposals of the technically accepted bids only. The financial proposal of bids  
**Signature of Contractor with Stamp**

- found technically nonresponsive shall be returned un-opened to the respective bidders;
- ix. and
- x. The bid found to be the lowest evaluated bid shall be accepted.
8. Bidders who do not qualify cannot challenge the finding of the evaluation.
9. The bids should be submitted in a sealed envelope up to 17-12-2014 on or before 14:00 hrs and will be opened on the same date at 14:30 hrs in the presence of available bidders.
10. The envelope should be marked as under.

**Manager Purchase**

**COMSATS Institute of Information Technology, Lahore Campus.**

Defence Road, Off Raiwind Road, Lahore.

Tel: 042-111-001-007, Ext: 875

11. The envelope shall also bear the word "**CONFIDENTIAL**" and following identification quotation of "**Lab Equipment for Computer Science Department**".
12. The bid form (Annex-I) must be duly filled in, stamped and signed by the authorized representative of the bidder.
13. If the vendors fail to deliver the order in time then the vendor will be charged penalty as under:-
- 1% per day of the invoice price for 5 working days.
  - 2% per day of the invoice price for further 5 working days.
  - If the vendor fail to deliver the items during the extended then the supply order may be cancelled, earnest money and payment may be forfeited.
14. All prices should be quoted **F.O.R (Pak Rupees)**.
15. All prices should be valid for at least **120 days**. Withdrawal or any modification of the original offer within the validity period shall entitle CIIT to forfeit the earnest money in favor of the CIIT and / or put a ban on such vendor participation in CIIT tenders / works.
16. It is the sole responsibility of the agent / supplier / manufacturer to comply with the applicable laws, be national or international.
17. In case of any dispute, decision of the Director CIIT-Lahore, will be final and binding upon the parties.
18. The CIIT-Lahore reserves the right to modify equipment specifications/quantities at any time before the award of work.
19. The bidder is required to furnish in form of Bank deposit /C.D.R / Pay order equivalent to **2%** of the total Bid price as Earnest Money crossed in favor of "COMSATS Institute of Information Technology, Lahore Campus". Any bid not accompanied by Earnest Money shall be rejected without any right of appeal.
20. Warranty will be on the part of supplier, which is **One Year onsite Warranty** after the completion of supply / work.
21. **05%** of the total value of the Invoice will be retained for **One Year** as security by COMSATS Institute of Information Technology, Lahore Campus, and will be released after the completion of warranty period, which will start from the date of completion of work

**Signature of Contractor with Stamp**

22. COMSATS Institute of Information Technology, Lahore Campus, reserves the rights to accept or reject any or all bids without assigning any reason whatsoever.

**No offer of a supplier/firm will be considered if: -**

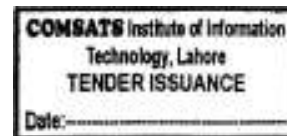
- i. Received without earnest money
- ii. Received later than the date and time fixed for tender submission
- iii. The tender is unsigned/ unstamped
- iv. The offer is ambiguous
- v. The offer is conditional
- vi. The offer is from a firm, which is black listed, by any Govt. Office.
- vii. The offer is received by telephone/telex/fax.
- viii. Any unsigned / ambiguous erasing, cutting / overwriting etc. is made.

23. The tendered should furnish a certificate as worded below in token of acceptance of all the terms and conditions of the tender. Otherwise the tender will not be considered under any circumstances.

I/ We

- Company / Vendor Name:.....
- Postal Address:.....
- Tel. / Mobile:.....Email:.....
- NTN # :.....GST#:.....

the undersigned certify that the terms and conditions as contained in the documents vise,  
“ Terms and Conditions for Tender Notice of COMSATS Institute of Information  
Technology, Lahore are accepted and that in the event of selection of my/our rate the  
agreement in the prescribed form will be entered into.



**Signature of Contractor with Stamp**

**BoQs of Lab Equipment for Computer Science Department, CIIT Lahore**

					<b>Rates to be quoted in Pak. Rs. Inclusive of all taxes</b>	
Sr .#	Item Category	Item Name	Specification (Given Brand or Equivalent, and with at least 1 year onsite warranty)	Qty	Unit Price (Rs.)	Total Price (Rs.)
<b>1</b>	<b>Product A : Differential Drive 2 WD Small</b>	2WD ARDUINO COMPATIBLE MOBILE PLATFORM or equivalent	1×black platform, 2×High quality elastic rubber tire, 2×Mini DC geared motor, 1×Aluminum alloy DC geared motor mount bracket, 1×Power switch, 1×Aluminum alloy leading wheel, 1×Leading wheel height adjustment board, 4×Standoff, 8×Screw for mounting, Dimensions: 6.30in x 4.72in x 3.94in.	1 No		
		ARDUINO UNO R3_A0005 or Equivalent	The Arduino ADK is a microcontroller board based on the ATmega2560. It has a USB host interface to connect with Android based phones, based on the MAX3421e IC. It has 54 digital input/output pins (of which 14 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button.	1 No		
		Male to Male Wires	-	30 Nos		
		Female-Female wires	-	20 Nos		
		Li-Po 2S 7.4V 200mAh	Battery	1 No		
		Xbee-s2 or equivalent	This is the XBee XB24-Z7WIT-004 module from Digi. Series 2 improves on the power output and data protocol. Series 2 modules allow you to create complex mesh networks based on the XBee ZB ZigBee mesh firmware. These modules allow a very reliable and simple communication between microcontrollers, computers, systems, really anything with a serial port! Point to point and multi-point networks are supported. These are essentially the same hardware as the older Series 2.5, but have updated firmware. They will work with Series 2.5 modules if you update the firmware through X-CTU.	2 Nos		

