Invitation to Quote

**Project Title: Real-Time Environmental Parameters Monitoring System**

**Procurement title:** Sensor and communication equipment

**Date:** 16.01.2020.

**Source of Funding:** Ministry of Science of Montenegro and Faculty for Information Systems and Technologies, University of Donja Gorica

**Contract Ref:** 01-2312/4

Dear Supplier,

1. You are invited to submit your price quotation(s) for the supply of the following Lots:

 LOT1

|  |  |  |  |
| --- | --- | --- | --- |
| **Item No.** | **Name** | **Unit** | **Qty** |
|  | Analog Electrical Conductivity Sensor /Meter V2 (K=1) | piece | 2 |
|  | pH Analog Pro Sensor | piece | 2 |
|  | pH Analog Sensor Kit | piece | 3 |
|  | Analog Turbidity Sensor For Arduino | piece | 5 |
|  | Weather Station Kit with Anemometer/Wind Vane/Rain Bucket | piece | 2 |
|  | Ultrasonic Waterproof Sensor | piece | 1 |
|  | IR Range Sensor | piece | 3 |

 LOT2

|  |  |  |  |
| --- | --- | --- | --- |
| **Item No.** | **Name** | **Unit** | **Qty** |
|  | ESP32 SX1278 bluetooth WIFI Lora 433MHz | piece | 10 |
|  | ESP8266 5V WiFi relay module | piece | 10 |
|  | WIFI mobile phone remote control relay module DC6V~36V | piece | 5 |
|  | Three color (SMD) RGB sensor module | piece | 10 |
|  | Waterproof Ultrasonic Module JSN-SR04M Water Proof Integrated Distance Measuring Transducer Sensor | piece | 5 |
|  | Dual H Bridge DC Stepper Motor Drive Controller Board Module L298N MOTOR DRIVER | piece | 1 |
|  | Rain Raindrops Detection Sensor Weather Humidity Module | piece | 5 |
|  | Ebacon | piece | 10 |
|  | LG01-P LoRa Internet of things Gateway 868-915-433MHZ | piece | 2 |
|  | LHT65 LoRaWAN Temperature Humidity Sensor | piece | 2 |
|  | GY-LSM6DS3 LSM6DS3 Accelerometer Gyro Embedded Digital Temperature Sensor | piece | 10 |
|  | Terminal Block Spring Lever Nut Terminal Blocks Reusable Electric Cable Connector Wire Home Tools of insulating | piece | 1 |
|  | 15mA 5V Optical Infrared Water Liquid Level Sensor Liquid Water | piece | 2 |
|  | Electric Sensor High quality RTD PT100 Temperature Sensors | piece | 1 |
|  | New Submersible Water Level Transmitter Level Transducer Sensor | piece | 1 |
|  | ACS712 5A 20A 30A Range Hall Current Sensor Module ACS712 | piece | 10 |
|  | WiFi Deauth detector with Case ESP8266 | piece | 5 |
|  | DSM501A Dust Sensor Module PM2.5 Detection Dector Allergic Smoke | piece | 1 |

1. You may quote for one or more lots. Each Lot shall be evaluated and contract awarded separately to the firm(s) offering the lowest evaluated price for each Lot (prices quoted shall correspond to 100 % of the items specified for each lot and to 100% of the quantities specified for each item of a lot).
2. Your price quotation in the form attached may be submitted by hand, mail, facsimile or electronically at the below address (paragraph 7).
3. The deadline for receipt of your quotation (s) by the Purchaser at the addressed indicated in this paragraph is: **January 27, 2020, 16,00h local time.**
4. Your quotation in duplicate and in English, should be accompanied by adequate technical documentation and catalogue(s) and other printed material or pertinent information for each item quoted, including names and addresses of firms providing service facilities in **Montenegro**.
5. Your quotation(s) should be submitted as per the following instructions and in accordance with the attached Contract. The attached Terms and Conditions of Supply is an integral part of the Contract.
	1. PRICES: The prices should be quoted in EUR for the Total Cost at final destination Oktoih 1, 81000, Podogrica, Montenegro, which includes all taxes, VAT, customs, duties, inland transportation and insurance, loading, unloading, assembly and installation of equipment.
	2. EVALUATION OF QUOTATIONS: Offers determined to be substantially responsive to the technical specifications will be evaluated by comparison of the total price at final destination.
	3. AWARD OF PURCHASE ORDER: The award will be made to the bidder offering the lowest evaluated price and that meets the required technical standards. The successful bidder will sign a Contract as per attached form of contract and terms and conditions of supply.
6. Further information can be obtained from address below:

**Name:** doc. dr Marko Simeunović

**Address:** Oktoih 1, 81000 Podgorica, Montnegro

**Contact mail:** marko.simeunovic@udg.edu.me

**Inspections and Audits**

* 1. The Supplier shall carry out all instructions of the Purchaser which comply with the applicable laws where the destination is located.
	2. The Supplier shall permit, and shall cause its Subcontractors and consultants to permit, the Ministry of Science and/or persons appointed by the Ministry to inspect the Supplier’s offices and all accounts and records relating to the performance of the Contract and the submission of the bid, and to have such accounts and records audited by auditors appointed by the Ministry if requested by the Ministry.

**Attachment 1**

**Technical specification**

 **Lot1**

|  |  |
| --- | --- |
| **Required by the Purchaser** | **Offered by the Bidder*****(Bidder to provide name of the technical specification of offered goods)*** |
| **Item #1** | * Signal Conversion Board (Transmitter) V2
* Supply Voltage: 3.0~5.0V
* Output Voltage: 0~3.4V
* Probe Connector: BNC
* Signal Connector: PH2.0-3Pin
* Measurement Accuracy: ±5% F.S.
* Board size: 42mm\*32mm/1.65in\*1.26in
* Electrical Conductivity Probe
* Probe Type: Laboratory Grade
* Cell Constant: 1.0
* Support Detection Range: 0~20ms/cm
* Recommended Detection Range: 1~15ms/cm
* Temperature Range: 0~40°C
* Probe Life: >0.5 year (depending on frequency of use)
* Cable Length: 100cm
 |  |
| **Item #2** | * Module Power : 5.00V
* Module Size : 43mmx32mm（1.70"x1.26")
* Measuring Range :0-14PH
* Measuring Temperature :0-60 ℃
* Accuracy : ± 0.1pH (25 ℃)
* Response Time : ≤ 1min
* Industry pH Electrode with BNC Connector
* PH2.0 Interface ( 3 foot patch )
* Gain Adjustment Potentiometer
* Power Indicator LED
 |  |
|  **Item #3** | * Signal Conversion Board (Transmitter) V2
* Supply Voltage: 3.3~5.5V
* Output Voltage: 0~3.0V
* Probe Connector: BNC
* Signal Connector: PH2.0-3P
* Measurement Accuracy: ±0.1@25℃
* Dimension: 42mm\*32mm/1.66\*1.26in
* pH Probe
* Probe Type: Laboratory Grade
* Detection Range: 0~14
* Temperature Range: 5~60°C
* Zero Point: 7±0.5
* Response Time: <2min
* Internal Resistance: <250MΩ
* Probe Life: >0.5 year (depending on frequency of use)
* Cable Length: 100cm
 |  |
| **Item #4** | * Operating Voltage: 5V DC
* Operating Current: 40mA (MAX)
* Response Time: <500ms
* Insulation Resistance: 100M (Min)
* Output Method:Analog
* Analog output: 0-4.5V
* Digital Output: High/Low level signal (you can adjust the threshold value by adjusting the potentiometer)
* Operating Temperature: 5℃~90 ℃
* Storage Temperature: -10℃~90℃
* Weight: 30g
* Adapter Dimensions: 38mm\*28mm\*10mm/1.5inches \*1.1inches\*0.4inches
 |  |
| **Item #5** | * Operating voltage: 5V
* Temperature range: -40~80℃
* Humidity range: 0~99%
* Package Dimension: 20\*18\*30 CM (7.87\*7.09\*11.81")
* Weight: 4480g
 |  |
| **Item #6** | * Operating Voltage: 3.3~5V
* Average Current: <15mA
* Blind Zone: 28cm
* Detection Range (Flat Object): 28-750cm
* Output: UART
* Response Time: 100ms
* Probe Center Frequency: 40K±1.0KHZ
* Operating Temperature: -15~60℃
* Storage Temperature: -25~80℃
* Sensing Angle: with bell-mouth: 55º
* without bell-mouth: 40º
* Waterproof Grade: IP67
 |  |
| **Item #7** | * Detection Range :20-150cm (7.9-59'')
* Voltage :4-5 .5 V
* Current :33-50 mA current consumption
* Output: analog output, the output voltage  is proportional to detection range
 |  |

