AFRICAN UNION
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REQUEST FOR PROPOSALS

INSTALLATION OF INTERNET OF THINGS (IOT) TO BE INTEGRATED WITH THE EXISTING COMPUTER AUTOMATED FACILITIES MANAGEMENT SYSTEM

PROCUREMENT NUMBER: AUC/AFMD/C/007

December 2020

SECTION I: LETTER OF INVITATION

14th December 2020

Dear Applicant,

CONSULTANCY SERVICES FOR INSTALLATION OF INTERNET OF THINGS (IOT) TO BE INTEGRATED WITH THE EXISTING COMPUTER AUTOMATED FACILITIES MANAGEMENT SYSTEM: AUC/AFMD/C/007

1. The African Union is currently in the process of implementing Building Information Modelling (BIM) for its facilities at its Headquarters with the vision to gradually extend the implementation processes to its regional Offices located remotely. In this way, it is anticipated to reduce buildings operation costs while maximizing energy efficiency and comfort for building occupants hence attain higher satisfaction of its staff and stalk holders. Internet of Things (IoT) is one the aspect being considered to integrate different systems allowing interoperability using open standards for ease of communication among all existing as well as new Building Management Systems (BMS) installed at the Premises.

2. The Commission now invites eligible **Firms** from African Union Member States to submit proposals for the assignment as per attached Terms of Reference (TOR).

1. The Consultancy Service is expected to be carried out at the Head Quarters of the African Union. Addis Ababa Ethiopia. The firm shall therefore expected to quote for both professional & Reimbursable fees.
2. Expressions of Interest must be received at the address below on or before the 24th of December 2020 at 1500hrs.
3. Offers shall be valid for a period of 90 days.
4. The address for deposit of Technical and financial offers is:
   Email submissions: **tender@africa-union.org** and CC to **DominicN@africa-union.org**

   N/B: You are requested to submit both your Technical & Financial Offers in separate folders.
   The financial offer maybe password locked and shall be open upon finalization of the Technical evaluation.

   The Address for clarifications is **tender@africa-union.org**

TERMS OF REFERENCE FOR CONSULTANCY SERVICES FOR INSTALLATION OF INTERNET OF THINGS (IOT) TO BE INTEGRATED WITH THE EXISTING COMPUTER AUTOMATED FACILITIES MANAGEMENT SYSTEM: AUC/AFMD/C/007

I. BACKGROUND

The African Union is currently in the process of implementing Building Information Modelling (BIM) for its facilities at its Headquarters with the vision to gradually extend the implementation processes to its regional Offices located remotely. In this way, it is anticipated to reduce buildings operation costs while maximizing energy efficiency and comfort for building occupants hence attain higher satisfaction of its staff and stalk holders.

Internet of Things (**IoT**) is one the aspect being considered to integrate different systems allowing interoperability using open standards for ease of communication among all existing as well as new Building Management Systems (BMS) installed at the Premises.

The proposed **IoT** is also required to be integrated easily with the Computer Automated Facilities Management System (**CAFM**) being used for the Facilities Management at the AU throughout different lifecycle of an asset management starting from Initiation stage, Design, Construction, Handover, and Operation.

2. OBJECTIVES

The objective of implementing the IoT technology at the AU is therefore to:

- Increase Operational efficiency,
- Optimize resources and reduce maintenance costs,
- Evaluate performance on the basis of actual data to make an informed decision and forecast more accurately,
- Mitigate risk,
- Monitor and adjust building systems to match comfort levels,
- Act more predictive than proactive to avoid outages or significant downtime,
- Monitor fault detection before it affects the function of Facility's users,
- Optimize or eliminate cabling works using wireless systems without necessarily having any conduits and cable trays.

To get adequate technical information of the Facility, site visit and/or digital models may be arranged and provided by the AU side, as necessary.