**Signature of Contractor with Stamp**

		Xbee-Doongle Or equivalent	This is the XBee Explorer Dongle unit for the XBee line. With the XBee Explorer dongle you can now plug the unit directly into your USB port. No cables needed! This unit works with all XBee modules including the Series 1 and Series 2.5, standard and Pro version. The on-board voltage regulator is good up to 500mA.	1 No			
		Xbee Breakout Boards Or equivalent	This is a simple breakout board for the popular XBee product from Digi. This board breaks out all 20 pins of the XBee to a 0.1" standard spacing dual row header. The spacing between 0.1" headers is 0.5" making it breadboard DIP friendly. We highly recommend using the female sockets to avoid having to solder the XBee permanently to the breakout board. This is the PCB only	1 No			
		Alligator Clips	Length: 50cm; 2 alligator clip in each leads	2 Nos			
		Breadboards	-	1 No			
		H-Bridge	This dual bidirectional motor driver is based on the very popular L298 Dual H-Bridge Motor Driver Integrated Circuit. The circuit will allow you to easily and independently control two motors of up to 2A each in both directions. It is ideal for robotic applications and well suited for connection to a microcontroller requiring just a couple of control lines per motor.	1 No			
		Bluetooth Module	HC-05 Bluetooth RF Transceiver Module (Master / Slave)	1 No			
		<b>Subtotal</b>					
2	<b>Product B: Differential Drive 4 WD Small</b>	4 wheel robot base - 4WD Off-Road Robot Chassis Platform _A0298 or euqivalent	Size: 270*225*140mm, Square base plate size: 165*160mm ,Tire diameter: 66mm, Base plate height from ground: 65mm, Material: 3mm acrylic ,With many reserved install holes for modules,Voltage: DC6V, Speed: 10m/ mins, Loading: 2kg	1 No			
		Arduino Mega 2560 or equivalent	Component box*1, MEGA 2560 R3 *1, MYB-120 breadboard*1, red/blue/yellow LED lighting*5, resistor 200 ohm *8 , 1K*5 , 10K* 5., wires*30, USB cable*1, potentionmeter*1, digital tube*1, source buzz*1, non-source buzz*1, button*4, photoreponse *2, Tilt switch*2, flame sensor.	1 No			
		Male to Male Wires	-	35 Nos			
		Female-Female wires	-	35 Nos			

Signature of Contractor with Stamp

Li-Po 2S 7.4V 200mAh or Equivalent	Battery	1 No		
Xbee-s2 or equivalent	This is the XBee XB24-Z7WIT-004 module from Digi. Series 2 improves on the power output and data protocol. Series 2 modules allow you to create complex mesh networks based on the XBee ZB ZigBee mesh firmware. These modules allow a very reliable and simple communication between microcontrollers, computers, systems, really anything with a serial port! Point to point and multi-point networks are supported. These are essentially the same hardware as the older Series 2.5, but have updated firmware. They will work with Series 2.5 modules if you update the firmware through X-CTU.	2 Nos		
Xbee-Doongle Or equivalent	This is the XBee Explorer Dongle unit for the XBee line. With the XBee Explorer dongle you can now plug the unit directly into your USB port. No cables needed! This unit works with all XBee modules including the Series 1 and Series 2.5, standard and Pro version. The on-board voltage regulator is good up to 500mA.	1 No		
Xbee Breakout Boards Or equivalent	This is a simple breakout board for the popular XBee product from Digi. This board breaks out all 20 pins of the XBee to a 0.1" standard spacing dual row header. The spacing between 0.1" headers is 0.5" making it breadboard DIP friendly. We highly recommend using the female sockets to avoid having to solder the XBee permanently to the breakout board. This is the PCB only	1 No		
H-Bridge	This dual bidirectional motor driver is based on the very popular L298 Dual H-Bridge Motor Driver Integrated Circuit. The circuit will allow you to easily and independently control two motors of up to 2A each in both directions. It is ideal for robotic applications and well suited for connection to a microcontroller requiring just a couple of control lines per motor.	2 Nos		
IP Camera	D Link or equivalent Wireless IP Camera	1 No		
Breadboards	-	1 No		
<b>Subtotal</b>				

