



Universidade Federal do Piauí

Uma Plataforma Distribuída para Avaliação de Desempenho em Aplicativos Móveis

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CONTEXTO

- O NÚMERO DE SMARTPHONES AUMENTA SIGNIFICATIVAMENTE A CADA ANO
- A TECNOLOGIA DAS BATERIAS NÃO EVOLUI NO MESMO RITMO
- FOCAR EM OTIMIZAÇÃO DE SOFTWARE É UMA ALTERNATIVA

PROBLEMA

Distintas Apps

APP 01



APP 02

Distintas Versões

APP 01



APP 01

Requisitos

- Execução Automática
- Base Estatística
- Múltiplas Execuções
- Geração Automática de Gráficos Comparativos
- Envio dos Resultados para um Servidor
- Salvar os Resultados em um Log

Tabela 1. Comparativo entre Trabalhos Relacionados

Trabalho	Métricas de Monitoramento	Comparação Automática	Contexto
[Adhianto et al. 2010]	CPU	Não	Programas de Computador
[Zhang et al. 2010]	Performance de Sistema e Consumo Energético	Não	Dispositivos Móveis
[Wang et al. 2012]	Operações E/S	Não	Dispositivos Móveis
[Jung et al. 2012]	Consumo Energético	Não	Dispositivos Móveis
traba [Choi 2013]	Consumo Energético	Não	Dispositivos Móveis
[Hao et al. 2013]	Consumo Energético, CPU, Memória RAM, Wi-Fi e GPS	Não	Aplicativos Móveis
[Hao et al. 2014]	Performance de Interface e Uso de Rede	Não	Aplicativos Móveis
Nosso Trabalho	Consumo Energético	Sim	Aplicativos Móveis

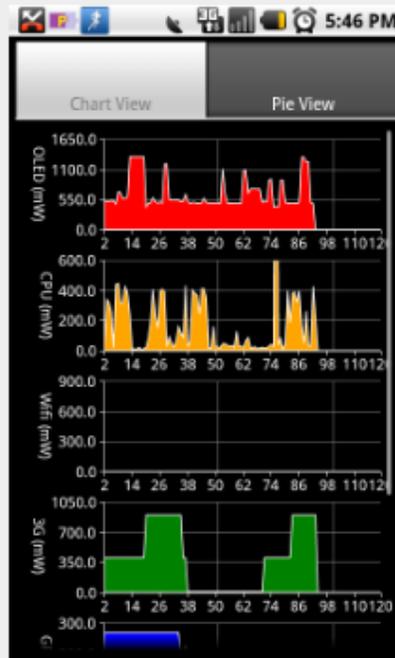
PowerTutor



A Power Monitor for Android-Based Mobile Platforms

[Overview](#)[Usage](#)[Documentation](#)[Download](#)

Overview



PowerTutor is an application for Google phones that displays the power consumed by major system components such as CPU, network interface, receiver and different applications. The application allows software developers to see the impact of design changes on power efficiency. Application users determine how their actions are impacting battery life. PowerTutor uses a power consumption model built by direct measurements during careful control management states. This model generally provides power consumption estimates within 5% of actual values. A configurable display for power consumption is provided. It also provides users with a text-file based output containing detailed results. You can use PowerTutor to monitor the power consumption of an application.

PowerTutor's power model was built on HTC G1, HTC G2 and Nexus one. It will run on other versions of the GPhone, but when used with phones other than these phone models, power consumption estimates will be rough. We plan to provide power models for other phones in the future.

About Us

PowerTutor was developed by University of Michigan Ph.D. students [Mark Gordon](#), [Lide Zhang](#) and [Birjodh Tiwana](#) under the direction of [Robert D. Morley Mao](#) at the University of Michigan and [Lei Yang](#) at Google. The work is supported primarily by National Science Foundation grant CNS-1059301. It received prior support from Google and the National Science Foundation under awards CCF-0964763 and CNS-0964763 done in collaboration with the joint University of Michigan and Northwestern University [Empathic Systems Project](#).

For those who are interested in PowerTutor, you might also be interested in [3G Test](#), an application that tells you the properties of networks.

