

The AffectUs IoT Challenge@HUA

Do you want to create a new application exploiting the sea of data produced by the Internet of Things? We give you the challenge and tools through an open participation Hackathon! AffectUs is an extension project to the H2020 TagItSmart project, aiming at modelling supply chains as well as disseminating product related or generic smart city information across all affected entities.

Warm-up event and main day:

A warm-up event will take place on Friday 16th of March, 17:30 – 20:30, at the main auditorium of the Department of Informatics and Telematics of Harokopion University of Athens (Omirou 9, Tavros, 177 78, 2nd floor), that will mark the beginning of the Hackathon. During this event, the organizers will present the basic functionalities of the AffectUs project, the scenarios on which the participants will compete and tools that can be used for the Hackathon, and will answer to any questions regarding the competition. The hackathon will continue all day on the 17th of March at the same premises, from 10:00 to 18:00. Participants will be able to consult and discuss with AffectUs members and tool developers around their envisioned solution as well as implementation details. If finished, projects can be demonstrated on site, or sent up to the designated time (within one week of the Hackathon start) via email. Further questions regarding the competition can be sent at affectus_hackathon@hua.gr.

The Scenarios:

The scenarios are focused around the Internet of Things, Supply Chains and Smart cities concepts. We are looking for implementations that can be utilized in conjunction with AffectUs project concepts and are integrated primarily through the Node-RED environment, a visual tool for the wiring of Internet of Things and services based on the NodeJS framework.

- **Scenario A:** Scenario A refers to the exploitation of one or more Open Data sources from Smart Cities (regardless of which city), in order to ingest data, process them and extract events of interest in a given domain, following the DIKW paradigm. As an example, obtaining raw data and applying clustering techniques can help categorize them in two or more categories of interest that are automatically extracted based on non-supervised machine learning approaches. Examples are included in www.eventflows.com as to how data can be transformed to more meaningful events. The final outcome (the created event and its publication endpoint) should finally be declared through the AffectUs UI in order to test its functionality and provide feedback.
- **Scenario B:** Scenario B refers to the rationale of building a supply chain from Things and receiving information from the AffectUs case. For this scenario, the EVRYTHNG platform (<http://evrythng.com/>) may be used in order to create and manage things, while the modelling of the chain may be performed through the AffectUs respective Create Model UI. Given that there are no actual things involved, simulation of scanned data (QR code labels) from the things, feeding into EVRYTHNG and then to AffectUs would be needed. The purpose of this scenario is to create an inventory of things, and the respective model of the supply chain through the AffectUs platform.

Goals and Challenges:

Competitors can participate to this Hackathon as individuals or in teams. The basic challenges that participants who choose **Scenario A** will have to complete are:

- Integrate at least one external data source and one data management solution (of your choice) in order to store the retrieved data.
- Apply at least one filtering/processing layer (could be based on Machine Learning, statistical analysis etc).

The basic challenges that participants who choose **Scenario B** will have to complete are:

- Create an account and Things scenario on EVERYTHING
- Use the AffectUs UI to enable OATH access to the created products and use the Product Owner and Create model UIs
- Achieve the data flow from EVERYTHING to AffectUs backend and notification mechanisms

In order to get more points, for both Scenarios, the participants should try to complete the following **extra challenges**:

- Expose everything “as a service”: service-based implementation to be able to combine everything efficiently through NODE-Red
- Re-use of external flows, especially flows provided by AffectUs.
- Provide feedback on the functionalities and usability of AffectUs through the relevant forms

More details regarding the challenges as well as the tools will be presented during the warm-up event.

The available tools:

All the tools that can be used as well as further instructions and details regarding their use will be uploaded on <https://github.com/affectus-hua/tools> . Main technologies of interest include Node-RED, Apache Spark, Protégé, MongoDB, RabbitMQ and Docker as a deployment/management platform. The tools will also be provided as a VM for testers to download and launch.

Submission guidelines:

The participating individuals and teams have to submit their project till **Friday 23rd of March, 23:59**, by sending an e-mail at affectus_hackathon@hua.gr . This e-mail must include:

- The names of the participants and a contact number. Teams should send just one e-mail with the names of all participants and their contact details (contact number and e-mail).
- The source code files attached or any corresponding external links (e.g. github repos).
- Instructions for the use of the source code.
- A short presentation describing the scenario that was implemented or extended, the procedure that was followed and the final results (max 5-6 slides).

All the content can be attached on the e-mail. Alternatively, the participants can forward it through the corresponding external links, like a GitHub url.

The Prizes:

The results of the Hackathon will be announced within a week after the end of the competition. Regarding the prizes and awards of the Hackathon:

- Prizes for the top three projects will be awarded, in the form of relevant electronic kits and devices.

- Acknowledgment of completion certificate: This certificate will be awarded to all the contestants that will complete the basic challenges and produce a solution in one of the two scenarios.
- Parts of the solution/code that will be submitted by the contestants may be included as an extension in the AffectUs project prototype. This fact will be stated in the certificates of the participants.