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Android app for cost-effective rich multimedia notifications for social media applications

Bachelor's Thesis in Computer Science
by

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Programming today is a race between software engineers striving to build bigger and better idiot-proof programs, and the Universe trying to produce bigger and better idiots. So far, the Universe is winning.

Rick Cook [1]

Abstract

Acknowledgements

Contents

Abbreviations

Acronym	**W**hat (it) **S**tands **F**or
LAH	**L**ist **A**bbreviations **H**ere

aesthetics

Symbols

symbol	name	unit
a	distance	m
P	power	W (Js^{-1})
ω	angular frequency	rads^{-1}

Chapter 1

Introduction

1.1 Motivation

1.2 Problem Definition

The goal of this thesis is to develop an android app to track the smartphone status such as battery, bandwidth availability and mobile data quota etc. The measurements are then sent to a backend service which intelligently adapts the quality of multimedia notifications according to the device status.

The app will be designed as a client for notifications from Spotify as well as social networks such as Facebook. The app authenticates users with the help of APIs from these services and receives notifications. From the device side it collects and sends the device status to the backend and receives and displays the notifications.

The backend service acts as a forwarding agent for notifications from the original services such as Spotify and Facebook. The backend intercepts the notifications for the users using the authentication tokens obtained via user credentials. The backend service according to the device status transforms the notifications (for e.g, lower resolution images in Facebook) and forwards it to the client app. The forwarding of notifications is done using Google notification service.

1.3 Usecases/Examples

1.4 Challenges

1.5 Contributions

1.6 Outline

Chapter 2

Related Work

2.1 Richnote

As described in the introduction, richnote[2] is a algorithm suggested to best solve the problem of delivering content rich multimedia notifications scaled down based on constraints on the device they are to be displayed on.

I'd like to expand on the problem.

An example of the problem would be if you are using Spotify, and your close friend starts listening to a new song. You could get a notification about this song including a full 30 second preview of the song. Now your device has to download this notification, this uses battery on your device. If your device has full battery, downloading and playing is not a problem. However, if the device is very low on battery, you might loose precious last battery power and end with a dead device a long way from a charger. You might not be able to show your ticket on the bus home(where you can charge). So to address this, one would have to manage the notification.

Another part of the problem is available bandwidth. You don't want to use the final bandwidth of the month on a 30 second preview of a song on Spotify, when you rely on it to purchase a digital ticket for the bus home. Then you would have to buy additional data or end up with a long walk.

attention, use of time, irritating amount of notifications

solution suggested in richnote document

breakdown of algorithm, problem to execute on device.

server (site other students thesis) -> client implementation(this thesis)

2.1.1 the problem

Chapter 3

Solution Approach

3.1 Introduction

3.2 Existing Approaches/Baselines

Reading [3]

3.3 Analysis

3.4 Proposed Solution

Chapter 4

Experimental Evaluation

4.1 Experimental Setup and Data Set

4.2 Experimental Results

Chapter 5

Discussion

Chapter 6

Conclusion and Future Directions

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Bibliography

[1] Rick Cook. *The wizardry compiled.* Baen, 1990.

[2] M. Y. S. Uddin, V. Setty, Y. Zhao, R. Vitenberg, and N. Venkatasubramanian. Richnote: Adaptive selection and delivery of rich media notifications to mobile users. In *2016 IEEE 36th International Conference on Distributed Computing Systems (ICDCS)*, pages 159–168, June 2016. doi: 10.1109/ICDCS.2016.107.

[3] Roger S. Pressman. *Software Engineering: A Practitioner's Approach.* McGraw-Hill Higher Education, seventh international edition, 2010. ISBN 0071267824, 9780071267823.