

**2<sup>nd</sup> edition of the oneM2M international Hackathon being organised by KETI in partnership with TTA and ETSI and supported by Ministry of Science and ICT, S. Korea from 4 October to 28 November 2022 in online mode.**

KETI, in partnership with TTA and ETSI and supported by the Ministry of Science and ICT, S. Korea is organising an online hackathon from 4 October to 28 November 2022.

The theme of the hackathon is to build IoT Solutions that can help citizens solve major environmental and society issues using any oneM2M platform. Recommended platforms are listed in Annex A.

Participation is open to student teams (one or more students) from anywhere across the world. However, it is not limited to university students, other participants such as developers, Small & Medium Enterprise (SME) teams are also welcome.

**Deliverables:**

Each team will have to produce:

- a hackster.io project describing step by step how to build the IoT solution
  - Description of the issue and how the project solves it
  - Detailed technical description of the IoT solution
  - HW and SW components used (oneM2M platform, sensors, actuator, dependencies, etc ...)
  - Step by step user guide
- A short video (< 5 min) showing the solution in action

**Evaluation:**

The submitted project proposals will be validated by KETI to make sure these satisfy the objectives of this hackathon. For the validated project proposals, to help participants build their solution, H/W kits such as raspberry pi, sensors and actuators may be provided by KETI, upon request.

**Criteria for evaluation include:**

- Innovative Scenarios
- Quality of the deliverables
- Quality of the demo
- Team's ability to build a creative **device** application that supports the following features:
  - Correct and creative use of the oneM2M protocol
  - Use of sensors – creative use of multiple sensors is encouraged
  - Use of actuators – creative use of multiple actuators is encouraged
- Team's ability to build creative user applications that supports one or more of the following features:
  - **Correct and creative use of the oneM2M protocol**
  - Interaction with the sensor data originating from the device and stored in the oneM2M Platform

- Interaction with the actuators connected to the device via the oneM2M Service Layer
- Analysis of the data sets in the oneM2M Platform
- Graphical display of data analysis results (e.g., using dashboard, etc.)
- The capability to trigger device actuators based on the analysis of the collected data set

E.g., Display the number of available parking spots in a parking lot

**Prize:**

Prizes will be awarded to the selected teams. All participants/teams will receive a participation certificate from the organizers.

**Venue:**

The participating teams will be provided with an online workspace to exchange information and communicate with the organisers. Each team will get its own private repository for storing files, chat, conduct video meetings and organise their work as required. This space can be accessed only by the team, the university contact person and the organizers (support team and jury). It cannot be accessed by members from other teams. Public channels facility will be provided to allow sharing of information to all participants, this will give an opportunity to teams to interact with others in an international environment.

**Timelines:**

Submission of Applications: 23 September 2022 10:00 UTC

Communication to Shortlisted Candidates: 27 September 2022 23:59 UTC

8-Week Developer Event

- Kick-off: 4<sup>th</sup> October 2022 (8am UTC)
- Deliverable Submission: 21<sup>st</sup> November (8am UTC), hackster.io
- Awards Ceremony: 28<sup>th</sup> November (8am UTC), zoom & in person in Seoul, S. Korea

**Participation:**

Free of cost for teams shortlisted by an online application process on a ‘first come first served’ basis. Applicants are encouraged to consult oneM2M teaching material, reference guides and developer resources listed in Annex B. Please submit your application to Mr SeungMyeong Jeong ([sm.jeong@keti.re.kr](mailto:sm.jeong@keti.re.kr)) giving the details listed below, by 23 September 2022 at the latest. Organisers will communicate the results to the shortlisted candidates by 27 September 2022.

**Details required at the time of applying:**

Team coordinator name and contact details

Team organization name

**Intellectual Property Policy:**

The organisers will have no claim to the idea/solution presented by participants.

However, the ideas/results must be made available under one of the appropriate open-source licenses (see <https://opensource.org/licenses/category>).

## About oneM2M

oneM2M is the global standards initiative that covers requirements, architecture, API specifications, security solutions and interoperability for Machine-to-Machine and IoT technologies. oneM2M was formed in 2012 and consists of eight of the world's preeminent standards development organizations: ARIB (Japan), ATIS (U.S.), CCSA (China), ETSI (Europe), TIA (U.S.), TSDSI (India), TTA (Korea), and TTC (Japan), together with industry fora and consortia (GlobalPlatform) and over 200 member organizations. oneM2M specifications provide a framework to support applications and services such as the smart grid, connected car, home automation, public safety, and health. oneM2M actively encourages industry associations and forums with specific application requirements to participate in oneM2M, in order to ensure that the solutions developed support their specific needs. For more information, including how to join and participate in oneM2M, see: [www.onem2m.org](http://www.onem2m.org).

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### Annex A:

The proposed solutions must use any oneM2M platform and protocol in an efficient way.

Following oneM2M platforms are available:

#### *Open Source:*

- [Mobius from OCEAN, open alliance for IoT standard:](http://developers.iotocean.org/)  
<http://developers.iotocean.org/>  
<https://github.com/loTKETI/Mobius> latest is V2.4.42
- ACME:  
<https://github.com/ankraft/ACME-oneM2M-CSE> latest is V0.10.2
- [OM2M](http://www.eclipse.org/om2m/), hosted by the Eclipse Foundation  
<http://www.eclipse.org/om2m/> latest is V1.4.1

#### *Others:*

Participants can use their own or a partner oneM2M compliant platform, libraries and tools. This will have to be approved by the organisers in advance.

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### Annex B:

#### Teaching Material:

- [oneM2M advanced tutorial 2020](#) (LoRa, dashboard, etc)
- <https://www.youtube.com/playlist?list=PLdd4EJmw5gUIIXL0oek7RicHC5iFGfh1Z>
- MOOC Developed by IIIT Hyderabad: <https://mooc.indiaeu-ictstandards.in/courses/onem2m/>
- oneM2M Jupyter Notebooks – Introduction to oneM2M  
<https://github.com/oneM2M/onem2m-jupyter-notebooks>
- Additional materials will be given to the teams via the tool

Getting Started with oneM2M: TR-0057

[Draft Guide \(under development\) :](#)

<https://member.onem2m.org/Application/documentapp/downloadLatestRevision/default.aspx?docID=33407>

- provides high level descriptions of the main functionalities and features of the oneM2M service platform. It should be considered as an “entry point” before going more deeply to the standards.

### **Hackster.io**

- hackster projects from 2021 int’l hackathon events  
<https://www.hackster.io/search?i=projects&q=onem2m>
- oneM2M tutorial (with virtual SW devices, Luminosity detector):  
<https://www.hackster.io/benalayamahdi/onem2m-tutorial-8c87e5>
- oneM2M Tilt Detection & Alert with NodeMCU (ESP8266) (with HW kit): <https://www.hackster.io/samir-medjiah/onem2m-tilt-detection-alert-with-nodemcu-esp8266-7a5223>
- oneM2M demo (with HW kit: Luminosity detector):  
<https://www.hackster.io/onem2m/onem2m-demo-57022e>
- oneM2M Potentiometer/PushButton/LCD with NodeMCU (ESP8266) :  
<https://www.hackster.io/samir-medjiah/onem2m-potentiometer-pushbutton-lcd-with-nodemcu-esp8266-1ea20a>
- oneM2M RemoteControler/ServoMotor with NodeMCU (ESP8266) :  
<https://www.hackster.io/samir-medjiah/onem2m-remotecontroler-servomotor-with-nodemcu-esp8266-db4be3>