**Signature of Contractor with Stamp**

3	<b>Product C: Differential Drive 4 WD Big (with Kinect and Laptop)</b>	4 wheel robot base - 4WD Off-Road Robot Chassis Platform _A0298 or equivalent	Size: 270*225*140mm, Square base plate size: 165*160mm ,Tire diameter: 66mm, Base plate height from ground: 65mm, Material: 3mm acrylic ,With many reserved install holes for modules,Voltage: DC6V, Speed: 10m/ mins, Loading: 2kg	1 No		
		Male to Male Wires	-	35 Nos		
		Female-Female wires	-	35 Nos		
		Li-Po 3S 11.1V 5Ah or equivalent	Battery	1 No		
		Voltage Regulatorsv - Type 1	6V 3A UBEC 2-5S LIPOLY (6-23V)• Input: 6V-23V (2-5S Lipoly, 2-6S Li-Fe or 5-15S NiXX Battery Pack)• Output: 6V/3A (Less than 50mV peak to peak voltage @ 2A) • Dimension: 22.9mm x 20.3mm x 7.6mm (LxWxH)• Weight: 9.1g (wires included)	1 No		
		Kinect + Kinect Power Supplies	An RGB camera, an infrared emitter and infrared depth sensor, a multi array micro phone which contains four microphones for capturing sound, a 3-axis accelerometer configured for a 2G range.	1 No		
		Arduino Mega 2560 or equivalent	Component box*1, MEGA 2560 R3 *1, MYB-120 breadboard*1, red/blue/yellow LED lighting*5, resistor 200 ohm *8 , 1K*5 , 10K* 5., wires*30, USB cable*1, potentionmeter*1, digital tube*1, source buzz*1, non-source buzz*1, button*4, photoreponse *2, Tilt switch*2, flame sensor.	1 No		
		Alligator Clips	Length: 50cm; 2 alligator clip in each leads	6 Nos		
		H-Bridge	This dual bidirectional motor driver is based on the very popular L298 Dual H-Bridge Motor Driver Integrated Circuit. The circuit will allow you to easily and independently control two motors of up to 2A each in both directions. It is ideal for robotic applications and well suited for connection to a microcontroller requiring just a couple of control lines per motor.	2 Nos		
		Breadboards	-	1 No		
<b>Subtotal</b>						
4	<b>Product D: Differential Drive 4 WD Big (with Kinect and SBC)</b>	4 wheel robot base - 4WD Off-Road Robot Chassis Platform _A0298 or equivalent	Size: 270*225*140mm, Square base plate size: 165*160mm ,Tire diameter: 66mm, Base plate height from ground: 65mm, Material: 3mm acrylic ,With many reserved install holes for modules,Voltage: DC6V, Speed: 10m/ mins, Loading: 2kg	1 No		

Signature of Contractor with Stamp

Male to Male Wires	-	35 Nos		
Female-Female wires	-	35 Nos		
Li-Po 3S 11.1V 5Ah or Equivalent	Battery	1 No		
Voltage Regulatorsv - Type 1	<p>6V 3A UBEC 2-5S LIPOLY (6-23V)</p> <ul style="list-style-type: none"> <li>• Input: 6V-23V (2-5S Lipoly, 2-6S Li-Fe or 5-15S NiXX Battery Pack)</li> <li>• Output: 6V/3A (Less than 50mV peak to peak voltage @ 2A)</li> <li>• Dimension: 22.9mm x 20.3mm x 7.6mm (LxWxH)</li> <li>• Weight: 9.1g (wires included)</li> </ul>	1 No		
Xbee-s2 or equivalent	<p>This is the XBee XB24-Z7WIT-004 module from Digi. Series 2 improves on the power output and data protocol. Series 2 modules allow you to create complex mesh networks based on the XBee ZB ZigBee mesh firmware. These modules allow a very reliable and simple communication between microcontrollers, computers, systems, really anything with a serial port! Point to point and multi-point networks are supported.</p> <p>These are essentially the same hardware as the older Series 2.5, but have updated firmware. They will work with Series 2.5 modules if you update the firmware through X-CTU.</p>	1 No		
Xbee-Doongle Or equivalent	<p>This is the XBee Explorer Dongle unit for the XBee line. With the XBee Explorer dongle you can now plug the unit directly into your USB port. No cables needed! This unit works with all XBee modules including the Series 1 and Series 2.5, standard and Pro version. The on-board voltage regulator is good up to 500mA.</p>	1 No		
Xbee Breakout Boards or equivalent	<p>This is a simple breakout board for the popular XBee product from Digi. This board breaks out all 20 pins of the XBee to a 0.1" standard spacing dual row header. The spacing between 0.1" headers is 0.5" making it breadboard DIP friendly. We highly recommend using the female sockets to avoid having to solder the XBee permanently to the breakout board. This is the PCB only</p>	1 No		
Kinect + Kinect Power Supplies	<p>An RGB camera, an infrared emitter and infrared depth sensor, a multi array microphone which contains four microphones for capturing sound, a 3-axis accelerometer configured for a 2G range.</p>	1 No		

**Signature of Contractor with Stamp**



Arduino Mega 2560 or equivalent	Component box*1, MEGA 2560 R3 *1, MYB-120 breadboard*1, red/blue/yellow LED lighting*5, resistor 200 ohm *8 , 1K*5 , 10K* 5., wires*30, USB cable*1, potentionmeter*1, digital tube*1, source buzz*1, non-source buzz*1, button*4, photoreponse *2, Tilt switch*2, flame sensor.	1 No		
Alligator Clips	Length: 50cm; 2 alligator clip in each leads	6 Nos		
H-Bridge	This dual bidirectional motor driver is based on the very popular L298 Dual H-Bridge Motor Driver Integrated Circuit. The circuit will allow you to easily and independently control two motors of up to 2A each in both directions. It is ideal for robotic applications and well suited for connection to a microcontroller requiring just a couple of control lines per motor.	2 Nos		
Breadboards	-	1 No		
Raspberry Pi Camera or equivalent	This 5mp camera module is capable of 1080p video and still images and connects directly to your raspberry pi. Connect the included ribbon cable to the CSI (Camera Serial Interface) port on your Raspberry Pi, boot up the latest version of Raspbian. The board itself is tiny, at around 25mm x 20mm x 9mm and weighing in at just over 3g, making it perfect for mobile or other applications where size and weight are important. The sensor has a native resolution of 5 megapixel, and has a fixed focus lens onboard. In terms of still images, the camera is capable of 2592 x 1944 pixel static images, and also supports 1080p30, 720p60 and 640x480p60/90 video.	1 No		
Raspberry Pi (SBC) or equivalent	RASPBERRY PI 512 MB - MODEL B or equivalent	1 No		
Raspberry Pi Expansion Set or Equivalent	DVK511 is a piece of raspberry pie of foreign expansion board, it comes with a rich expansion interface, supports all types of access to peripheral modules	1 No		
HDMI TO VGA Converter or RASPBERRY PI_A0255 or equivalent	HDMI TO VGA Converter or RASPBERRY PI_A0255 or equivalent	1 No		
Micro USB Charger	-	1 No		

