Developing Mobile Multimedia Apps, Botanic: A Case Study

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Abstract—This tutorial presents a methodology for the development of multimedia mobile applications. It describes the complete process of creating this type of App, going through all the stages of its lifecycle, from initial concept to final deployment and usage.

The underlying theory and abstract notions are illustrated by a practical example: Jobim Botanic — a project developed by the VISGRAF Laboratory in collaboration with the Instituto Antonio Carlos Jobim.

Keywords-Mobile Applications; Multimedia; Augmented Reality; Panoramas; iOS Platform;

I. GENERAL INFORMATION

Level: Intermediate.
Duration: 3 (three) hours.

II. CONTEXT AND THEME

A. Motivation

In recent years, mobile applications have come to the forefront of our life in consequence of the industry rapid technological development, and the worldwide adoption by the society at all levels.

Because of its very nature, development for mobile platforms imply in a change of paradigm for software design. It requires both the adoption of new tools and techniques, as well as, a different attitude towards the product.

In the above context we aim to understand the transformations that are underway by studying the software development for mobile multimedia applications and related methods. We also strive to provide an inside look of the process through reporting the experience of creating a real application.

B. Audience

The tutorial is targeted to students, professionals and researchers who wish to discover the world of mobile multimedia applications.

It is assumed that the attendees are familiar with computer programming, interactive techniques, and basic mathematical notions related to computer graphics image processing and multimedia.

C. Interest for the SIBGRAPI Community

Mobile multimedia applications can potentially draw interest from most of the SIBGRAPI Community. In addition to the appeal of many novel technological and sociological aspects, they are pushing the limits of various computer science disciplines, including Graphics, Vision, Image Processing, and HCI.

In order to be effective, mobile multimedia apps make use of a plethora of techniques of these related areas and very often promote advances to the state of the art by challenging theoretical results with real-life practical requirements.

III. COURSE DESCRIPTION

The course is divided into three parts: A) the first part covers the main phases of the application production pipeline; B) the second part introduces the basic tools and techniques employed for application development; C) the third part presents the application Botanic and discusses its creation process.

IV. SYLLABUS

The list of topics corresponding to each part is described below:

A. Methodology

1) Design: Concept; Background Research; UI Design.

2) Development: Planning; Production; Implementation.

3) Testing: Internal Evaluation; Ad Hoc Tests; Validation.

4) Deployment: Documentation; Advertising; Marketing.

5) Maintenace: Support; Follow-up; Revisions.

B. Tools and Techniques

1) System Platform: Hardware; Formfactor; Capabilities.

2) Development Environment: IDE; Language; Revision.

3) Frameworks: Foundation; Media; Communication.

4) Production Tools: Image; Video; Animation.

C. Case Study

1) The Botanic App: Tom Jobim and Botanical Garden.

2) Design Choices: iOS; iPhone.

3) Functionality: Information; Exploration; Sharing.

4) Multimedia Content: Poetry; Music; Photos.

V. SCHEDULE

The course duration is three hours divided as follows:

Part 1 – Methodology (45 minutes)

Part 2 – Techniques (45 minutes)

Part 3 – Case Study (60 minutes)

Q&A – Final Discussion (30 minutes)

VI. PRESENTATION

A. Presentation Requirements

The presentation of this tutorial will require the following resources:

- Video/Data Projector
- Projection Screen
- Sound Output and Speakers

B. Plan for Presentation

The presentation format will combine a lecture style introduction to the topics of the tutorial with practical hands on demonstrations of the applications, followed by live discussions with the audience.

SUPPLEMENTARY MATERIAL

Additional material related to the course is available online. The web portal for research projects on mobile applications of the VISGRAF Laboratory is at [1]. The web page of the Botanic App is at [2], where a link to the video on Youtube can be foud, as well as, a link for downloading Botanic at the App Store [3].

A technical report describing the Jobim Botanic project is also available [4].

REFERENCES

[1] VISGRAF, "Mobile computing projects portal," 2012. [Online]. Available: http://www.visgraf.impa.br/mobile/

[2] ——, "Botanic app webpage," 2013. [Online]. Available: http://www.visgraf.impa.br/botanic/

[3] L. Velho, "Botanic itunes preview," 2013. [Online]. Available: https://itunes.apple.com/br/app/botanic/id659911476

[4] L. Velho, F. Groetaers, and M. Duprat, "Botanic: New directions in mobile research," IMPA, Technical Report - VISGRAF Laboratory TR-05-2013, 2013.

[5] S. Kochan, *Programming in Objective-C 2.0*, 2nd ed. Addison-Wesley Professional, 2009.