

Battery Bench: Bring battery testing back to the future - GUADEC Lightning talk

[Slide 1] Hello everyone! My name is Jose and I am glad to be here talking about my Google Summer of Code project! The title of the summer project is, as you can see on the slide: "Battery Bench: Bring battery testing back to the future", and its mentor is Christian Kellner (@gicmo in chats and Twitter), who is one of the main repository maintainers.

[Slide 2] Talking about myself, I did a Double Degree in Computer Science and Business Management that I finished on 2018, three master degrees, two related to Business Administration (International Businesses and Financial Audit) and one related to Computer Science, concretely to the field of Artificial Intelligence. Currently, I'm doing my PhD at University of Las Palmas de Gran Canaria, where I did my degrees and it is about new applications of artificial intelligence in business problems, starting with measurement and prediction of social responsibility in hotels related to employment. About my previous experience in open-source, I participated on GSoC in 2017 on wxWidgets project. In a short, it was about improving Javascript execution inside C++.

[Slide 3] Talking about the project, gnome-battery-bench is a battery testing software, that helps to an user to check how having applications open, using peripherals or doing something with the keyboard or mouse impact on battery usage. The main feature and benefit of this application is to record and track battery and energy consumption with the goal to reduce those. To do that, you can develop and run tests to measure the impact, recording keyboard and mouse events, mainly.

[Slide 4] Our main objective is improving laptop battery performance on future versions of GNOME. To achieve this, one of the main milestones is have the application working on Wayland, that is you can record (and run) test on this window system. Nowadays, the software works for X11, but with the change to Wayland, it is needed to support it. Other things we plan to achieve during the summer is solving issues on the bug tracker, like some logging issues and tiny things, and clean the code. Finally, in August, if we have time, is tracking power consumption by extending the existent power grid web app and track power saving performances of systems on perf.gnome.org.

[Slide 5] Because of Wayland doesn't have a native way to record what a user does on the computer and for security reasons it isn't going to be implemented, we used libevdev, that interacts with evdev devices to deal with mouse and keyboard, next to kernel level. The usage is simple: you initialize the device from event file and check that it is ready. Next, you query for next events available on the device, if it is available, you read the event and get event type, name, code, value, etc. That allow us to know what the user does with input peripherals, and record and reproduce them later, to check the battery usage of that movements.

[Slide 6] And that is my presentation. You have my project blog link on the slide and my LinkedIn, to follow the project and I will be happy to hear from you asking or proposing improvements. If you have any questions, feel free to ask, I will be glad to answer them. Thank you so much for you attention!