**Signature of Contractor with Stamp**

		Memory SD Card	16 GB	1 NO		
		<b>Subtotal</b>				
<b>5</b>	<b>Product E: Holonomic Drive Robot 4WD</b>	4 wheel robot base - 4WD Off-Road Robot Chassis Platform _A0298 or equivalent	Size: 270*225*140mm, Square base plate size: 165*160mm ,Tire diameter: 66mm, Base plate height from ground: 65mm, Material: 3mm acrylic ,With many reserved install holes for modules,Voltage: DC6V, Speed: 10m/ mins, Loading: 2kg	1 No		
		Male to Male Wires	-	35 Nos		
		Female-Female wires	-	35 Nos		
		Li-Po 3S 11.1V 5Ah or equivalent	Battery	1 No		
		Voltage Regulatorsv - Type 1	6V 3A UBEC 2-5S LIPOLY (6-23V) • Input: 6V-23V (2-5S Lipoly, 2-6S Li-Fe or 5-15S NiXX Battery Pack) • Output: 6V/3A (Less than 50mV peak to peak voltage @ 2A) • Dimension: 22.9mm x 20.3mm x 7.6mm (LxWxH) • Weight: 9.1g (wires included)	2 Nos		
		Kinect + Kinect Power Supplies or equivalent	An RGB camera, an infrared emitter and infrared depth sensor, a multi array micro phone which contains four microphones for capturing sound, a 3-axis accelerometer configured for a 2G range.	1 No		
		Arduino Mega 2560 or equivalent	Component box*1, MEGA 2560 R3 *1, MYB-120 breadboard*1, red/blue/yellow LED lighting*5, resistor 200 ohm *8 , 1K*5 , 10K* 5., wires*30, USB cable*1, potentionmeter*1, digital tube*1, source buzz*1, non-source buzz*1, button*4, photoreponse *2, Tilt switch*2, flame sensor.	1 No		
		Alligator Clips	Length: 50cm; 2 alligator clip in each leads	6 Nos		
		H-Bridge	This dual bidirectional motor driver is based on the very popular L298 Dual H-Bridge Motor Driver Integrated Circuit. The circuit will allow you to easily and independently control two motors of up to 2A each in both directions. It is ideal for robotic applications and well suited for connection to a microcontroller requiring just a couple of control lines per motor.	2 Nos		

**Signature of Contractor with Stamp**

<b>6</b>		Omni Wheels		4 Nos			
		garmotor	2.62" × 1.45" × 1.45" garmotor 12 V: 150 RPM and 300 mA free-run, 200 oz-in (14 kg-cm) and 5 A stall.	4 Nos			
		Breadboards	-	1 No			
		<b>Subtotal</b>					
	<b>Product F: Tank Drive Rover</b>	Tank Drive-Rover 5 Robot Chassis (4WD w/ 4 Encoder) _A0297 or equivalent	Two brushed DC motors with 210 mA free run and 2.4 A stall current at 7.2 V, maximum speed of 10 in/s (25 cm/s) at 7.2 V, ability to scale inclines limited only by friction, height and clearance can be varied by adjusting gearbox angles, version with encoders features two 333 CPR quadrature encoders (one for each track). dimensions: 9.5" × 9" × 3" (24.5 × 22.5 × 7.5 cm) in default configuration, weight: 1.6 lb (0.72 kg)		1 No		
		Male to Male Wires	-	35 Nos			
		Female-Female wires	-	35 Nos			
		Li-Po 3S 11.1V 5Ah or equivalent	Battery	1 No			
		Voltage Regulatorsv - Type 1 or Equivalent	6V 3A UBEC 2-5S LIPOLY (6-23V) • Input: 6V-23V (2-5S Lipoly, 2-6S Li-Fe or 5-15S NiXX Battery Pack) • Output: 6V/3A (Less than 50mV peak to peak voltage @ 2A) • Dimension: 22.9mm x 20.3mm x 7.6mm (LxWxH) • Weight: 9.1g (wires included)	1 No			
		Arduino Mega 2560 or equivalent	Component box*1, MEGA 2560 R3 *1, MYB-120 breadboard*1, red/blue/yellow LED lighting*5, resistor 200 ohm *8 , 1K*5 , 10K* 5., wires*30, USB cable*1, potentionmeter*1, digital tube*1, source buzz*1, non-source buzz*1, button*4, photoreponse *2, Tilt switch*2, flame sensor.	1 No			
Alligator Clips		Length: 50cm; 2 alligator clip in each leads	6 Nos				
H-Bridge or equivalent	This dual bidirectional motor driver is based on the very popular L298 Dual H-Bridge Motor Driver Integrated Circuit. The circuit will allow you to easily and independently control two motors of up to 2A each in both directions. It is ideal for robotic applications and well suited for connection to a microcontroller requiring just a couple of control lines per	1 No					

