Proof of Concept Project No: SIAA/RFI/131101

Project Name: 3D Sensor Visualization Platform and Integration Services with I2R Sensor Systems

SIAA Member Company Name:

Project Overview

1. Project Description
1.1 To provide a 3D sensor visualization platform to enable a real-time 3D display of the sensor values from I2R sensor systems
1.2 To provide software development services to integrate the I2R sensor systems with the above 3D sensor visualization platform
1.3 To provide the capability for the user to directly interact with the real-time 3D display via a multi-touch screen

2. 3D Sensor Visualization Platform Functional Specifications
2.1 The platform shall enable the user to view the 3D sensor visualization via a client PC or notebook with 3D graphics capability. The vendor may state the recommended system requirements of such client PC.
2.2 The platform shall enable the user to load a 3D premise model (with 3D interior and exterior building environments) into the 3D sensor visualization.
2.3 The platform shall enable the user to show or hide a selected 3D building, block, or level easily via the graphical user interface.
2.4 The platform shall enable the user to add sensors and plant the sensors in the 3D premise model, and enable the sensors to receive real-time data from the following I2R sensor systems :   a. Toilet-usage monitoring system   b. wireless sensor network   c. age-gender recognition system   d. carpark monitoring system
2.5 The platform shall enable the user to manage, edit and/or remove sensors of the list of previously added sensors.
2.6 The platform shall present the received real-time sensor data as a 3D overlay over the 3D premise model to provide an integrated 3D sensor visualization display.

2.7   The platform shall enable the user to interact directly with the 3D sensor visualization by being able to pan, rotate, zoom, navigate in 3D through multi-touch actions, if a multi-touch screen is used, and keyboard/mouse actions.

2.8   The platform shall enable the user to define 3D location bookmarks and use a pre-defined 3D location bookmark to go to any 3D position conveniently and quickly.

2.9   The platform shall require the user to log in and authenticate the user account before granting user access to the system.

2.10   The platform shall provide an API/SDK to enable the user to program new integrations with I2R sensor systems in the future.

3. I2R Sensor System Specifications

3.1   The following sensor sub-systems w be deployed by I2R and shall provide the listed data as inputs to the 3D sensor visualization platform in real-time.

#	I2R Sensor Systems	Deployment	Sensor Data
3.2	**Toilet-usage Monitoring**	30 sensors 3 sensors per toilet x 10 toilets : - 2 ammonia sensor - 1 magnetic motion sensor	Per toilet ID 1. Ammonia level value 2. Number of users going in/out
3.3	**Wireless Sensor Network**	50 sensors	Per sensor 1. Temperature value 2. Noise level value 3. Coordinate (lat/lon)
3.4	**Age-Gender Recognition**	1 sensor	Per station 1. # of people by age/gender
3.5	**Carpark Monitoring**	18 cameras looking at 120 carpark lots (every 5 seconds)	Per carpark lot: 1. Occupied/vacant flag

3.6   I2R shall provide log file samples to the vendor to assist in development of the integration.

4. Project Deliverables

4.1   3D sensor visualization platform software

4.2   Server hardware for running the 3D sensor visualization platform

4.3   Integration modules with the following I2R sensor systems

    a. toilet-usage monitoring system

    b. wireless sensor network

    c. age-gender recognition system

    d. carpark monitoring system

4.4   Onsite setup and testing service at IoTAsia 2014 event site

4.5	Software to operate continuously for 24 hours a day, 7 days a week, with an uptime of at least 95%.
4.6	Warranty service of 12 months, from date of deployment for bug-fixes and performance issues
4.7	To provide complete documentation for the API/SDK to program new integrations with I2R sensor systems in the future.

5. Demonstration and Track Record

5.1	Upon request, the vendor shall provide a free demonstration of the platform product to demonstrate the functional requirements in Section 2 within 5 working days of submission closing date.
5.2	The vendor shall also state at least 3 customer references where the platform product has been deployed in the past 2 years to illustrate the track record of the product. For each customer reference, please state the type of sensor integrations that has been performed.

6. Project Deadline

6.1	The project have the following schedule:

6.1.1	Integration Development	-	12 weeks (Jan – Mar 2014)
6.1.2	Onsite testing and setup	-	Apr 2014 (by 20th April 2014)

Required Technical Capabilities of Company

7. Required Technical Capabilities

7.1	Ability to develop APIs and communication software using various Internet and wireless network protocols (e.g HTTP, TCP/IP, Bluetooth, Zigbee)

Other Requirements

8. Non Disclosure Agreement (if required)

8.1	Non- applicable