

Proposal for Enhanced Charlottesville Area Transit Mobile Application

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Abstract

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Keywords: Charlottesville Area Transport, public transport, mobile app

A developed country is not a place where the poor have cars. It's where the rich use public transport.

—attributed to Enrique Peñalosa, former Mayor of Bogotá, Colombia

1 Problem Definition

In 2014, the Charlottesville Area Transit [CAT] organization commissioned a new mobile app meant to help bus riders better understand their public transportation options and reduce dependence on the outdated phone-based timetable system (NBC29 WVIR Charlottesville, 2014). Though basically functional, the graphical user interface (GUI) of the mobile application leaves much to be desired. Unlike its web-based counterpart (see Fig. 1) the app provides no obvious way of obtaining arrival estimates for all of the operational area's bus stops. Furthermore, it may crash or otherwise fail to boot up on many devices.

REAL-TIME ROUTE MAP

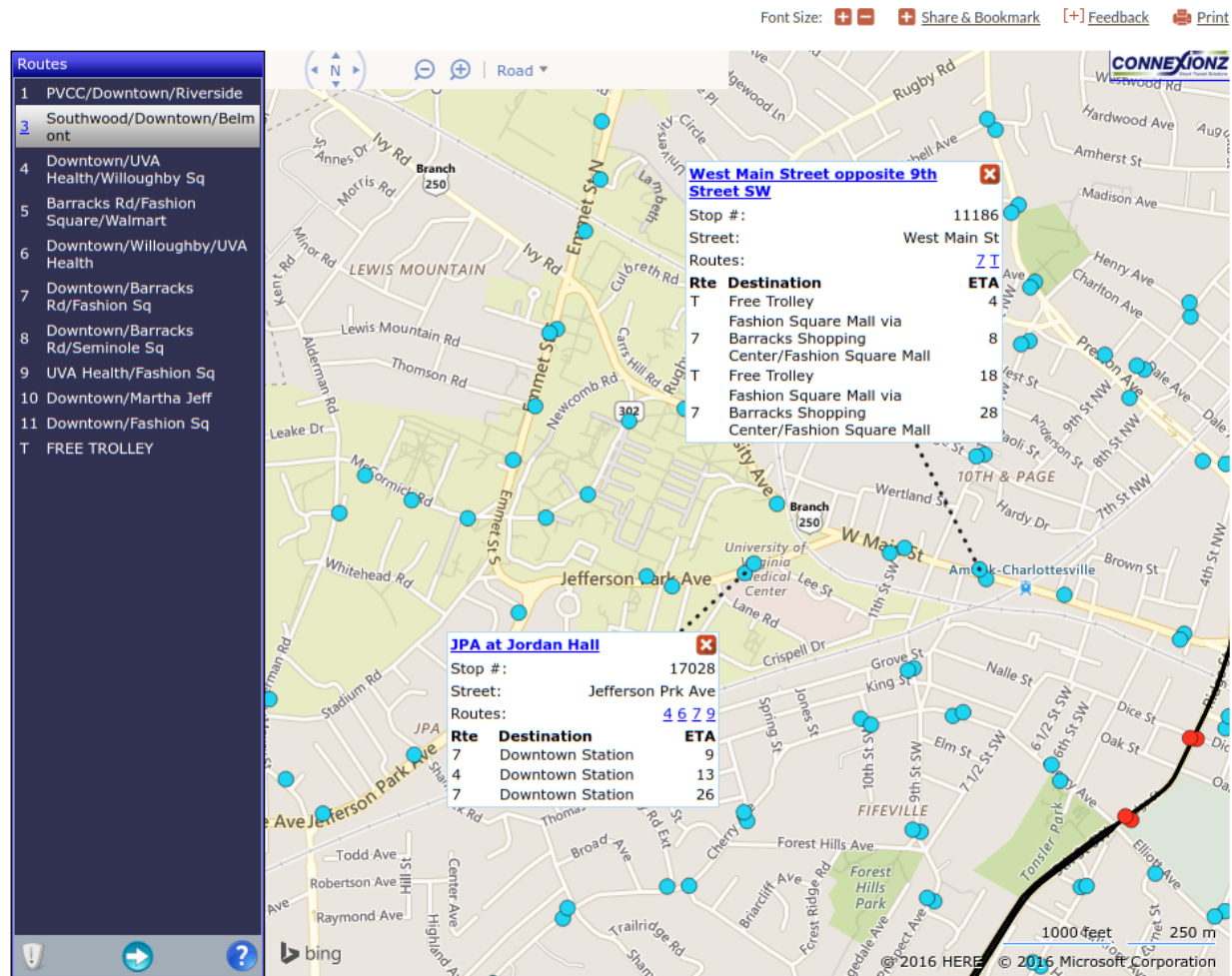


Figure 1: The CAT “Real-Time Route Map”, a website designed for desktop use that shows a system map, complete with all stops in the service area, along with timetable options (City of Charlottesville, n.d.).

By introducing the arrival estimate system and improving app stability and design, it is hoped that the application will better serve the Charlottesville community and increase the individual’s access to public transit. College towns like Charlottesville are relatively unique in that they often feature a close relationship between schools and the local and municipal governments that surround them. A result of this mutually-beneficial arrangement, we find that many college town mass transit options feature unique challenges.

In the case of Charlottesville, where two primary bus systems¹ intersect within city limits,

¹The University Transit System (UTS) serves primarily students and employees of the University of Virginia. The territory covered by Charlottesville Area Transit overlaps in many cases with that of the UTS—the CAT Free Trolley, for example, connects the University area to the Downtown Mall. CAT is also funded, in part, by the University of Virginia (CAT, 2011, p. 6), and students and ID-carrying employees of