Signature of Contractor with Stamp

	motor.			
gearmotor	2.62" × 1.45" × 1.45" gearmotor 12 V: 150 RPM and 300 mA free-run, 200 oz-in (14 kg-cm) and 5 A stall.	4 Nos		
Breadboards	-	1 No		
Xbee-s2 or equivalent	This is the XBee XB24-Z7WIT-004 or equivalent module from Digi. Series 2 improves on the power output and data protocol. Series 2 modules allow you to create complex mesh networks based on the XBee ZB ZigBee mesh firmware. These modules allow a very reliable and simple communication between microcontrollers, computers, systems, really anything with a serial port! Point to point and multi-point networks are supported. These are essentially the same hardware as the older Series 2.5, but have updated firmware. They will work with Series 2.5 modules if you update the firmware through X-CTU.	1 No		
Xbee-Doongle Or equivalent	This is the XBee Explorer Dongle unit for the XBee line. With the XBee Explorer dongle you can now plug the unit directly into your USB port. No cables needed! This unit works with all XBee modules including the Series 1 and Series 2.5, standard and Pro version. The on-board voltage regulator is good up to 500mA.	1 No		
Xbee Breakout Boards or equivalent	This is a simple breakout board for the popular XBee product from Digi. This board breaks out all 20 pins of the XBee to a 0.1" standard spacing dual row header. The spacing between 0.1" headers is 0.5" making it breadboard DIP friendly. We highly recommend using the female sockets to avoid having to solder the XBee permanently to the breakout board. This is the PCB only	1 No		
<b>Subtotal</b>				

**Signature of Contractor with Stamp**

7	Misc. Accessories	Distance Sensor	It is a distance measuring sensor, composed of an integrated combination of PSD , IR-LED and signal processing circuit. The variety of the reflectivity of the object, the environmental temperature and the operating duration are not influenced easily. This device outputs the voltage corresponding to the detection distance. So this sensor can also be used as a proximity sensor	12 Nos		
		Voltage Sensor	Voltage input range: DC 0-25V Voltage detection range: DC0.02445V-25V Voltage Analog Resolution: 0.00489V DC input connector: Terminal cathode connected to VCC, GND negative pole Output interface: "+" then 5/3.3V, "-" then GND, "s" then the Arduino AD	4 Nos		
		Compass(Gyro)	Chip: ENC-03RC Op amp: The ENC-03RC (SOT23-5 package, excellent performance) Power supply :3-5v Output mode: analog output Ultra-small size: 10mm * 17.5mm	10 Nos		
		Accelerometers	Chip: ADXL335. Power supply: 3.3-5V. X,Y,Z output.	4 Nos		
		Flame Sensor	Fire Detector Module Red _A0020	1 No		
		IMU Sensors	ARDUPILOT - ARDUINO COMPATIBLE UAV CONTROLLER W/ ATMEGA328	4 Nos		
		ALTITUDE/PRESSURE SENSOR	ALTITUDE/PRESSURE SENSOR - MPL3115A2 BREAKOUT 1.95V to 3.6V Supply Voltage, internally regulated by LDO 1.6V to 3.6V Digital Interface Supply Voltage Fully Compensated internally Direct Reading, Compensated • Pressure: 20-bit measurement (Pascals) • Altitude: 20-bit measurement (meters) • Temperature: 12-bit measurement (degrees Celsius) Programmable Events Autonomous Data Acquisition Resolution down to 1 ft. / 30 cm Ability to log data up to 12 days using the FIFO 1 second to 9 hour data acquisition rate I2C digital output interface (operates up to 400 kHz)	1 No		

**Signature of Contractor with Stamp**

DIGITAL TEMPERATURE SENSOR	DIGITAL TEMPERATURE SENSOR BREAKOUT - TMP102• 12-bit, 0.0625°C resolution• Accuracy: 0.5°C (-25°C to +85°C)• Low quiescent current [10µA Active (max) /1µA Shutdown (max)]• 1.4V to 3.6VDC supply range• Two-wire serial interface	1 No		
STEAM SENSOR	STEAM SENSOR • Power supply: 3.3v or 5v • Output voltage signal: 0~4.5v(@5v) or 0~3.0v(@3.3v) • Pin definition: • Analog output(Blue wire) • GND(Black wire) • Power(Red wire) • Size: 30x20x6mm	1 No		
Camera Mini 1/3 HD Sony 700TVL CCD	Mini 1/3 HD Sony 700TVL CCD or Equivalent	1 No		
Memory SD Card	16 GB	7 Nos		
HDMI to HDMI cable	-	4 Nos		
Micro USB Charger	-	1 Nos		
Kinnect for Windows 2 or Equivalent	Windows 8, Windows 8.1, Windows embedded standard 8.1, Processor: 64-bit (x64), dual core 2.66 GHz or faster processor, RAM : 2GB , Graphics Card: Direct X 11, Port: USB 3	1 Nos		
IP Camera	D Link or Equivalent Wireless IP Camera	3 Nos		
TTL Serial JPEG Camera	TTL Serial JPEG Camera with NTSC Video_A0317 or Equivalent	2 Nos		
Metal Gear Servo Motors or Equivalent	This is essentially an upgraded version of the famous towerpro MG995 servo. It now has a redesigned PCB and IC control system which makes it far more accurate. Its internal gearing and motor are also upgraded to improve dead bandwidth and centering	8 Nos		
Micro Servo Motors	The Tower Pro SG90 mini servo is lightweight, high-quality and lightning-fast. The servo is designed to work with almost all the radio control systems. It is with excellent performance brings you to another horizon of flight. The SG90 mini servo with accessories is perfect for R/C helicopter, plane, car, boat and truck use.	8 Nos		

