BatteryLab, A Distributed Power Monitoring Platform For Mobile Devices
https://batterylab.dev
Matteo Varvello, Kleomenis Katevas, Wei Hang, Mihai Plesa, Hamed Haddadi, Fabian E. Bustamante, Benjamin Livshits

Introduction
We present BatteryLab, a distributed platform for battery measurements in Android and iOS devices. Our vision is an open source and open access platform that users can join by sharing resources.

Infrastructure

- **Access Server**: A low-tier AWS instance that manages infrastructure and experiments scheduling.
- **Controller**: A low-cost machine (e.g. a Raspberry Pi), responsible for managing the vantage point.
- **Power Monitor**: A power metering hardware capable of measuring the current consumed by a test device in high sampling rate.
- **Test Device(s)**: An Android or iOS device (phone or tablet) that can be connected to a power monitor.
- **Circuit Switch**: A relay-based circuit with multiple channels that lies between the test devices and the power monitor.

Automation

- **Android Debugging Protocol** (Android)
- **UI Testing** (Android and iOS)
- **Bluetooth keyboard** (Android and iOS)

Usability Testing

- **Physical access** (a human interacting with the device)
- **Remote access** (via a regular web-browser)
- **Crowdsourcing**

Accuracy

What is the impact on BatteryLab’s approach to the accuracy of power measurements?

Use Case

Which of today’s Android web-browsers is the most energy efficient?

How to Join?

If you or your institution want to join BatteryLab, please visit us at https://batterylab.dev.

References