

Federated Interoperable Semantic IoT/cloud Testbeds and Applications

Open Call 4

4th FIESTA-IoT Competitive Call for Experiments

The FIESTA-IoT Project herewith announces its fourth Open Call for Experiments, targeting advance and innovative developments in the Internet of Things over the Experimentation as a Service platform and the underlying IoT testbeds that support the FIESTA-IoT Consortium.

Overall, the project's experimental infrastructure will provide experimenters in the IoT domain with the following unique capabilities:

- **Access to and sharing of IoT datasets in a testbed-agnostic way.** FIESTA-IoT will provide researchers with tools for accessing IoT data resources (including Linked sensor data sets) independently of their source IoT platform/testbed.
- **Execution of experiments across multiple IoT testbeds, based on a single API** for submitting the experiment and a single set of credentials for the researcher.
- **Portability of IoT experiments across different testbeds**, through the provision of interoperable standards-based IoT/cloud interfaces over diverse IoT experimental facilities.

4th Open Call for Experiments

The working topics of the experiments can be in any FIESTA-IoT domain, but with **strong preference** on the following domains of interest for the 4th Open Call:

- **DM1:** innovative experiments in the domains of agriculture and/or maritime, aiming to integrate data from various testbeds, showing the added benefits that the FIESTA-IoT can provide in those domains.
- **DM2:** innovative experiments with respect to energy consumption at data centers and indoor industrial/home environments.
- **DM3:** experiments expanding the services provided by FIESTA-IoT, i.e. for assessing the quality/trustworthiness of the data provided by the testbeds, for predictive analytics, location based services or for virtualization on top of the FIESTA-IoT platform. It is important to highlight the use of semantics within the FIESTA-IoT Platform and the need for proposed modules to exploit this characteristic.

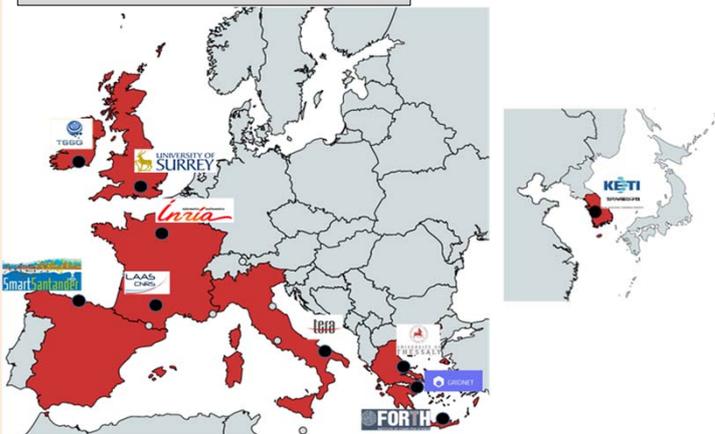
The FIESTA-IoT project will give priority to proposals that will target one of the above mentioned domains, but also welcomes proposals in the other domains of the project (i.e. smart building, smart city, home automation, environmental monitoring), leveraging on the data that originate from the project's testbeds.

Submission deadline (hard): 18th September 2017, at 17:00 Brussels local time

Call	Category / Identifier	Call budget	Max. budget per experiment	Minimum no. of experiments to be funded
Experiments	FIESTA-IoT-OC4-EXP	€ 200 000	€ 50 000	4
Total funding of this call			€ 200 000	

More information at <http://fiesta-iot.eu/index.php/opencall/>

Available IoT Testbeds



Testbed	Short description	Deployed devices
SmartSandander	Large-scale Smart City deployment.	Thousands of fixed and mobile sensors (environment, traffic, crowdsensing, etc.).
SmartICS	Smart Environment based on an indoor deployment of sensor nodes.	Hundreds of indoor sensors,
KETI	Indoor and outdoor Building Smart Environment deployment.	Hundreds of indoor sensors. Tens of outdoor sensors.
SoundCity	Large-scale crowdsensing testbed using mobile phones.	Sensors on phones measuring noise, proximity, speed, location.
ADREAM	Large-scale smart building testbed.	6500 sensors for lighting, electricity, HVAC, solar panels, etc.
NITOS	Heterogeneous LoRa and wireless sensor network.	20 LoRa and 60 Zigbee indoor environmental, presence sensors and RSSI sensors
EXTEND	Sea water quality and air pollution monitoring testbed, as well as for detailed power consumption (WiFi, LTE, XBee, LoRa)	1 fixed and 4 floating buoys with sensors for sea water and air pollution.
FINE	Smart city, smart building and home automation testbed.	40 outdoor environmental monitoring and power consumption/link quality sensors. 6 indoor/automation sensors/actuators.
RealDC	Live data centre testbed for monitoring DC operations.	100 sensors for power consumption and weather station. Historical data sets.
Tera4Agri	Outdoor testbed for smart agriculture.	More than 10 sensors for environmental, soil and tree monitoring.

FIESTA-IoT Platform Overview

- **Experimentation-as-a-Service (EaaS) paradigm for IoT experiments:** Instead of deploying yet another physical IoT infrastructure, it will enable experimenters to use a single EaaS application program interface (API) for executing experiments over multiple existing IoT testbeds. Experimenters will be therefore able to learn the EaaS API once, and accordingly use it to access data and Resources from any of the underlying testbeds.
- Testbeds participating in the federation will have to implement the **common standardized semantics and interfaces that are being defined within the FIESTA-IoT project**. This will enable the FIESTA-IoT meta-platform to access their data, resources' and services' descriptions and other low-level capabilities.
- **FIESTA-IoT meta-platform will be a directory service** where resources from multiple testbeds will be registered. In the same way, the observations produced by them will be also stored. This directory will enable the dynamic discovery and use of resources (e.g., sensors, services, etc.) from all the interconnected testbeds.
- Use of **semantic technologies to support the interoperability** between heterogeneous IoT platforms and testbeds. **FIESTA-IoT ontology** has been defined to rule the semantic annotation of the core concepts used within the FIESTA-IoT Meta-Platform.

