

Invitation to Quote

Project Title: Smart Milk

Procurement title: Sensor and communication equipment

Date: 24.06.2020.

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

Contract Ref: 01-2625/6

Dear Supplier,

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

Item No.	Name	Unit	Qty
1.	Waterproof Digital Temperature Sensor	piece	10
2.	Analog pH Sensor	piece	5
3.	Analog pH Sensor Pro	piece	5
4.	Machine Vision Sensor	piece	2
5.	Waterproof Level Sensor	piece	5
6.	Touchscreen 5"	piece	3
7.	Microcontroller board	piece	40
8.	Turbidity Sensor	piece	5
9.	Gas Sensor (MQ2)	piece	5
10.	Alcohol Sensor (MQ3)	piece	5
11.	CH4 Gas Sensor (MQ4)	piece	5
12.	LPG Gas Sensor (MQ5)	piece	5
13.	Propane Gas Sensor (MQ6)	piece	5
14.	Carbon Monoxide Sensor (MQ7)	piece	5
15.	Hydrogen Gas Sensor (MQ8)	piece	5
16.	CO/Combustible Gas Sensor (MQ9)	piece	5
17.	Temperature & Humidity Sensor	piece	10
18.	Axis Accelerometer	piece	5
19.	Compact optical Dust Sensor	piece	2
20.	PCB Microcontroller module	piece	5
21.	PCB Green Board	piece	50
22.	Power Supply – 5VDC	piece	30
23.	Solar Panel and Voltage Regulator	piece	5
24.	Battery 12V	piece	10
25.	Oscilloscope	piece	1
26.	Function Generator	piece	1
27.	Multimeter	piece	3
28.	Electronics enclosure Small	piece	10
29.	Electronics enclosure Medium	piece	10
30.	Electronics enclosure Big	piece	10
31.	Electronics enclosure Circle	piece	10
32.	RGB Color Sensor	piece	10
33.	IR Transmitter and Receiver Module	piece	10

More detailed information on technical specifications are given in **Attachment 1** and file named as **Procurement Guide**.

2. Your price quotation in the form attached may be submitted by email at the below address (paragraph 6).
3. The deadline for receipt of your quotation (s) by the Purchaser at the addressed indicated in this paragraph is: **July 04, 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.
 - a. PRICES: The prices should be quoted in EUR for the Total Cost at final destination Oktoih 1, 81000, Podgorica, Montenegro, which includes all taxes, VAT, customs, duties, inland transportation and insurance, loading, unloading, assembly and installation of equipment.
 - b. 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.
 - c. 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: Davor Ćorić

Address: Oktoih 1, 81000 Podgorica, Montenegro

Contact mail: davor.coric@udg.edu.me

Inspections and Audits

7.
 - a. The Supplier shall carry out all instructions of the Purchaser which comply with the applicable laws where the destination is located.
 - b. 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****LOT**

Required by the Purchaser		Offered by the Bidder <i>(Bidder to provide name of the technical specification of offered goods)</i>
Item #1	<ul style="list-style-type: none">• Operating voltage: 3.0~ 5.5V• $\pm 0.5^{\circ}\text{C}$ Accuracy from -10°C to $+85^{\circ}\text{C}$• Usable temperature range: -55 to 125°C (-67°F to $+257^{\circ}\text{F}$)• 9 to 12 bit selectable resolution• Query time is less than 750ms• Stainless steel tube 6mm diameter by 35mm(1.34") long• Cable diameter: 4mm(0.16")• Length: 90cm(35.43")	
Item #2	<ul style="list-style-type: none">• Module Power : 5.00V• Module Size : 43 x32mm(1.69x1.26")• Measuring Range :0 - 14PH• Measuring Temperature: 0 - 60 °C• Accuracy : $\pm 0.1\text{pH}$ (25 °C)• Response Time : $\leq 1\text{min}$• pH Sensor with BNC Connector• pH2.0 Interface (3 foot patch)• Gain Adjustment Potentiometer• Power Indicator LED	
Item #3	<ul style="list-style-type: none">• Module Power : 5.00V• Module Size : 43mmx32mm (1.70"x1.26")• Measuring Range :0-14PH• Measuring Temperature :0-60 °C• Accuracy : $\pm 0.1\text{pH}$ (25 °C)• Response Time : $\leq 1\text{min}$• Industry pH Electrode with BNC Connector• PH2.0 Interface (3 foot patch)• Gain Adjustment Potentiometer• Power Indicator LED	
Item #4	<ul style="list-style-type: none">• Processor: Kendryte K210• Image Sensor: OV2640 (2.0Megapixel Camera)	

