

Dec 10, 2020

## Panasonic Announces UBMC Service - A Cloud-based Battery Management Service to Ascertain Battery State in Electric Mobility Vehicles

**Osaka, Japan** – Panasonic Corporation will begin offering a new, cloud-based battery management service, known as the UBMC (Universal Battery Management Cloud) service, utilizing a proprietary AI-based technology that incorporates its battery expertise. The technology can ascertain the state of various types of batteries installed in electric mobility (e-mobility)\*1 vehicles in real time to ensure they can be used with peace of mind.

### Background/Overview

To cope with global warming and other issues, the electrification of mobility vehicles is gaining pace. However, the displays showing remaining battery charge on these e-mobility vehicles are not always accurate, and on occasion can lead to unexpected power outages. Also, with the inability to gauge battery changes over time, it is possible that battery replacement timing and other aspects will be missed.

In response, Panasonic has used the data and expertise it has accumulated through battery development, together with AI and cloud-based technologies, to develop the UBMC service. The service can ascertain and quantitatively analyze operating state, enabling real-time monitoring and visualization of the batteries in question. Utilizing this service will free operators from battery-based issues, and contribute to a society in which individuals can use e-mobility vehicles with peace of mind.

The features of the UBMC service are as below.

### 1. Accurate estimation of battery state to prevent sudden power outages

Utilizing its unique expertise in battery development, Panasonic has developed an entirely new AI-based estimation technology which uses a battery log collected on the cloud as machine learning data. This has enabled the creation of a highly accurate\*2 SOC estimation model for a range of different batteries. Users can accurately gauge the remaining battery charge when using an e-mobility vehicle through a smartphone app, and prevent unexpected power outages.

### 2. Remote monitoring for optimal battery operation

With battery operation data managed on the cloud, the UBMC application programming interface (API) ensures that the battery state of all e-mobility vehicles can be seen remotely in real time. This will enable the customer service departments of e-mobility manufacturers to inform users of the ideal timing for battery replacement, while sharing-service operators will be able to efficiently manage their charging operations.

### 3. Updatable functions for new mobility experiences

Based on accurate estimation of battery state, map-based information enables users to ascertain the distance they can travel from their current location based on their remaining charge. The service can also suggest routes with the most convenient charging points or battery replacement locations based on the user's destination and transit points. In this way, it can provide entirely new mobility experiences with constantly updatable functions.

## Notes:

\*1: Motor-driven, compact mobility vehicles such as electric bikes.

\*2: For three months of log data, in-house experiments saw less than 3% error in estimation values.

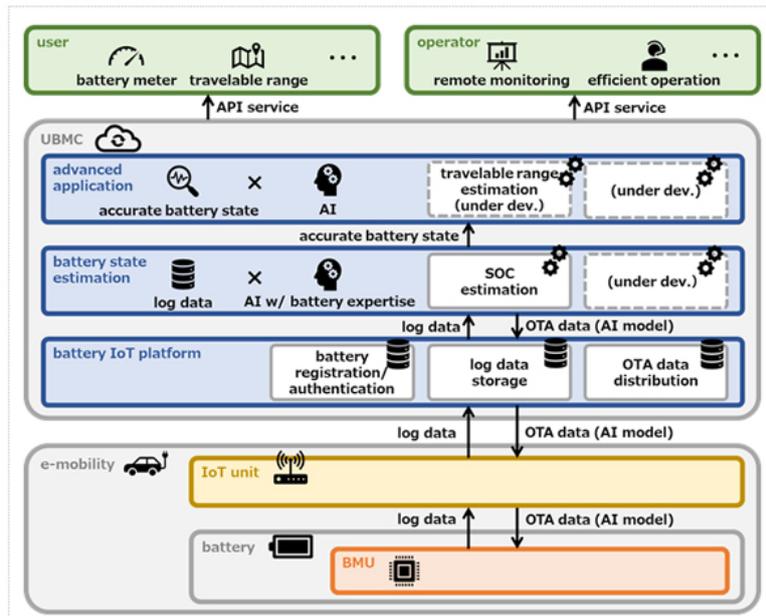


Fig.1 System structure of UBMC Services

## Advance implementation of the UBMC service

Panasonic's new service has been adopted in the new GFR-02 and LOM models from glafit inc., a manufacturer of electric bikes and scooters. From December 2020, Panasonic will provide regular Over-the-Air distribution for the latest battery packs with SOC estimation functions and API services. This will allow users to see highly accurate displays of remaining charge in 1% increments through a smartphone app. Initially, the service will be used in combination with the battery packs in 2,000 of glafit's electric bikes and scooters.

Inside each of the battery packs is a battery management unit (BMU) that is compatible with the UBMC service. Data communication between the battery pack and the cloud will be facilitated by a Bluetooth Low Energy (BLE) module within the bike or scooter and an app installed on the user's smartphone.



Fig.2 Conventional remaining charge displays (on meters installed in bikes and scooters)

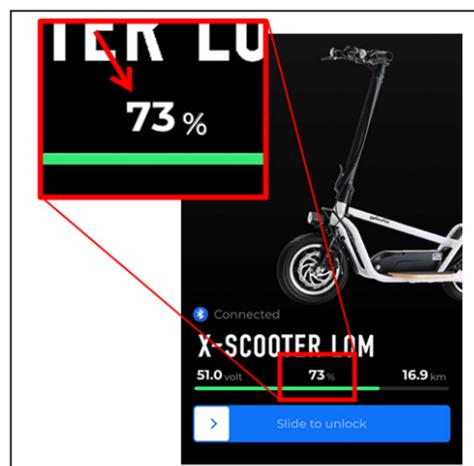


Fig.3 Remaining charge display using the UBMC service (on a smartphone screen)

Through this new service, Panasonic will be able to continuously enhance and provide solutions that increase value for users of e-mobility vehicles, as well as solutions that help to solve operational issues for e-mobility companies. Panasonic will also seek to co-create new solutions with associated manufacturers and service providers, and enhance value for users and operators of battery-equipped products and services both in Japan and abroad.

## Related Links:

- glafit inc. <https://glafit.com> (Japanese only)

## Media Contact:

Panasonic Corporation Brand Strategy Division Global Communications Office  
<https://news.panasonic.com/global/contacts/>

### About Panasonic

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