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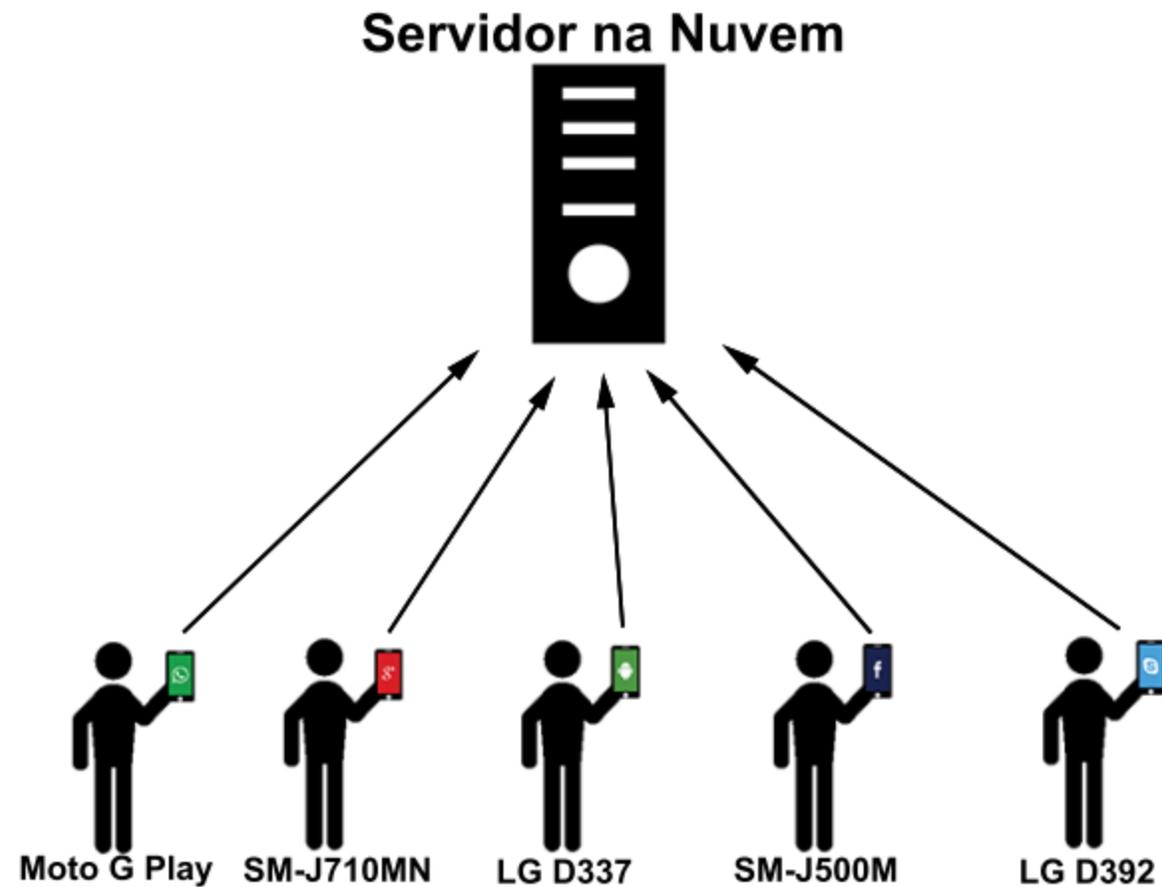


Figura 1. Esquematização da Arquitetura

Passos

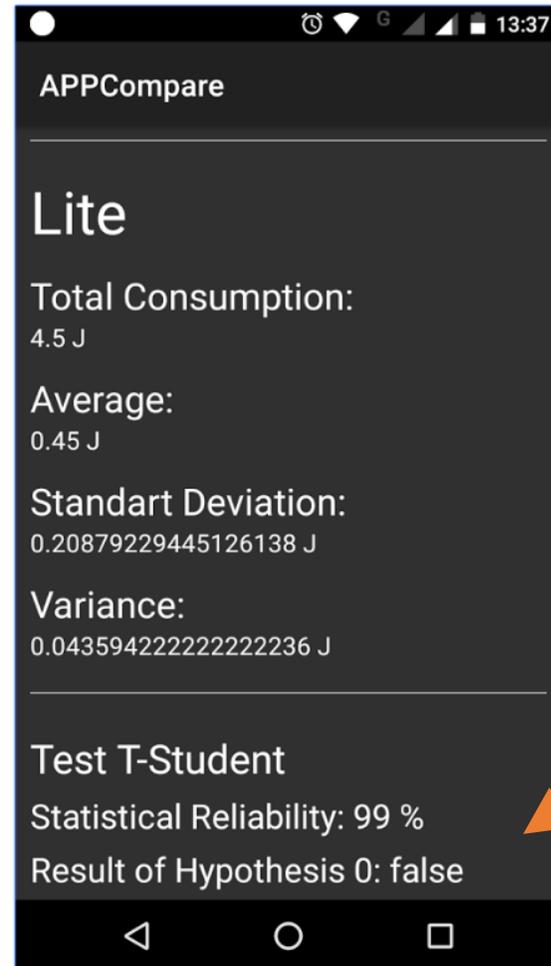
- Seleção de Aplicativos
- Configuração do Experimento
- Execução do Experimento
- Geração de Relatório em Gráficos

