

In just forty years, the number of mobile devices has exceeded the number of humans on Earth. With the growing computational capacity, the power demands of these devices are growing rapidly as well. Due to technological and spatial constraints, the capacity of mobile power sources has become one of the most important bottlenecks of further development. Moreover, since the power efficiency is a relatively new requirement, there are only a few tools addressing it, and the existing ones have certain drawbacks.

The goal of this thesis is to design and implement a tool helping developers of Android mobile applications to identify the battery-hungry parts of application code. The proposed solution is based on a novel approach - examination of power use estimations derived from the device's state together with the information about the code that is currently being executed. The prototype implementation has been tested on two Android applications with the conclusion that the proposed approach can provide useful information to the developer, but in practice, it encounters technical limitations reducing its accuracy, and thus it can not be used as a fully automated tool for identification of battery-hungry parts of Android application code.