

Package 1: Electronics Development, Robotics, Internet of Things and Sensors				
Category	Name	Specification	Suggested Quantity	Type
Electronics Development	Arduino Uno or equivalent	ATmega328P - 8 bit AVR family microcontroller, equivalent or better.	45	Consumable
		Operating Voltage: 5V		
		Digital I/O Pins: 14 (of which 6 provide PWM output)		
		PWM Digital I/O Pins : 6		
		Accessories : Case shell enclosure, compatible USB cable (length - 6 inch or more)		
Electronics Development	Arduino Nano or equivalent	ATmega328P - 8 bit AVR family microcontroller, equivalent or better.	15	Consumable
		Operating Voltage: 5V		
		Digital I/O Pins : 14 (of which 6 provide PWM output)		
		Analog Input Pins : 8		
		Accessories : Compatible USB cable (length -6 inch or more)		

Category	Name	Specification	Suggested Quantity	Type
Electronics Development	Arduino Mega or equivalent	ATmega 2560P - 8 bit AVR family microcontroller, equivalent or better.	15	Consumable
		Operating Voltage: 5V		
		Digital I/O Pins : 54 (of which 6 provide PWM output)		
		Analog Input Pins: 16		
		Accessories: Case shell enclosure, Compatible USB cable (length -6 inch or more)		
Electronics Development	Raspberry Pi 3 Model B+	RASPBERRY PI 3 MODEL B+, equivalent or better	8	Consumable
		Accessories - MicroSD card - 32 GB, USB 3.0 cable (1 meter), HDMI to VGA - 1 meter, HDMI to VGA adapter, Case shell enclosure		
Electronics Development	Breadboards & Mini Breadboard	Solderless 400 pin breadboard	50	Consumable
		Solderless 800 pin breadboard	30	
		Self-Adhesive Proto Shield	30	
Electronics Development	General Purpose solderable Board	FR2 A Grade Material (140 x 90 mm)	50	Consumable
		FR2 A Grade Material (80 x 55 mm)	50	Consumable
	Berg Strips	Female Berg Strip, 2.54mm pitch, 40 pin single row, breakable pin	50	Consumable
		Male Berg Strip, 2.54mm pitch, 40 pin single row, breakable pin	50	Consumable
Electronics Development	16x2 LCD display	Dot matrix LCD display. 16 characters X 2 lines. I2C	30	Consumable
Electronics Development	USB Cables	USB Cable Set (A to B, 12 inch or more)	15	Consumable
Electronics Development	USB Cables	USB Cable Set (Mini, 12 inches or more)	15	Consumable
Electronics Development	Battery	9-12V 2000 to 2500 mAh rechargeable battery with 2 chargers. Equivalent or better	10	Consumable

Category	Name	Specification	Suggested Quantity	Type
Electronics Development	Resistor Kit	One kit contains - 30 carbon film resistors of 20 different resistance values each assorted, packaged together and labelled.	30	Consumable
		Wattage: 0.125W to 1W		
		Values: 0Ω, 1.5Ω, 4.7Ω, 10Ω, 47Ω, 100Ω, 220Ω, 330Ω, 470Ω, 680Ω, 1kΩ, 2.2kΩ, 3.3kΩ, 4.7kΩ, 10kΩ, 22kΩ, 47kΩ, 100kΩ, 330kΩ, 1MΩ		
Electronics Development	Capacitor Kit	One kit contains - 20 electrolytic capacitors of 10 different capacitance values each.	30	Consumable
		Assorted kit packaged together and labelled.		
		Values: 10pF, 22pF, 100pF, 1nF, 10nF, 100nF, 1μF, 10μF, 100μF, 1000μF		
Electronics Development	Linear Voltage Regulator	7805, 7812, 7809	45	Consumable
Electronics Development	Water Pump module	DC12V 3W Submersible Water Pump	6	Consumable
Electronics Development	Piezoelectric Plate	Normal Copper based 4 cm Diameter approx.	30	Consumable
Electronics Development	8*8 LED Matrix Module	Max7219 Dot LED Matrix Module. MCU Control LED Display Module	10	Consumable
Electronics Development	Bluetooth module	HC 05 Bluetooth module	15	Consumable
		Voltage Rating: 5 V		
Electronics Development	7 Segment Led Display	LED 4-Digit Display Module	30	Consumable
		Voltage Rating: 2.4V to 5.5V		
		4-Pin interface:		
		Vcc, Gnd, Data, Clock		
Electronics Development	GSM	Sim900 GPRS Transfer Board Micro Sim Gsm Core TTL Port Module for Arduino	6	Consumable
Electronics Development	GPS	GY-NEO6MV2 new GPS module	6	Consumable
Electronics Development	Laser Diode Emitter	650 nm 5mW Mini Laser Dot Diode Module	15	Consumable
Electronics Development	LDR Module	5mm/12mm, Photosensitive LDR Light Sensor Module	45	Consumable

