Creating a Real-time Transit Info Application

For the Butler County RTA and Miami Metro

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ENG 313
Executive Summary

This document proposes the creation of a real-time transit data cell phone application. The need for this is supported and shown through research, both on students’ current opinions on the Butler County RTA and on the effects of real-time transit data on other cities. The document then moves onto the proposal of the application, first proposing the creation (created either by an out company or Miami students) and then looking at the main features of the application.

Introduction

The Butler County Regional Transit Authority (RTA) and Miami Metro runs buses across Butler County and Oxford, Ohio, for use by students and citizens alike. The buses are very helpful and efficient way to get around Oxford and Butler County. However, the buses rarely arrive at the time printed on the static bus schedule, extending waiting times at bus stops and causing frustration in many riders. This extension and frustration can get so bad that it lowers someone’s willingness to ride the bus.

Many Miami students have concerns with the Butler County RTA and Miami Metro. One student has concerns about the hard to find buses and ill-timed bus schedule, saying, “It gets me where I need to go, but I always have to keep an extra half an hour in hand for these trips” (Sumaita, Miami Student). Another student was trying to get a ride to Walmart, the student “ran out in the rain to go stand at the stop and the bus didn’t stop,” so the student “ended up walking home, completely drenched” (Sumaita, Miami Student).

There is an issue with how inconvenient the Butler County RTA and Miami Metro are for riders. The inconvenience comes from the lack of knowledge on where the buses are and when they will arrive. In order to fix this disruption, the riders need a way to be updated in real-time with bus location and arrival time.

Overview
Within this document, I will discuss my own and other students’ concerns with the Butler County RTA and Miami Metro. I will also show through my research how real-time transit information has impacted ridership in different cities, specifically Tampa, Florida (focus on changes in rider wait times and feelings), and the University of Maryland (to look at the effects on a university).

I then propose the creation of a Butler County RTA and Miami Metro cell phone application that updates users in real-time about the whereabouts of each bus and gives the user an estimated arrival time(ETA) for each bus.

**Research**

To fully understand the need for this application, research was done to collect both student experiences and the impacts of real-time transit information.

*Personal Experience*

As a student at Miami University, I have had many personal experiences riding the bus. I always look the bus schedule before heading to the bus stop and arrive at the stop 5 minutes before the allotted time. Despite this, I usually end up waiting upwards of twenty minutes before the bus finally arrives. Knowing this extending wait will happen, I have to make sure I have a free schedule before even considering taking the bus.

*Student Experiences*

Many other Miami students have concerns with the Butler County RTA and Miami Metro. To get other students opinions on the matter, I chose three random students to ask his/her opinion on the bus system. “They are terrible and never on time” said the first student interviewed. The next student also had concerns about the arrival times saying, “The buses are almost always late. I usually spend more time waiting for the bus than I do on the bus.” The last student said riding a bus would be a “good way to get around Oxford” if the buses “would arrive on time.” All three supported the idea of a real-time transit application. Another student also voiced his/her concerns
in an article in the Miami Student. This student is not a fan of riding the bus, saying “it’s just not reliable to get you where you need to go” and buses “are difficult to spot and usually not on time” (Sumaita, Miami Student).

**Impact of Real-Time Transit Information**

Successful real-time transit applications have been implemented in cities across the nation.

**Tampa, Florida**

The addition of a real-time transit data application had many positive effects bus riders in Tampa. The first was a 16% decrease in average wait time (Brakewood et al., 2014). There was also a decreased “frequency of feeling ‘frustrated’ when waiting for the bus,” dropping from 25% to 18% (Brakewood et al., 2014). Additionally, a change in ridership also occurred. 60% said they would ride the same amount while 39% said they would ride the bus more often (Brakewood et al., 2014). 64% of riders also “reported that they spend less time … waiting at the bus stop” (Brakewood et al., 2014).

**University of Maryland**

A study was done on the University of Maryland after the implementation of real-time transit data through a system called ShuttleTrac. The use of ShuttleTrac led to “significantly positive effects on shuttle rider’s overall satisfaction level” (Zhang et al., 2008). Additionally, “real-time bus arrival information seems to help address the issue of night-time safety and in general make travelers feel more satisfied with shuttle service” (Zhang et al., 2008).

**Proposal**

I propose the creation of a cell phone application that updates users in real-time about the whereabouts of each bus and gives the user an estimated arrival time (ETA) for each bus.

**Creation of the Application**
The creation of the application can be done one of two ways. The first option would be to outsource the creation to an application creation company. The second option would be to have Miami students and professors create the application. I see option two as the go-to option and overall best choice. Creation will take about 18-20 weeks for both options.

If using option number one, the application would be outsourced to a company to create and oversee the creation process. Since it is being handled by a professional company whose workers create apps for a living, the app would most likely be made a higher quality than what Miami students could make. The creation process would also most likely go a little quicker if using an outside company. However, the cost would increase because of the cost of the developers including GPS trackers for each bus. Also, the BCRTA wouldn’t have complete oversight over the project since it isn’t being created locally.

If using option number two, the application could be created as a senior capstone project for a senior engineering student or as a research project by a professor and students. Being created by Miami students, it would create a great learning experience for students, considering many of the tools and features that the app would use are being taught to College of Engineering and Computing students. Also, since it would be created locally, the Butler County RTA and Miami Metro would be able to more easily oversee the creation of the application. The cost to create the application would go down because students wouldn’t be paid workers. The only cost would be purchasing GPS trackers for each bus. However, the timeline for the creation would most likely slightly increase due to the students going through a learning process during creation.

**Cost and Funding**

The funding for this application would come from the transit fee which students already pay each semester. For option 1, around $30,000 would be needed to create the application. For option 2, there would be little to no cost to create the
application. After looking at many different sellers, around $1,000 will be needed to purchase GPS tracking devices for the buses.

Features of the Application

The main features of the application would include the following:
1. Menu that gives access to each additional feature in the app.
2. Time table with real-time updates of the ETA of each bus.
3. Map with real-time positions of each bus.

Conclusion

It is time for a change. It is time for the voices to be heard. It is time for a real-time transit information application to be available to the riders of the Butler County RTA and Miami Metro. Many students have concerns with the current inaccurate bus schedule and hate not knowing how long the wait at the bus stop will be. Students believe an application is a good idea and would be very helpful. Research also shows that the ridership and rider satisfaction has risen in areas that implemented real-time transit data applications. Whether created by an outside company or Miami students, there is a desperate plea and need for this application.
References