 **Lot2**

|  |  |
| --- | --- |
| **Required by the Purchaser** | **Offered by the Bidder*****(Bidder to provide name of the technical specification of offered goods)*** |
| **Item #1** | * Operating voltage: 3.3V to 7V
* Operating temperature range: -40 ° C to + 90 ° C
* Supports Sniffer, Station, softAP and Wi-Fi Direct modes
* Data rate: 150 Mbps 11n HT40,72 Mbps 11n HT20,54 Mbps 11g, 11 Mbps 11b
* Transmit power: 19.5 dBm 11b, 16.5 dBm 11g, 15.5 dBm 11n
* Receiver sensitivity up to - 98 dBm
* UDP continues to throughput by 135 Mbps
 |  |
| **Item #2** | * Module operating voltage: DC 5V
* \* Relay load capacity: 10A 250VAC 10A 125VAC 10A 30VDC 10A 28VDC
 |  |
| **Item #3** | * ESP8266 12 Microcontroler
* Board voltage: DC6V~36V
* Relay parameters: 250VAC 10A ; 30VDC 10A
 |  |
| **Item #4** | * Red, Green, Blue LED Diode
* Voltage: 5V
 |  |
| **Item #5** | Electrical properties* 1.Electrical parameters:  JSN-SR04T
* 2.Operating voltage:  DC 5V
* 3.Quiescent current:  5mA
* 4.Total current work:  30mA
* 5.Acoustic emission frequency:  40khz
* 6.Farthest distance:  4.5m
* 7.Blind: 25cm
* 8.Wiring:   + 5V (positive power supply)
* Trig (control side) RX
* Echo (the receiver) TX
* GND (negative)
* 9.Resolution:  about 0.5cm
* 10.Angle:  less than 50 degrees
* 11.Working temperature:  -10 ~ 70 Celsuis
* 12.Storage temperature:  -20 ~ 80 Celsuis

Product Features* 1.Small size, easy to use
* 2.Low voltage, low power consumption
* 3.High accuracy
* 4.Strong anti-jamming
* 5.Integrated with wire enclosed waterproof probe, suitable for wet, harsh measurement occasions

Application* 1.Horizontal distance;
* 2.Obstacle avoidance, automatic control;
* 3.The object approaches, there is a perceived
* 4.Traffic control;
* 5.Security, industrial control;
* 6.Artificial intelligence, and research
 |  |
| **Item #6** | * Working mode: H bridge (double lines)
* Control chip: L298N (ST)
* Logical voltage: 5V
* Driving voltage: 5V-35V
* Logical current: 0mA-36mA
* Driving current: 2A (MAX single bridge)
* Storage temperature: (-20 °C)-(+135 °C)
* Maximum power: 25W
* Weight: 30g
* Periphery dimension: 43 x 43 x 27mm(L x W x H)
* Using L298N made by ST company as the control chip, the module has such characteristics as strong driving
* ability, low calorific value and strong anti-interference ability.
* This module can use built-in 78M05 for electric work via a driving power supply part. But to avoid the damage
* of the voltage stabilizing chip, please use an external 5V logic supply when using more than 12V driving voltage.
* Using large capacity filter capacitor, this module can follow current to protect diodes, and improve the reliability.
 |  |
| **Item #7** | * The sensor USES the high quality FR - 04 double material, large area of 5.5 \* 4.0CM, treatment of nickel plating and surface, have fight oxidation, electrical conductivity, and life has more superior performance;
* With potentiometer sensitivity adjustment;
* The output format: digital switch output (0 and 1) and analog AO voltage output;
* Has a fixed bolt hole, convenient installation;
* The comparator output, signal clean, good waveform, driving ability is strong, for more than 15 mA;
* The LM393, use of wide voltage comparator;
* The working voltage of 3.3 V to 5 V;
 |  |
| **Item #8** | * Chip:NRF51822
* Power Supply Voltage:2.0-3.3V
* Sleep Current:3.1uA
* Broadcast Current:4MA
* Average Current:15.1uA
* Broadcast Interval:2s
* Average Current:15.1uA

Compatible:* Firmware completely meet Apple’s iBeacon’s technical standard and can be applied to systems.
* Iso7.0 or above
* Android4.3 or above
 |  |
| **Item #9** | * Open Source OpenWrt system
* Low power consumption
* Firmware upgrade via Web
* Software upgradable via network
* Auto-Provisioning
* Built-in web server
* Managed by Web GUI, SSH via LAN or WiFi
* Support WiFi AP, Client or Ad-Hoc(Mesh) mode
* Internet connection via LAN, WiFi, 3G or 4G
* Failsafe design provides robustly system
* IDE compatible. Easy to program.
* LoRa band available at 433/868/915/920 Mhz
* Max range in LoRa : 5 ~ 10km