	<ul style="list-style-type: none"> • Supply Voltage: 3.3~5.0V • Current Consumption (TYP): 320mA@3.3V, 230mA@5.0V (face recognition mode; 80% backlight brightness; fill light off) • Connection Interface: UART, I2C • Display: 2.0-inch IPS screen with 320*240 resolution • Built-in Algorithms: Face Recognition, Object Tracking, Object Recognition, Line Tracking, Color Recognition, Tag Recognition • Dimension: 52mm * 44.5mm / 2.05 x 1.75inch 	
Item #5	<ul style="list-style-type: none"> • 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°C • Storage Temperature: -25~80°C • Sensing Angle: with bell-mouth: 55° without bell-mouth: 40° • Waterproof Grade: IP67 	
Item #6	<ul style="list-style-type: none"> • Operating Voltage: 3.3V (Supplied by Raspberry Pi display interface) • The Maximum Operating Current: 320mA • Screen-off Current: 100mA • Resolution: 800*480 • Video Interface: Raspberry Pi DSI • Number of Touch Points: 5 • Viewing Angle: 60°/70°/70°/70° • RGB888-16 Mega True Color • Refresh Frequency: 60Hz • Luminous Efficiency: 280 cd/m2 • Operating Temperature: -20°C~70°C • Dimension: 121mm×76mm / 4.76" × 2.99" • Mounting Hole Size: M2.5 	

	<ul style="list-style-type: none"> • Outside Mounting Hole Position: 113mm × 68mm/ 4.45" × 2.68" • Inside Mounting Hole Position: 58mm x 49mm/ 2.28" x 1.93" 	
Item #7	<ul style="list-style-type: none"> • 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 #8	<ul style="list-style-type: none"> • 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°C~90 °C • Storage Temperature: -10°C~90°C • Weight: 30g • Adapter Dimensions: 38mm*28mm*10mm/1.5inches *1.1inches*0.4inches 	
Item #9	<ul style="list-style-type: none"> • Power supply needs: 5V • Interface type: Analog • Wide detecting scope • Fast response and High sensitivity • Simple drive circuit • Stable and long life • Size:36.4x26.6mm (1.4x1") 	
Item #10	<ul style="list-style-type: none"> • Power supply: 5V • Interface type: Analog • High sensitivity to alcohol and small sensitivity to Benzine • Fast response and High sensitivity 	

	<ul style="list-style-type: none"> • Stable and long life • Simple drive circuit • Size: 36.4x26.6mm(1.43"x1.05") 	
Item #11	<ul style="list-style-type: none"> • Power supply: 5V • Interface type: Analog • Pin Definition: 1-Output 2-GND 3-VCC • High sensitivity to CH₄, Natural gas • Small sensitivity to alcohol, smoke • Fast response • Stable and long life • Simple drive circuit • Size: 40x20mm(1.57"x0.79") 	
Item #12	<ul style="list-style-type: none"> • Power supply needs: 5V • Interface type: Analog • Pin Definition: 1-Output 2-GND 3-VCC • High sensitivity to LPG, natural gas, town gas • Small sensitivity to alcohol, smoke • Fast response • Stable and long life • Simple drive circuit • Size: 40x20mm(1.57"x0.79") 	
Item #13	<ul style="list-style-type: none"> • Working Voltage: 5V • Interface type: Analog • Pin Definition: 1-Output 2-GND 3-VCC • High sensitivity to LPG, iso-butane, propane • Small sensitivity to alcohol, smoke • Fast response • Stable and long life • Simple drive circuit • Size: 40x20mm(1.57"x0.79") 	
Item #14	<ul style="list-style-type: none"> • Power supply needs: 5V • Interface type: Analog • Pin Definition: 1-Output 2-GND 3-VCC • High sensitivity to carbon monoxide • Fast response • Stable and long life • Size: 40x20mm(1.57"x0.79") 	