Telas



Figura 2. (A) Seleção de Aplicativos (B) Configuração do Experimento

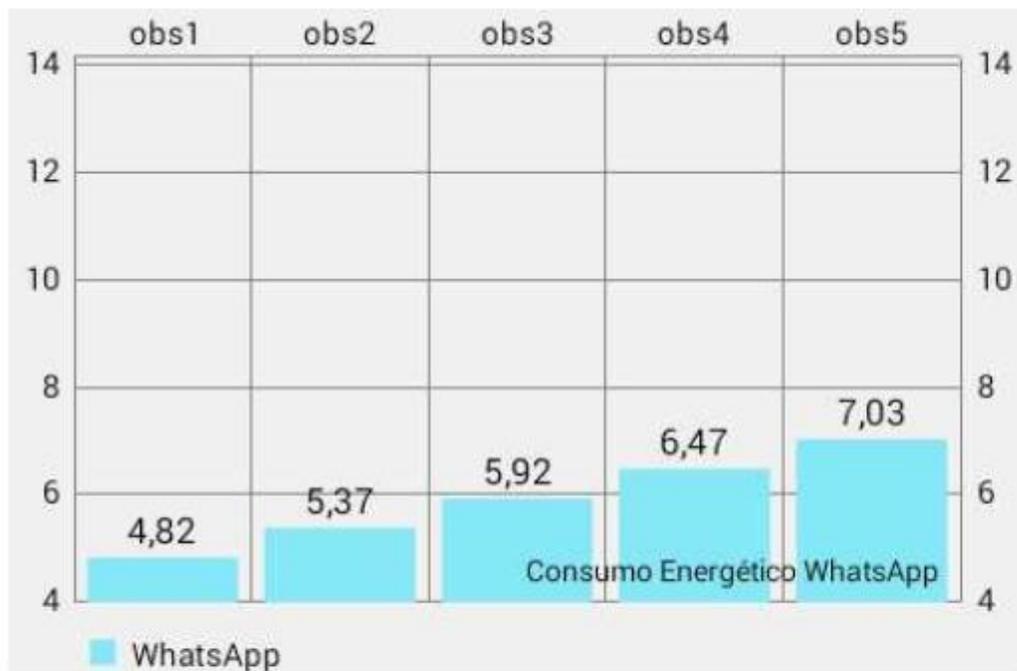
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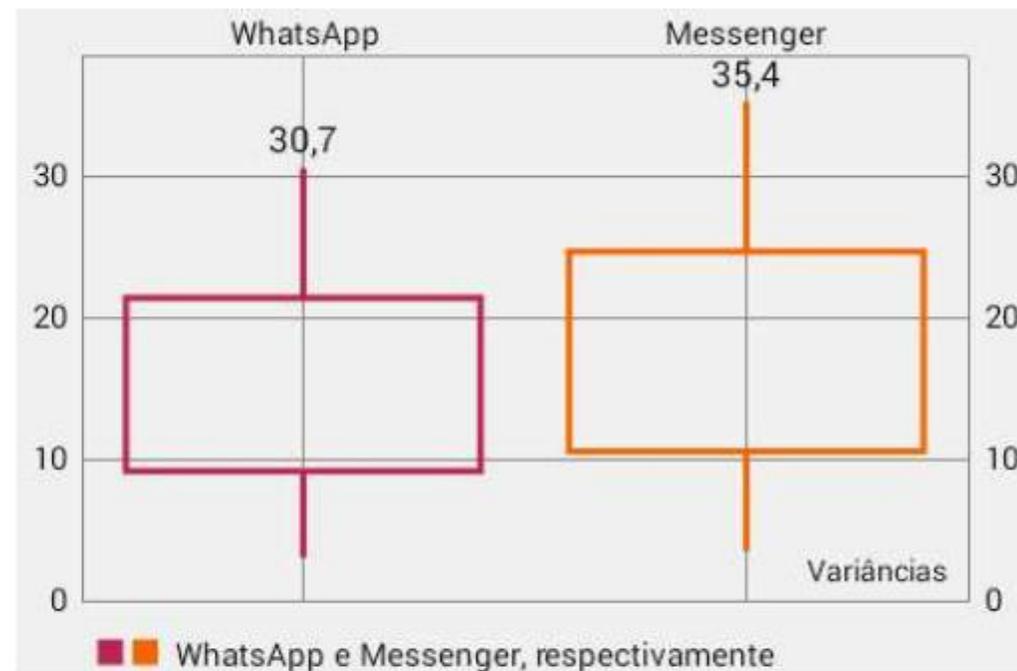
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Figura 4. Script de Perguntas e Respostas Utilizadas no Experimento