Specifications:* Linux Side:
* Processor: 400MHz, 24K MIPS
* Flash: 16MB ; RAM: 64MB
* MCU/LoRa Side:
* MCU: ATMega328P
* Flash:32KB, RAM:2KB
* LoRa Chip: SX2176/78
* Interfaces:
* 10M/100M RJ45 Ports x 2
* WiFi : 802.11 b/g/n
* LoRa Wireless
* Power Input: 12V DC
* USB 2.0 host connector x 1
* USB 2.0 host internal interface x 1
 |  |
| **Item #10** | * The LHT65 allows users to send data and reach extremely long ranges. It provides ultra-long range spread spectrum communication and high interference immunity whilst minimizing current consumption. It targets professional wireless sensor network applications such as irrigation systems, smart metering, smart cities, building automation, and so on.
* LHT65 has a built-in 2400mAh non-chargeable battery which can be used for more than 10 years\*.
* LHT65 is full compatible with LoRaWAN v1.0.2 protocol, it can work with standard LoRaWAN gateway.
* LHT65 has 3200 data records with datetime which can be retrieved with datetime for further analyze.
 |  |
| **Item #11** | * Power consumption: 0.9 mA combination of normal mode and 1.25 mA combination of high performance mode up to 1.6 kHz.
* Accelerometer and gyroscope low power experience
* Smart FIFO up to 8 bytes based on feature set
* 2/4/16/8 g
* ± 125/245/500 / ± ± 1000 / ± 2000 DPS comprehensive
* Analog supply voltage: 1.71 V to 5 V
* SPI serial interface with main processor data synchronization
* Embedded temperature sensor
* Module size 13 mm \* 18mm
 |  |
| **Item #12** | * Shell material: PA6.6
* Lead current strip material: electrolytic copper (chrome-plated)
* Spring material: Ni-Cd alloy steel
* Color: orange + gray
* Rated current: 32A
* Rated voltage: 400V
* Rated impulse voltage: 4KV
* Number of connection points (connection type): 2, 3, 5
* Actuation type: operating lever
* Continuous service temperature: 85 ℃ (Max.)
 |  |
| **Item #13** | * No mechanical moving parts, high reliability
* High precision level control
* Meet the safety standard requirements
* RoHS compliant.
* Easily mounting method with locking nut.
* Measurement range:single-point measurements
* Equipped with 50 cm cable length.
* Measuring accuracy :1MM
* Current output:15mA
* Power voltage:5V
 |  |
| **Item #14** | * Type: RTD PT100 (Thin Film) Class A
* Operating Temperature: -50 ~ 500 C (-50 ~930 Fahrenheit)
* Probe Length: 50mm (2”)
* Diameter: 5mm (0.2”)
* Thread Size: 1/2” NPT
* Probe Material: Stainless Steel 304
* Wire Material: Tinned Copper
* Cable Length: 2m (6.6’)
* Cable Sheath: 3-wire Fiberglass braided with Stainless Steel Overbraided
* Connector: Detachable 2-pin Connector
 |  |
| **Item #15** | * Measurement Range: 0-5mH2O/50kPa;
* Cable Length: We will offer 6 meters in order to make sure the enough length;
* Measurement Medium: Water;
* Power Supply: 24VDC;
* Output Signal: 4-20mA;
* Accuracy: ±0.5%FS;
* Overload Capacity: Two times full-scale pressure;
* Using Temperature: -20c—120c;
* Compensation Temperature Range: -10c—80c;
* ZTC: (typical):±0.02%FS/c
* STC: (typical):±0.02%FS/c;
* Long-term Stability: (typical):±0.1%FS/year;
* Waterproof Class: IP68;
* Load Resistance: less than (U-10)/0.02Ω;
* Shell Material: 316L stainless steel;
* Explosion-proof Type: Exia II CT6
 |  |
| **Item #16** | * pin 5V power supply, on-board power indicator;
* the module can measure the positive and negative 20 amps, corresponding to the analog output 100mV / A;
* there is no the detection current through, the output voltage is VCC / 2;
* PCB board size: 31 (mm) x13 (mm);
 |  |
| **Item #17** | * ESP 12S
* USB 4MB
 |  |
| **Item #18** | * Rated Power: 0.5W
* Operating Voltage: 5V
* Operating Current: 100mA
* Open Circuit Current: 106mA
* Operating Temperature: -20+or-85 degree
* Light Intensity: 1000W/M2, 25 degree,AM1.5
 |  |