

# Fine Grained Energy Accounting on Smartphones

**Eprof is software that accurately measures and tracks energy consumption within apps at detailed code levels, enabling developers to optimize applications for better battery life.**

Smartphones offer many distinct advantages over a regular cell phone; users can watch videos, read/send email, and surf the web. Unfortunately, such features come at the cost of battery life. Certain apps can drain the battery in just a few hours. Minimizing battery drain from such apps requires a way to identify and track the energy consumed by the individual components of the software, allowing developers to zero in on the component(s) consuming the most energy.

Researchers at Purdue University have developed software to address this need and provide a better power estimation than current programs. Eprof, which has been developed on two types of smartphones, Android and Windows Mobile 6.5, can provide accurate energy estimations on per-subroutine, per-thread, and per-process levels. This level of detail allows developers to identify the code causing the most strain on the battery, leading to apps that are optimized for energy consumption.

## **Advantages:**

- Detailed energy estimation
- Accounts for lingering energy consumption

**TRL:** 9

## **Intellectual Property:**

Provisional-Patent, 2013-02-02, United States

Utility Patent, 2013-04-09, United States

CON-Patent, 2018-05-31, United States

## **Technology ID**

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## **Category**

Automotive & Mobility  
Tech/Battery Management &  
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Energy & Power Systems/Energy  
Storage

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