the bus-riding population is significantly more diverse in age and income-level than the country at large. Whereas riders on CAT bus routes are a steady mix of work-commuters, students, and shoppers of varying ethnic background (CAT, 2011, p. 48–49), Taylor & Morris (2015) contend that bus transit in the United States is generally skewed towards commuters and minority riders. The limited availability of parking and other contraindications for travel by car result in a heavy reliance of city residents from all backgrounds on the bus transit system. It is therefore expedient that the area continue to invest in the convenience of travel by mass transit for all of its citizens—their livelihood depends on it.

The improvements suggested in this document to the existing CAT mobile app are hoped to address a broad cross-section of the community, providing enhanced utility to all users within.

2 Prototype Brainstorming

Our proposal suggests implementing minor fixes and aesthetic tweaks to the existing mobile app. The version current at the time of writing (Charlottesville Area Transit, release 3.8) is displayed in Fig. 2

We will categorize this proposal into three areas of development.

2.1 Modernization of GUI

Though the current graphical user interface (GUI) for the mobile app is generally quite functional, some minor cosmetic tweaks are advisable in order to reduce user cognitive load necessary in learning the application for the first time. For example, the button display bar at the bottom of the screen that allows one to switch from one widget to another lacks demarcated borders between neighboring elements. Additionally, the bar is not readily apparent to the end user as a functional—they may appear to be part of the route visualization above.

Our proposed solution to this problem is to redesign these buttons natively; that is, to utilize the host operating system’s pre-existing (Android, iOS, or other) design features to best familiarize the user with the app. If funding permits, developers might add on to this integration by introducing phone notifications when a bus is about to arrive at the current stop or left-right swiping to switch between one widget and the next.