Category	Name	Specification	Suggested Quantity	Type
Electronics Development	Keypad	Universal 16 Key Switch Keypad	15	Consumable
Electronics Development	JoyStick	2-axis joystick with push button function	15	Consumable
Electronics Development	Active Buzzer	Small 5 volt	60	Consumable
		Big 5 volt	60	Consumable
Electronics Development	Motor driver Module	L293D	15	Consumable
Electronics Development	Sound Playback Module	ISD1820 voice recording module or equivalent	15	Consumable
Electronics Development	DC Plastic Gear motor with wheel	12V, 150RPM, Side Shaft BO (Battery operation) Motor	60	Consumable
Electronics Development	Node MCU	ESP 8266	8	Consumable
		I2C, 1 wire, plug and play		
Electronics Development	WeMos D1 R2	WeMos D1 R2 with WiFi ESP 8266	8	Consumable
		Operating Voltage: 5V		
Electronics Development	Vibrating Motor	Weight: 10 Grams	30	Consumable
		Operating Voltage: 1.5 to 3V		
Electronics Development	Alligator Connectors	Multi-Colour Alligator Connectors - 12 inch	300	Consumable
Electronics Development	Battery clips with DC Jack	9-volt battery clips with DC Jack	40	Consumable
Electronics Development	Hook-up Wires	Red & Black set 100 Meters each	4	Consumable
Electronics Development	Jumper Cable	Male-Male	1500	Consumable
		Male-Female	1000	
		Female-Female	500	
Electronics Development	RGB LEDs	Regular 5mm 3-5 volt Range	600	Consumable
Electronics Development	LEDs (Red)	Regular 5mm 3-5 volt Range	1500	Consumable
Electronics Development	LEDs (Green)	Regular 5mm 3-5 volt Range	1500	Consumable
Electronics Development	LEDs (Blue)	Regular 5mm 3-5 volt Range	1500	Consumable
Electronics Development	LEDs (Yellow)	Regular 5mm 3-5 volt Range	1500	Consumable
Electronics Development	LEDs (White)	Regular 5mm 3-5 volt Range	1500	Consumable

Category	Name	Specification	Suggested Quantity	Type
Electronics Development	Timer IC - LM 555	LM 555 Timer IC.	45	Consumable
		Voltage range - 4.5V to 16V		
Electronics Development	Atmega16u2	8 bit microcontroller Individual IC (DIP).	15	Consumable
		Voltage range: 2.7V to 5.5V.		
		Operational Range: -40°C to +80°C		
Electronics Development	Diodes and Transistors Kit	One Kit Contains - 25 Assorted Basic Diodes of 4 different types each.	5	Consumable
		Types: NPN Transistor - 2N3904, BC547 PNP Transistor - 2N3906, BC557 Silicon Diode - 1N4148, Power Diode - 1N4004/4001.		
		Equivalent or better.		
		Wattage: 1W, Current rating: 1A		
		Assorted kit packaged together and labelled.		
Electronics Development	Button Switch Set	One Kit Contains - 100 buttons of different types.	5	Consumable
		Types: Push, toggle, rotary, selector and slide switch.		
		Assorted kit packaged together and labelled.		
Electronics Development	Capacitive touch Module	MPR 121 with I2C.	30	Consumable
		Voltage Range:		
		2.5V to 3.6V DC.		
Electronics Development	Capacitive Touch Switch Module	Digital Capacitive touch switch module -TTP223B	15	Consumable
		Voltage Range: 2V to 5V DC.		
Internet of Things & Sensors	IR Sensors, Obstacle avoider sensor module	LM393	30	Consumable
		Detection distance:		
		2 - 30 cm		
		Detection angle: 30 - 40°		
Internet of Things & Sensors	Triple Axis Magnetometer	3-Axis Magneto resistive Sensors	15	Consumable
		I2C Digital Interface		
		Integrated 12-bit ADC		
		Range of -8 to +8 Gauss		
		160 Hz Maximum o/p range		

Category	Name	Specification	Suggested Quantity	Type
Internet of Things & Sensors	Humidity Sensor	Operating range:	15	Consumable
		20 – 95 % RH		
		Temperature: 0 - 60 Celsius		
		Power supply:		
		1.5V AC (Max sine)		
		Operating frequency:		
		500Hz - 2kHz		
Internet of Things & Sensors	MQ Series	MQ - 2 Smoke Detection	4	Consumable
		MQ-3 Alcohol - Ethanol Sensor	4	
		MQ-4 Methane Natural Gas Sensor	4	
		MQ-5 Methane Liquified Gas Sensor	4	
		MQ-6 Liquified Petroleum Gas Sensor	4	
		MQ-7 High Sensitivity CO Carbon Monoxide Sensor Detector	4	
		MQ-8 Hydrogen Gas Sensor	4	
		MQ-135 Air Quality Sensor	4	
Internet of Things & Sensors	IR transmitter/ receiver	TSOP 1738	15	Consumable
		Switching rate: 38 KHz		
		Voltage Rating: 5V		
Internet of Things & Sensors	Ultrasonic Sensor Module HC-SR-04 or compatible	Working Voltage - DC 5V	50	Consumable
		Working current - 15 mA		
		Working Frequency - 40 Hz		
		Range - 1 cm to 4 m		
		Effectual Angle - <15°		
		Measuring Angle - 30°		
		Resolution - 0.3 cm		
Internet of Things & Sensors	Triple Axis accelerometer -	3-axis sensing	15	Consumable
		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		