**Signature of Contractor with Stamp**

Protoshield	MEGA ProtoShield V3 Prototype Shield Gold PCB processing technology, motherboards, small gold square pad spacing, welding components easier. SOP28 SMD component package to be more handy electronics enthusiasts will not be directly insert bound components or equivalent	6 Nos		
Alligator Clips	Length: 50cm; 2 alligator clip in each leads	24 Nos		
Breadboards	-	4 Nos		
Connecting Wires	-	50 Nos		
A Basic Learning kit for Arduino_A0414 or equivalent	1 x UNO, 1 x breakboard, 5 x Red LED, 5 x Yellow LED, 5 x Green LED, 8 x 220 Ohm, 5 x 1K Resistor, 5 x 10K Resistor, 1 x Active buzzer, 1 x Passive buzzer, 4 x Button switch, 2 x Digital tube, 1 x 6 AA Battery holder, 1 x 4 Digital tube, 2 x Ball switch, 3 x Photoresistor, 1 x Adjustable resistance, 1 x Flame sensor, 1 x Infrared receiver, 1 x LM35 sensor, 1 x 74H595, 1 x 8*8 Matrix, 1 x USB cable, 30 x breakboard cable, 1 x Mini remote control.	2 Nos		
Power Supply	Input: 100V - 240V AC, 50 - 60 Hz 0.5A  Output: 9V DC 1000mA  Weight: 121g  Plug: US plug	4 Nos		
HDMI TO VGA Converter or RASPBERRY PI_A0255 or Equivalent	HDMI TO VGA Converter or RASPBERRY PI_A0255	1 No		
Diamond One-Touch Video Capture (VC500) or Equivalent	Diamond One-Touch Video Capture (VC500)	1 No		

**Signature of Contractor with Stamp**

Wire Kit	140 PCS JUMPER WIRE KIT FOR SOLDERLESS BREADBOARD_A0119 or Equivalent  140pcs Solderless Breadboard Jumper Cable Wire Kit Hard Wire with Angled shape 140pcs in the box Color : Mix Color Quantity: 140 pc	8 Nos		
CMOS Camera	CMOS CAMERA MODULE - 728X488	2 Nos		
BeagleBone A6 or equivalent	Board size: 3.4" x 2.1" Shipped with 4 GB microSD card with the Angstrom Distribution with node.js and Cloud9 IDE Single cable development environment with built-in FTDI-based serial/JTAG and on-board Industry standard 3.3V I/Os on the expansion headers with easy-to-use 0.1" spacing On-chip Ethernet, not off of USB 256MB of DDR2 700-MHz super-scalar ARM Cortex™-A8	2 Nos		
1SS99 Diode or Equivalent	The 1SS99 is silicon epitaxial schottky barrier diode, especially designed for Mixing, Log or A/D converting, Video Detecting, Frequency discriminating, Sampling and wave shaping.	50 Nos		
UBEC ( Ultimate Battery Eliminator Circuit	Input: 6V-23V (2-5S Lipoly, 2-6S Li-Fe or 5-15S NiXX Battery Pack) Output: 6V/3A (Less than 50mV peak to peak voltage @ 2A) Dimension: 22.9mm x 20.3mm x 7.6mm (LxWxH) Weight: 9.1g (wires included)	20 Nos		
USB Download Cable	PICAXE oor Equivalent USB download cable can be used with all PICAXE project boards and chip sizes, so purchase once and then use over and over again with all your PICAXE projects. This cable is also included within the starter packs. Compatible with Windows, Mac and Linux. This quality cable is a robust USB to 3.5mm jack plug cable, 1.8m long. The USBserial adapter wizardry, based on an FTDI converter chip, is a tiny miniature circuit securely moulded right inside the rectangular USB connector. This USB cable is a 5V logic level device, so works far better than a 'serial cable + universal USB-RS232 adapter' combination when,	2 Nos		