Item #15	<ul style="list-style-type: none"> • Power supply needs: 5V • Interface type: Analog • Pin Definition: 1-Output 2-GND 3-VCC • High sensitivity to Hydrogen (H₂) • Small sensitivity to alcohol, LPG,cooking fumes • Stable and long life • Size: 40x20mm(1.57"x0.79") 	
Item #16	<ul style="list-style-type: none"> • Power supply needs: 5V • Interface type: Analog • Sensor Type: Semiconductor • Concentration: • 10-1000ppm CO • 100-10000ppm combustible gas • Good sensitivity to CO/Combustible gas • High sensitivity to Methane, Propane and CO • Long life and low cost • Size: 36.4x26.6mm(1.43"x1.05") 	
Item #17	<ul style="list-style-type: none"> • Supply Voltage: 5V • Temperature Range:-40-80°C / resolution0.1°C / error <±0.5°C • Humidity Range: 0-100%RH / resolution0.1%RH / error±2%RH • Wiring map: VCC,GND,S • Size: 38 x 20mm(1.50x0.79") 	
Item #18	<ul style="list-style-type: none"> • Operating Voltage: 3.3V ~ 5V • Operating Current: 2uA (low-power mode 50Hz ODR) / 11uA (normal mode 50Hz ODR) • Interface: Gravity-I2C interface • Adjustable Sensitivity: ± 2g / ± 4g / ± 8g / ± 16g • Frequency: 1Hz ~ 5.3KHz • 16-bit data output • 2 independent programmable interrupt generators for free-fall and motion detection • 6D/4D orientation detection • Embedded Temperature Sensor • Embedded FIFO • 1 million grams of high impact resistance 	

	<ul style="list-style-type: none"> Operating Temperature: -40 °C ~ +85 °C Module Size: 26.2 × 26.2 (mm) /1.03 x 1.03 (inches) Weight: 12 g 	
Item #19	<ul style="list-style-type: none"> Supply voltage: 5-7V Operating temperature: -10-65 Celsius degree Consumption current: 20mA max, 11mA typical Output of the sensor is an analog voltage proportional to the measured dust density, with a sensitivity of 0.5V/0.1mg/m3. 	
Item #20	<p>Certification</p> <ul style="list-style-type: none"> RF Certification: FCC/CE-RED/IC/TELEC/KCC/SRRC/NCC Bluetooth Certification: BQB Green Certification: RoHS/REACH <p>Test</p> <ul style="list-style-type: none"> Reliability: HTOL/HTSL/uHAST/TCT/ESD <p>Wi-Fi</p> <ul style="list-style-type: none"> Protocols: 802.11 b/g/n (802.11n up to 150Mbps) A-MPDU and A-MSDU aggregation and 0.4µs guard interval support Frequency Range: 2.4GHz ~2.5GHz <p>Bluetooth</p> <ul style="list-style-type: none"> Protocols: Bluetooth v4.2 BR/EDR and BLE specification Radio: NZIF receiver with -97 dBm sensitivity <ul style="list-style-type: none"> Class-1, class-2 and class -3 transmitter AFH Audio: CVSD and SBC <p>Hardware</p> <ul style="list-style-type: none"> Module Interface: SD card, UART, SPI, SDIO, I2C, LED PWM, Motor PWM, I2S, IR, pulse counter, GPIO, capacitive touch sensor, ADC, DAC On-chip Sensor: Hall sensor Integrated Crystal: 40 MHz crystal Integrated SPI Flash: 4MB Integrated PSRAM: 8MB 	

	<ul style="list-style-type: none"> Operating Voltage/Power Supply: 2.7V~3.6V Minimum Current Delivered by Power Supply: 500mA Recommended Operating Temperature Range: -40°C~65°C Package Size: (18.00±0.10)mm×(31.40±0.10)mm×(3.30±0.10)mm 	
Item #21	<ul style="list-style-type: none"> 7x9 6x8 5x7 4x6 3x7 2x8cm Double Side Prototype Diy Universal Printed Circuit PCB Board Protoboard For 4*6 6*8 5*7 3*7 	
Item #22	<ul style="list-style-type: none"> 5V 700mA (3.5W) isolated switch power supply module AC-DC buck step-down module 220V turn 5V 	
Item #23	<ul style="list-style-type: none"> Tolerance: +/-5% SLA Battery Voltage: 18V Type of Solar Cell: Monocrystalline Open Circuit Voltage(Voc): 18V Maximum Ystem Voltage: 18V Temperate Coefficient of Isc: (010+/- 0.01) %/C Temperate Coefficient of Voc: - (0.38 +/-0.01) %/C Temperate Coefficient of Power Voc: -0.47%/C Temperature Range: -40 °Cto +80 °C Controller: 10A Package: 1 X 150W Solar Panel 1 X Car Charger 1 X Battery Clip 1 X Controller 	
Item #24	<ul style="list-style-type: none"> OEM/ODM Warranty:3years Voltage:12.8V Weight:0.6kg Dimensions:90*70*101mm Color:White or customization Maintenance Type:free Application:Communication, Traffic, IT, Financial, UPS, Solar, Radio, Electric Power, Data Centre, Aviation, Home, Electrocar, etc 	