Category	Name	Specification	Suggested Quantity	Type
Internet of Things & Sensors	PIR Motion Detector Module	High digital pulse when motion detected	30	Consumable
		Low digital pulse when idle /no motion detected		
		Sensitivity range (up to 6 m)		
		Power supply: 5V – 12V		
Internet of Things & Sensors	Pulse Rate Heart Sensor	Pulse Rate Sensor Finger Based (finger or earlobe) Working voltage 3-5V	5	Consumable
Internet of Things & Sensors	Relay Module	5V 10A - 2 Channel Relay Module. Compatible with Arduino.	30	Consumable
Internet of Things & Sensors	Relay Module	5V 10A - 1 Channel Relay Module. Compatible with Arduino.	30	Consumable
Internet of Things & Sensors	Big Sound microphone module	Large Electret capsule sound module	15	Consumable
Internet of Things & Sensors	Big Sound microphone module	Large Electret capsule sound module	15	Consumable
Internet of Things & Sensors	Soil Moisture Sensor module	FC-28 with LM293 comparator	8	Consumable
		Operating Voltage:		
		3.3V to 5V.		
Internet of Things & Sensors	Touch Sensor	Capacitive Touch Sensor Module. TTP22X series. Voltage Range: 2.4V to 5.5V	8	Consumable
Internet of Things & Sensors	Metal Touch Sensor Module	KY-036 or equivalent metal touch sensor module	8	Consumable
Internet of Things & Sensors	Rain Drop Sensor	Rain Sensitive, Rain Drop Detection Sensor Module. Voltage Range: 3.3V to 5.5V.	8	Consumable
		Size: 5mm X 40mm or equivalent.		
Internet of Things & Sensors	Flex Sensor	Flex Sensor. Size - 2.2 Inches	8	Consumable
Internet of Things & Sensors	Temperature Sensor	LM35 Full range temperature sensor. Voltage Range: 4V to 30V. Error: $\pm 0.5^{\circ}\text{C}$	8	Consumable
Internet of Things & Sensors	Temperature and humidity sensor module	DHT 11	50	Consumable
		Voltage Range: 3V to 5V		

Category	Name	Specification	Suggested Quantity	Type
Internet of Things & Sensors	Force Pressure Sensor	Force sensitive resistor with a square, 1.75x1.5" sensing area	6	Consumable
Internet of Things & Sensors	Colour Recognition Sensor	TCS3200 Colour Recognition Sensor	6	Consumable
Internet of Things & Sensors	Water Flow Sensor	Arduino Compatible Water flow sensor. 5V DC Input.	6	Consumable
Internet of Things & Sensors	Sound Sensor	Sound Sensor Module, Microphones module	15	Consumable
Internet of Things & Sensors	IR Sensors Array module for Line Following	8 IR Sensors Array module for Line Following	15	Consumable
		Operating Voltage: 5V		
Internet of Things & Sensors	Power Bank	10000 mAh 5-volt Power Bank	5	Consumable
Internet of Things & Sensors	RFID Reader – Tags	Current :13-26mA / DC 3.3V	15	Consumable
		Idle Current :10-13mA		
		Sleep Current<80uA		
		Peak Current<30mA		
		Operating Frequency: 13.56MHz<30mA		
		Read range between 20 cm to 1 m		
Internet of Things & Sensors	RF Modules Tx & Rx 315 MHz ASK	Frequency Range: 433.92/315 MHz	15	Consumable
		Supply Voltage: 3 – 6 V		
		Output: 4 – 16 Dbm		
		Low power consumption		
		Easy application		
Robotics	Stepper motor with Driver board	28BYJ-48 ULN2003 5V Stepper Motor + ULN2003 Driver Board	15	Consumable
Robotics	DC motor	12V DC Gear 150 RPM	30	Consumable

Category	Name	Specification	Suggested Quantity	Type
Robotics	Servo motors	Position Servo Angle based Metal Gear	15	Consumable
		Small Servo Metal Gear	15	
		Continuous Metal Gear Servo 360	15	
		Small Servo Plastic Gear	60	
Robotics	150 RPM BO Motor	150 RPM BO Motor	15	Consumable
Robotics	L298P Motor Driver	L298P Motor Driver Shield or relative Driver Shield	15	Consumable
Robotics	Servo Motor Tester	CCPM 3 channel Servo Tester	6	Consumable
DIY Kit	Robotics DIY Kit	Robotics DIY kit with programmable intelligent brain/brick.	4	Equipment
DIY Kit	Mechanical (Modular) Construction kit	Metal/plastic mechanical construction kit compatible with electronic equipment.	6	Equipment
STEM Learning/App lication Kit	Drone Kit	Educational Purpose	1	Equipment
	Aerospace Kit		1	
	Automobile Kit		1	
	Bio-Medical Kit		1	
	Agritech Kit		1	
	Water/ Sanitation Kit		1	
	Bio Tech Kit		1	
	Other Potential STEM Application Kit		1	