**Signature of Contractor with Stamp**



	for instance, calibrating touch sensors with the PICAXE software.			
EL Panel	-	3 Nos		
Lego Mindstorms NXT or equivalent	Enables students to build and program real-life robotics solutions. Contains 431 elements including the programmable NXT brick, three inetractive servo motors, ultrasonic, sound, light and two touch sensors, a recharable DC battery, a DC charger, connecting cables and full-color building instructions.	1 No		
Voltage Regulatorsv - Type 2	3.3V 3A UBEC - 2~5S LIPOLY (6-23V) • Input: 6V-23V (2-5S Lipoly, 2-6S Li-Fe or 5-15S NiXX Battery Pack) • Output: 3.3V/3A (Less than 50mV peak to peak voltage @ 2A) • Dimension: 22.9mm x 20.3mm x 7.6mm (LxWxH) • Weight: 5g (w/o wires) or 7.1g (wires included) or Equivalent	5 Nos		
Ardumoto - Motor Driver Shield Retail or Equivalent	Kit Includes: 1 x Ardumoto Shield 2 x Stackable Headers 6-pin 2 x Stackable Headers 8-pin 2 x Screw Terminals 3.5mm Pitch (2-Pin)	2 Nos		
Mechanical tool box	Tweezers, Wire cutters, Screw drivers (medium and small), Needle nose pliers, socket/nut drivers, wrench, screw driver bits (small, medium, large), scissors, tape, testers, carry case	1 No		
Robotic Claw MKII or equivalent	This robotic claw arm is great for all your gripping needs. They are made from metal and are pretty heavy-duty. The claw opens to about 2" and depending on the servo motor used, it can pick up some relatively heavy objects. Because the arms move parallel to each other, you get a better grip.	2 Nos		
Analog Display Arduino Kit _A0413 or Equivalent	Package Included: UNO R3 board*1, I2C1602 LCD*1, Acrylic plate*1, Mini Breadboard*1, Ultrasonic sensors*1,XY joystick module*1, , Soil moisture sensor*1, Water level sensor*1, Temp and humidity sensor*1, Smoke sensor*1, LM35 temp sensor*1, Sound Sensor*1, Triaxial accelerometer*1, Light sensor*1, DuPont line*10, 3PIN sensor wire*5, Pin*1 USB cable*1 Plastic box* 1	2 Nos		

**Signature of Contractor with Stamp**

Light Reflection Module	Chip: TCS230 or Equivalent Input voltage: DC 3V-5V Output frequency voltage: 0 ~ 5V Use bright white LED -light can be connected directly with Microcontroller Static detection of the measured object color Best detection distance: 10mm	5 Nos		
Kingston Data Traveler Data Set Equivalent	16 GB	2 Nos		
Raspberry Pi Expansion Set or Equivalent	DVK511 is a piece of raspberry pie of foreign expansion board, it comes with a rich expansion interface, supports all types of access to peripheral modules	1 Nos		
Raspberry Pi Camera or Equivalent	This 5mp camera module is capable of 1080p video and still images and connects directly to your raspberry pi. Connect the included ribbon cable to the CSI (Camera Serial Interface) port on your Raspberry Pi, boot up the latest version of Raspbian. The board itself is tiny, at around 25mm x 20mm x 9mm and weighing in at just over 3g, making it perfect for mobile or other applications where size and weight are important. The sensor has a native resolution of 5 megapixel, and has a fixed focus lens onboard. In terms of still images, the camera is capable of 2592 x 1944 pixel static images, and also supports 1080p30, 720p60 and 640x480p60/90 video.	03 Nos		
Raspberry Pi (SBC)	RASPBerry PI 512 MB - MODEL B or equivalent	3		
Xbee-s2 or Equivalent	This is the XBee XB24-Z7WIT-004 module from Digi. Series 2 improves on the power output and data protocol. Series 2 modules allow you to create complex mesh networks based on the XBee ZB ZigBee mesh firmware. These modules allow a very reliable and simple communication between microcontrollers, computers, systems, really anything with a serial port! Point to point and multi-point networks are supported. These are essentially the same hardware as the older Series 2.5, but have updated firmware. They will work with Series 2.5 modules if you update the firmware through X-CTU.	2		
Xbee-Doongle or Equivalent	This is the XBee Explorer Dongle unit for the XBee line. With the XBee Explorer dongle you can now plug the unit directly into your USB port. No cables needed! This unit works with all XBee modules	4 Nos		

**Signature of Contractor with Stamp**

	including the Series 1 and Series 2.5, standard and Pro version. The on-board voltage regulator is good up to 500mA.			
Xbee Breakout Boards or Equivalent	This is a simple breakout board for the popular XBee product from Digi. This board breaks out all 20 pins of the XBee to a 0.1" standard spacing dual row header. The spacing between 0.1" headers is 0.5" making it breadboard DIP friendly. We highly recommend using the female sockets to avoid having to solder the XBee permanently to the breakout board. This is the PCB only	4 Nos		
Bluetooth Module	HC-05 Bluetooth RF Transceiver Module (Master / Slave) or Equivalent	03 Nos		
UAV - 6 Axis Quadcopter or Equivalent	2.4GHz mini quadcopter with camera(640 x 480 pixs) and remote (range - 5200 m), buildin 6-axis gyro/anti crash protector, indoor/outdoor fly, color LED navigation ligths, SDCard memory 1 GB and card reader, Lipo chargeable 3.7V 380mAh, Protector installed.	1 No		
Arduino Mega 2560 or equivalent	Component box*1, MEGA 2560 R3 *1, MYB-120 breadboard*1, red/blue/yellow LED lighting*5, resistor 200 ohm *8 , 1K*5 , 10K* 5., wires*30, USB cable*1, potentionmeter*1, digital tube*1, source buzz*1, non-source buzz*1, button*4, photoreponse *2, Tilt switch*2, flame sensor.	3 Nos		
ARDUINO UNO R3_A0005 or Equivalent	The Arduino ADK is a microcontroller board based on the ATmega2560. It has a USB host interface to connect with Android based phones, based on the MAX3421e IC. It has 54 digital input/output pins (of which 14 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button.	03 Nos		
Li-Po Charger	MAX B6AC Multifunctional Balance Battery Charger	4 Nos		
Li-Po 2S 7.4V 200mAh or Equivalent	Battery	6 Nos		
Li-Po 3S 11.1V 5Ah or equivalent	Battery	4 Nos		
1-8S Lipo/Li-ion/Fe Battery Voltage Tester and Low Voltage Buzzer Alarm_A0385	Features: Use for 1-8S Lipo/Li-ion/LiMn/Li-Fe Voltage detection precision: +_ 0.01V. Unit voltage display range: 0.5~4.5V Total voltage display range: 0.5~36V 1S test mode voltage range: 4-15V Low voltage alarm mode for	2 Nos		

