

Towards the Use of Software Product Metrics as an Indicator for Measuring Mobile Applications Power Consumption

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Abstract : Maintaining factory default battery endurance rate over time in supporting huge amount of running applications on energy-restricted mobile devices has created a new challenge for mobile applications developer. While delivering customers' unlimited expectations, developers are barely aware of efficient use of energy from the application itself. Thus developers need a set of valid energy consumption indicators in assisting them to develop energy saving applications. In this paper, we present a few software product metrics that can be used as an indicator to measure energy consumption of Android-based mobile applications in the early of design stage. In particular, Treppn Profiler (Power profiling tool for Qualcomm processor) has used to collect the data of mobile application power consumption, and then analyzed for the 23 software metrics in this preliminary study. The results show that McCabe cyclomatic complexity, number of parameters, nested block depth, number of methods, weighted methods per class, number of classes, total lines of code and method lines have direct relationship with power consumption of mobile application.

Keywords : battery endurance, software metrics, mobile application, power consumption

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