	<ul style="list-style-type: none"> • Certification:CE / UL / ISO9001 / Rohs 	
Item #25	<ul style="list-style-type: none"> • Dual channel bandwidth 100 MHz • Sampling rate 1 GS/s • Equivalent sampling rate 50 GS/s • 5 mathematic functions: adding, subtraction, multiplying, division, FFT • Internal memory 2 × 600 k • Two switchable probes • Colour 7" LCD • Built-in USB port for PC connection • Print screen feature 	
Item #26	<ul style="list-style-type: none"> • Dual-channel signal output • Signal output amplitude: 5mVpp – 20Vpp • Min. Frequency Resolution: 10mHz • Arbitrary waveform length: 2048 points • Waveform resolution: 12bits • Sampling rate: 200MSa/s • Scan time: 1s 999s 	
Item #27	<ul style="list-style-type: none"> • DC Voltage(V) 60mV ~ 1000V ±(0.5%+3) • AC Voltage(V) 60mV ~ 750V ±(0.8%+3) • DC Current(A) 600uA ~ 10A ±(1.2%+8) • AC Current(A) 600uA ~ 10A ±(1.5%+10) • Frequency(Hz) 10Hz~10MHz ±(0.5%+2) • Resistance (Ω) 600Ω ~ 60MΩ ±(0.8%+5) • Capacitor(F) 10nF ~ 100mF ±(4.0%+15) • Temperature(°C) -20°C~1000°C ±(2.0%+3) • Temperature(°F) -4°F~1382°F ±(2.0%+3) • Features • Display Count 5999 • Auto Range √ • Duty cycle √ • True RMS √ 	

	<ul style="list-style-type: none"> • NCV ✓ • Data HOLD ✓ • FUNC ✓ • Diode measurement ✓ • Auto Power Off ✓ • Continuity Buzzer ✓ • LCD Backlight ✓ • REL ✓ • MAX/MIN ✓ • USB data transfer ✓ • General Characteristics • Power 9V (6F22*1) • Product Color Red and Gray • Product Net weight 320G • Product Size 200*92*60mm 	
Item #28	<ul style="list-style-type: none"> • Junction Box 93 x 62 x 93mm • Waterproof 	
Item #29	<ul style="list-style-type: none"> • Junction Box, 6mm², 130x77x130mm • Waterproof 	
Item #30	<ul style="list-style-type: none"> • 16-35 mm², Cu 3~ • terminal with 2 clamping units per pole • 5-pole per pole 6 x 16 mm² s, 4 x 25 mm² s, 4 x 35 mm² s, 2 x 50 mm² s • included cable entry: 3 x ESM 40, sealing range Ø 17-30 mm • with two cable entries M 32 from the rear side • lid fasteners sealable without accessories • external brackets for wall fixing included • colour: grey, RAL 7035 	
Item #31	<ul style="list-style-type: none"> • Material Poly Carbonate • IP Rating IP66 • Brand Hensel • Dimensions 355 x 255 x 122 mm • Model Name/Number DK 5054 G • Rated Insulation Voltage 690 V AC 	
Item #32	<ul style="list-style-type: none"> • Power: 2.7V to 5.5V. • Size: 28.4 x 28.4mm (1.12 x 1.12") 	

	<ul style="list-style-type: none"> • Interface: digital TTL. • High-resolution conversion of light intensity to frequency. • Programmable color and full-scale output frequency. • Communicates directly to microcontroller. 	
Item #33	<ul style="list-style-type: none"> • Operating Voltage 2.7 to 5.5V • Operating Current 0.4 to 1.5mA • Reception Distance 18m • Reception Angle $\pm 45^\circ$ • Carrier Frequency 38KHz • Low Level Voltage 0.4V • High Level Voltage 4.5V • Ambient Light Filter up to 500LUX 	