**Signature of Contractor with Stamp**

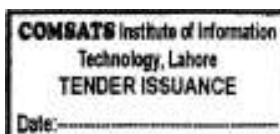
- or Equivalent	2-8S Alarm set value range:OFF~2.7~3.8V Specification: Size: 40mm x 25mm x 11mm Original box: NO Net weight: 9g Package weight: 15g Color: Red			
Wheel Encoders	-	10 Nos		
Robot cars wheels - 4WD Smart Robot Car Chassis Kits Metal Motor, Large Torque _A0405 or Equivalent	Uisng 5mm acrylic chassis-fastness-durable and elegant design 4 metal motor. Diameter of tire is 80mm with inner tire good grip-can be used outdoor. Installing hole for holders-servo-Arduino board-L298N-2 X 18650 battery case.	1 No		
2WD ARDUINO COMPATIBLE MOBILE PLATFORM or Equivalent	1×black platform, 2×High quality elastic rubber tire, 2×Mini DC geared motor, 1×Aluminum alloy DC geared motor mount bracket, 1×Power switch, 1×Aluminum alloy leading wheel, 1×Leading wheel height adjustment board, 4×Standoff, 8×Screw for mounting, Dimensions: 6.30in x 4.72in x 3.94in.	2 Nos		
Tank Drive-Big Guy Tank Crawler Robotics chassis (4WD) _A0304 or Equivalent	Size: 420 * 215 * 90MM (approximate)	1 No		
Male-Female. (10 Packs ) Each pack contains 20 wires	40 Pin color dupont line, Length: 30CM, 1p-1p pin Male to Female header , A row including of 40 root , Compatible with 2.54mm spacing pin headers.	200 Nos		
4 wheel robot base - 4WD ARDUINO ROBOT PLATFORM or Equivalent	2WD Mobile platform Motors: 3-12V DC, Speed: 90cm/S, Dimensions: 200mmX170mmX105mm, Weight: 660g, Package list: Aluminium chassis X1, wheels X4, Motors X4	1 No		

**Signature of Contractor with Stamp**

8	<b>Graphics Workstation</b>	<p>1. Intel® Xeon® Processor E5-2630 v3 (8C, 2.4GHz, Turbo, HT, 20M, 85W) or Equivalent  2. Chasis: Dell Precision T7810 685W Chassis or Equivalent  3. Ram: 64G 2133MHz DDR4 (4x16GB) RDIMM ECC  4. HDD/Storage Controller: Integrated Intel AHCI chipset SATA controller (6 x 6.0Gb/s) - SW RAID 0/1/5/10  5. Internal Hard Drive Configuration: C1 SATA 3.5 Inch, 1-2 Hard Drives  6. Raid configuration Connectivity: RAID 1  7. Hard Drive: 1TB 3.5" Serial-ATA (7,200 RPM) Hard Drive  8. 2nd Hard Drive: 1TB 3.5" Serial-ATA (7,200 RPM) Hard Drive  9. NVIDIA® Quadro® K2200 4GB (2 DP, DL-DVI-I) (1 DP to SL-DVI adapter)  10. Monitor: Dell Ultra Sharp 24 inch - U2412M  11. Drive: 8x Slimline DVD-ROM  12. Adapters: DP to HDMI Dongle  13. All relevant accessories keyboard, mouse, data cable, compatible display port, power cable  14. Three years onsite warranty</p>	02 Nos		
9	<b>Desktop Computer (PC)</b>	<p>Dell, Hp or Equivalent  Intel Core i7-4770 3.40GHz Processor,  RAM 8GB DDR3 1866Hz  Hard Drive 500GB 7200rpm 64MB,  Graphics Card Nvidia Geforce GTX 750 TI 2GB and compatible power supply, HDMI  Monitor 20" HD LED, Keyboard, Mouse  1 Year onsite warranty</p>	25 Nos		
10	<b>Digital Camera</b>	<p>Nikon D3100, or Equivalent DSLR,  14mega pixels, optical zoom 7x, Bag,  16GB storage, 1 year onsite warranty</p>	01 No		
11	<b>Webcam</b>	<p>Superior HD720P/1.3M pixel sensor.  Precise Auto focus lens.  HD720P video in 1280 x 720, frame rate up to 30fps.  Microphone built in.  1 year onsite warranty</p>	25 Nos		

**Note:**

- Price should be quoted inclusive of all taxes on our prescribed BoQs. Do not use your own company letterhead otherwise your bid/proposal may be rejected.
- All items with at least one year onsite warranty.



**Signature of Contractor with Stamp**