3. FUNCTIONAL REQUIREMENTS

In line with the above, Supply and Installation of the proposed **IoT** systems and equipment for one of a selected building is required to be implemented as a pilot project based on the following deliverables:

a. Energy/ Power Consumption Monitors

These devices are required to monitor energy consumption that can easily be collected remotely and use to regulate and optimize energy. Measuring these characteristics of the power supply, as well as the active energy consumption shall help to identify causes of excessive energy use for necessary optimization.

b. Smart Water Meters

The system is required to monitor the water consumption and rate of fluid flow of the building per floor and/or per unit of the water supply system. The data shall be used to identify pipe leakages or overconsumptions for necessary remedial action.

c. Indoor environmental monitoring

The sensors are required to collect environmental monitoring components that includes light luminance, temperature, acoustics, humidity, CO2, Carbon Monoxide in a space as well as chemical contents of water supply.

d. Integration with CAFM System

The possibility of integration with the **CAFM** application (ArchiFM) is required to access a real-time information about the condition and to monitor building systems and equipment using a Common Data Environment (**CDE**) that enables to collaborate, share, store and retrieve all Facilities Management Data from a data repository.

e. Enhance Facility Users interaction and workplace experience

Collect and transmit location-based data through connected smartphone apps allowing building users to interact with the location through a mobile application while users move within a building that gives a signage and guidance of locations in the building.

f. Elevators Monitor

Monitor the movement, frequency of usage and speed of elevators including any abnormal vibrations for necessary alert and on time remedial action.

g. Smoke detectors and fire alarms.

Detect smokes that may be caused due to fire hazardous and trigger alarms for prior precautionary measures before any damage to the property and/or life occurs.

h. Location/ Position identification

The sensor is required to measure the position of a furniture or an object and alert unauthorized misallocations from the originally intended and approved Allocation of Space.

i. Interoperability

Some of the BMS that are currently in operation are proprietary and are independent due to their use for specific applications. Therefore, the **IoT** devices are required to be an open standard to allow for integration and communication between the existing and new devices.

j. Ease of installation and maintenance

The **IoT** hardware, including sensors and gateways shall be easy to install and user-friendly for the technicians. For example, wireless sensor installation should be as easy as mounting the sensor to walls, ceilings, under tables, etc. and validating the connectivity with a smartphone.

k. Wireless Connectivity

The methods of the connectivity need to have various options of using Infrared, WiFi, etc. which allows for access to devices even during times and places of internet connections unavailability. Retrofittable sensor solution into an already existing building without any major modification is also a requirement.

l. Reliability

The type of sensors shall be the one that last for several years, while requiring very little maintenance. Once installed, the sensor maintenance should be minimal. The battery life levels and signal strengths, and other reliability aspects are required to make sure that the dataflow is constant, and all the devices are in operation without any interruption.

m. IoT Security

IoT data collection platforms are required to consider privacy and security aspects through a proper protection against any intruders to the system.

The physical security of the systems shall be carefully considered so that it will not easily be tampered and dismantled to avoid any disruption to the continuity of data transmissions and retrieval.

4. FIRM'S QUALIFICATION

Relevant experience on smart building management and automation system, that includes implementation, customization and supporting of new technologies across the IoT continuum, from sensors and cloud platforms, to analytics and Artificial Intelligence (AI). Ability to integrate the IoT infrastructure with the existing systems without any incompatibility and overloading issues.

Key Expert's Experience

1) Program/Project Manager with a minimum of 5 years' experience in IoT industry.
2) Electrical control engineers 4 years experienced in new and existing building sensor and actuators;
3) Electrical communication engineers qualified in wired and wireless communication protocols with 4 years' experience;
4) Software developer, with 4 years' relevant experience;
5) Web and Graphics development team for GUI with more than 4 years' experience

5. ASSESSMENT AND TECHNICAL EVALUATION CRITERIA

For evaluation of the firms the following criteria will be applied:

a. Specific Experience of The Firm Related to the Assignment (10 Points)
b. Professional Qualification of Key Expert(s) (20 Points)
c. Functional Requirements (60 points)
d. Work Plan (10 Points)

NB. Pass mark for technical evaluation is 70 points

The technical evaluation will account for 70% of the score and the financial will account for 30% of the score.

Submission of Firms Financial Offers

Financial Offer: The Firm will submit a financial offer in a separate folder indicating the professional and reimbursable fees. Firms have the right to lock their financial offers with a password and furnish this on request.

Duration of the assignment and Schedule of Deliverable
The duration of the assignment is approximated to be 30 Man-Days.