Machine Learning for IoT: Homework III, Group 17

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I. Protocol choice: MQTT or REST

We choose MQTT over REST as a communication protocol because for this task (send PC battery level and status) it is more efficient thanks to publish/subscribe model. MQTT is ideal for IoT application thanks to his design, useful for low-bandwith high-latency networks. In this task is not required low latency so we focus on the security that is guaranteed by MQTT protocol (by the three levels of QoS).

The system should manage not so complex data, only the status of battery and percentages of power, so that's another reason to use MQTT over REST (that is preferred for more complex forms of data).
Having a small size message overhead makes MQTT the perfect choice for embedded devices that requires low computational power and reduced energy coonsumption, since it is a lightweight messaging protocol.

Furthermore, thanks to MQTT the message broker can easily handle requests from multiple clients without creating multiple connections between them, making the network more scalable.

II. HTTP method

To retrieve the list of MAC addresses and the battery status information, the *GET* method is used, as it is the best method to retrieve a specific resource from the server and should have no other effect on the data.

To delete the time series of a specific MAC address, the *DELETE* method is the best choice, as it is the only idempotent to eliminate an existing resource from the server.
A detailed description for each method is shown in Table I.
In conclusion, the *PUT* and *POST* methods are not useful for our application as they are used to send data to a server to create or update a resource.

method	endpoint	description
GET	**/devices**	retrieve the list of MAC addresses of the monitored devices
GET	**/device/{mac_address}**	retrieve battery status information of the device with specified MAC address in the specified time range
DELETE	**/device/{mac_address}**	delete the timeseries associated to the specified MAC address

TABLE I
Description of implemented methods.