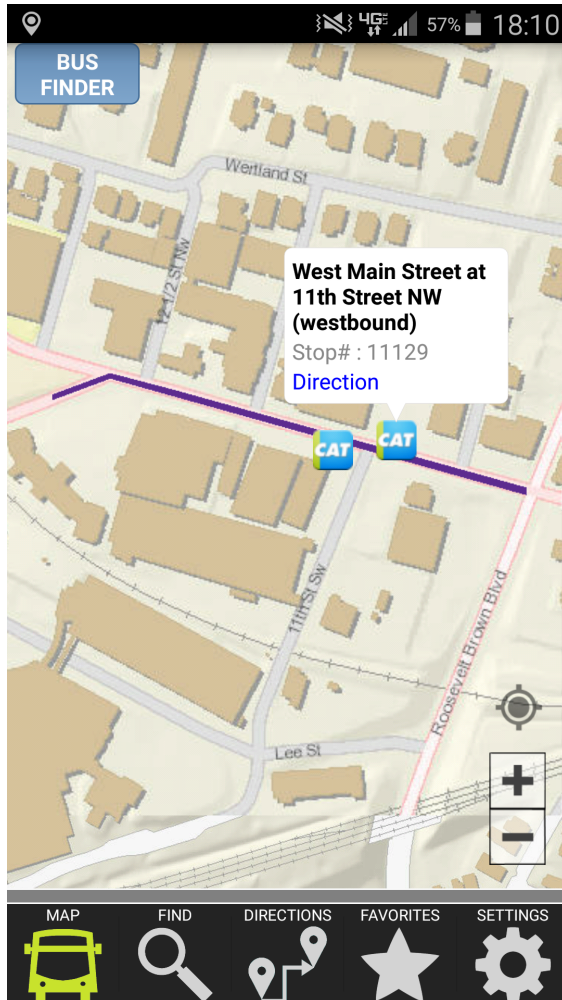
2.2 Enhanced Integration of Timetable Feature

- TransLoc does it better - cite TransLoc app too - time table is pretty important!

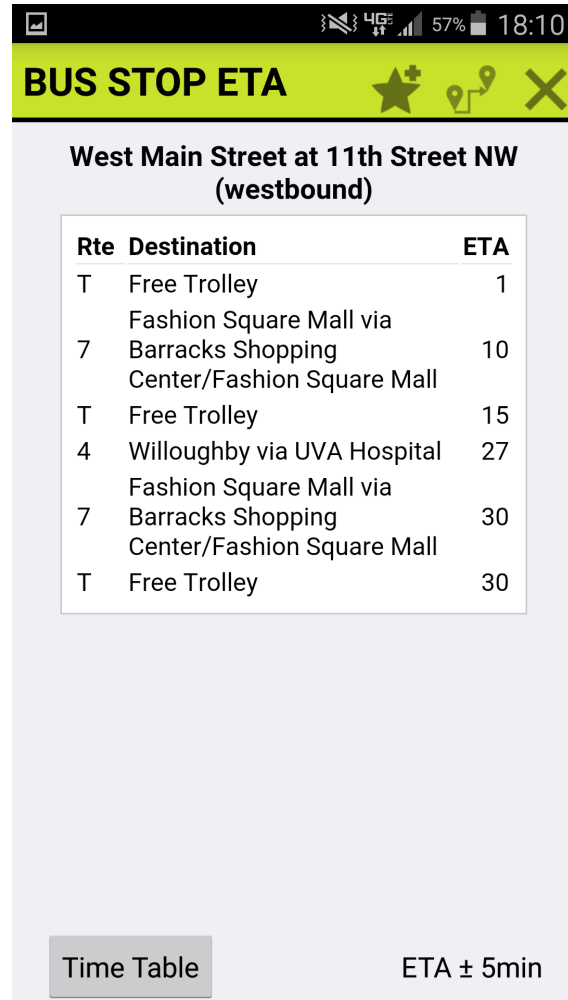
2.3 Application Stability

3 Expected Results

the University of Virginia may ride CAT buses free of charge.



(a) View of a bus route, stop selected



(b) View of a timetable for the stop

Figure 2: The Charlottesville Area Transit mobile app, depicted on a Samsung Galaxy S4 running Android Lollipop (version 5.0.1). Published by the City of Charlottesville (2016).

- poor need public transit the most (Taylor & Morris, 2015) What information do you intend to learn from this project? What results do you expect to present? Are you trying to design an interface to maximum profits? To maximize traffic? To minimize frustration? At the end of the semester, what solution will you present and why is it important?

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4 Acknowledgements

The author wishes to recognize Luther Tychonievich, Ph.D, lecturer at the University of Virginia, for his seminars introducing basic cognitive load theory, which heavily influenced the changes suggested in this proposal.

5 Honor Code

On my word of honor, I have neither given nor received any unauthorized aid on this assignment.

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2016-08-25

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