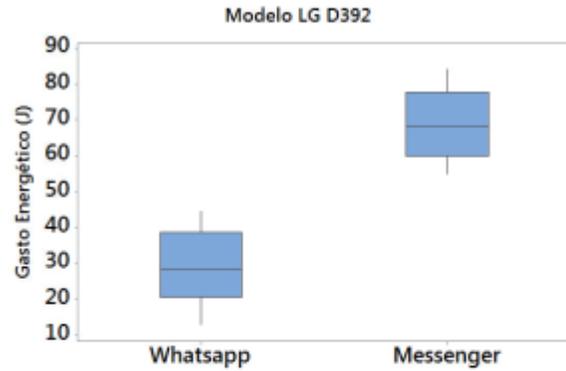


(A)

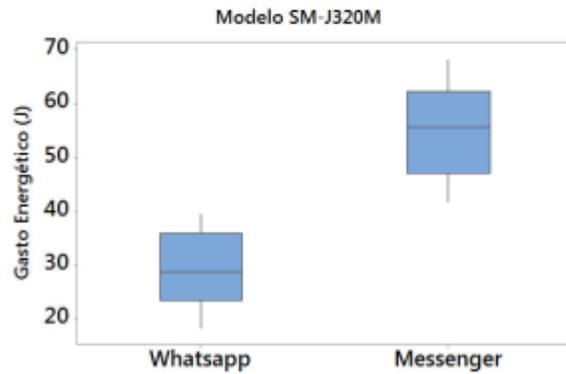


(B)

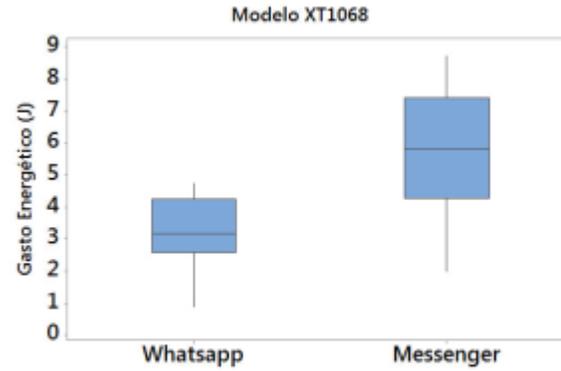
Figura 3. (A) Gráficos de Barras e (B) Boxplot



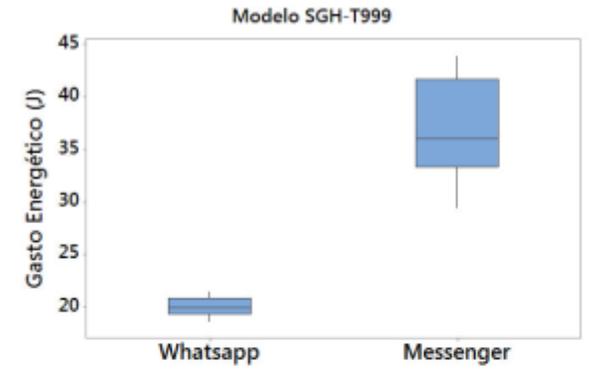
(A)



