



UB Late?

A look into the implementation of a GPS Tracking System to improve wait times.

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Abstract

The wait times for the University at Buffalo's Stampede buses are very sporadic. To alleviate this problem, we investigated the implementation of a GPS tracking system. Our hypothesis is that implementation of a GPS tracking will help reduce wait times at UB bus stops. We surveyed universities and other organizations that have implemented a tracking system to see if waiting times were reduced. We identified four benefits to UB from the development of a GPS-based tracking system.

Background

A global positioning system (GPS) allows passengers to organize their time and reduce the time to wait for the bus. GPS allows for real-time, accurate data to be posted to the internet. With smart phones, riders can access this information.

One company providing real-time GPS-based data is NextBus™. NextBus works with shuttles to allow passengers to access any bus location via smart phones.

NextBus is one of the many options schools and other transportation systems can utilize for a better passenger experience. With real-time data, riders will avoid missing the bus and can plan in the event of system upsets.



Photo credits <http://www.nextbus.org>

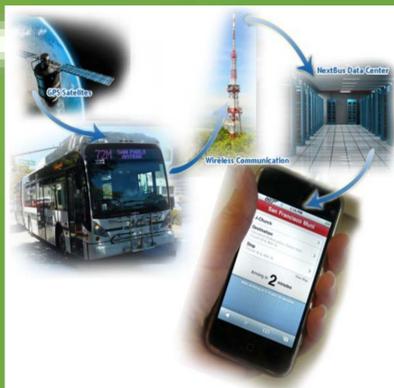


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Data Collection

Seven universities were contacted by email about their use of GPS tracking systems for buses. The following question were asked:

1. Student wait times for the bus/shuttle before and after the GPS was implemented
2. Any improvements or challenges faced after the GPS system began
3. The number of web hits for the bus tracking site - are students actually utilizing the new system?
4. Overall, is the GPS system creating the expected beneficial results?

Results

In general, we received very positive feedback and an overall sense of improvement.

As an example, Princeton University reported that with their GPS tracking system, students did not necessarily have to wait. They could see when the bus is arriving and simply get to the stop to meet its arrival. One factor that hindered some students is not using an anatomic clock setting, which all the buses use. The bus tracking site receives over 35,000 hits per month and Princeton's students live by the GPS system and the reliability of the buses.

UB has a GPS tracking system, but is currently limited to Shuttle Buses only. The UB Stampede is more widely used by the student population and lacks a GPS system. The shuttle tracking system is not widely known to the student body. We surveyed 50 students and found that a majority of them were not aware that a GPS tracking system was being used on the shuttles on campus. Two out of the total number of students surveyed did know about the system being used. This suggests our current GPS system is not as effective as it can be. More advertisement should be implemented so that the students know that there is a source they can use to check bus times.

Acknowledgments and Bibliography

Special thanks to UB Transportation Assistant Director: Mr. Austin and the transportation departments at Princeton, Duke, Brandeis, Harvard, University of Chicago, LeHigh and Tufts.

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Benefits for UB

We identified four benefits of a GPS-based tracking system for UB.

Reduced Rider Waiting Times

With a tracker on a website that can be accessed with a laptop or a smart phone, the bus schedule can be accessed any time. This allows the student population to have more control over their scheduling. Students will have the most current bus availability, so they will not have to wait.

Transportation Choices

Students can choose to stay indoors until they know for certain that the bus they see is heading to their destination. This is beneficial during sporadic weather. If students feel that the bus does not arrive soon enough, they can choose not to wait and walk to their destination.

Improved Load Matching

A GPS tracking system can track the number of buses leaving from a certain point so that more or fewer buses could be sent depending on demand. UB transportation personnel could monitor the traffic on the web site. The Transportation Department at UB can modify the bus schedule in the future based on the ratio of students to bus availability.

Pollution Reduction

A GPS tracking system can help track how long a bus idles. By minimizing idling, the air pollution emissions of the UB transportation system can be reduced.

Recommendations

Based on current technologies and the experiences of other universities, we strongly support the usage of a GPS tracking system in the UB Stampede. Anticipated benefits include reduced rider waiting times, transportation choices, improved load matching, and pollution reduction.