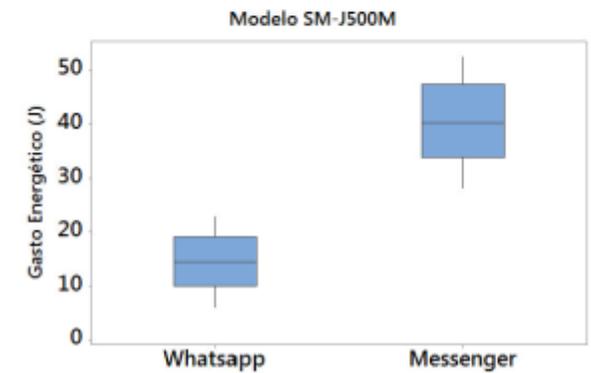
(C)



(E)



(B)



(D)

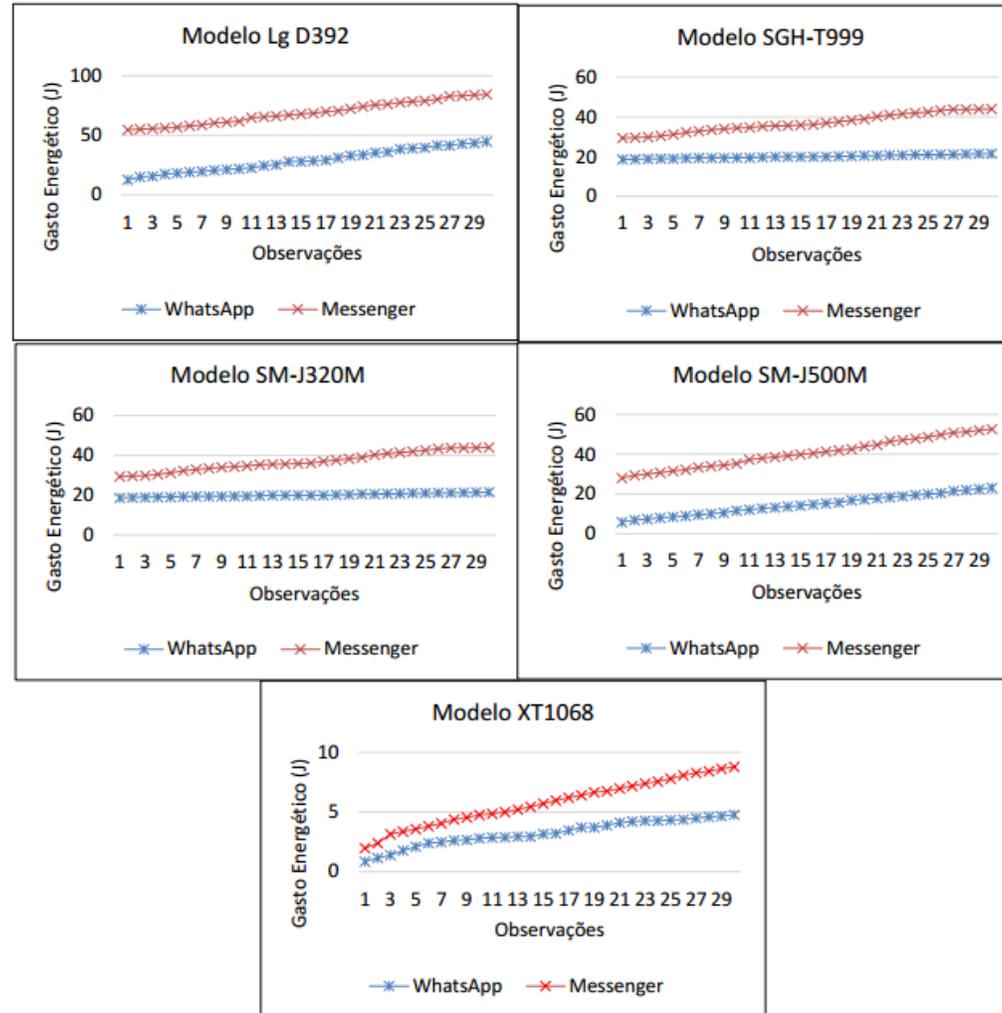


Figura 6. Consumo Energético por Observações

Próximos Passos

- Evoluir a implementação para um teste sem interação com o usuário
- Apresentar gasto energético por recurso
- Executar novos experimentos
- Avaliar a precisão da solução

Download

AppCompare: An App for Performance Evaluation

Francisco Airton Silva Tools ★★★★★ 16

Installed

This app is compatible with all of your devices.

Resource scarcity is a major obstacle for many mobile applications, since devices have limited energy power and processing potential. Today, there are a multitude of applications that enables to observe

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Obrigado