

**2016 SACUBO BEST PRACTICES ENTRY:**

**WHERE'S MY BUS: USING CAMPUS AND LOCAL PARTNERSHIPS TO BRING MOBILE BUS DATA TO UGA STUDENTS.**

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## **Abstract**

*Today's technology has significantly impacted the way customers interact with businesses and organizations. Mobile apps have become a standard resource that consumers rely on and expect for ease of service and instant information. As businesses and organizations adopt new technology to keep up with consumer expectations, they gain valuable consumer behavior information which can help improve their services. Faced with a need to better analyze route data and provide accurate and timely information through a student-friendly portal, The University of Georgia's transit department adopted fixed route and paratransit technology and in the process gained valuable data, collaborated with campus departments to develop a mobile app, and opened the door to expand partnerships with the city's transit system.*

## **Introduction of the Organization**

The University of Georgia (UGA), established in 1785 as the nation's first state-chartered university, is the flagship institution among the 30 colleges and universities in the University System of Georgia. With just over 35,000 students, approximately 10,000 faculty and staff and an annual budget of nearly \$1.6 billion, UGA is the largest and most comprehensive educational institution in Georgia and a driving force in the state's economic growth.

The University of Georgia's academic reputation is on the rise, and admission is increasingly competitive. Approximately 22,220 applicants applied for the Summer/Fall 2015 class of nearly 5,300 freshmen. The University of Georgia is ranked 20<sup>th</sup> among the nation's top public universities by *U.S. News & World Report*, and the institution is consistently recognized as one of the best values in American higher education. Seventeen colleges and schools, along with auxiliary divisions, conduct the University's tripartite mission of teaching, research and service.

Nearly 300 employees (full-time, part-time and student workers) serve in the University of Georgia's Campus Transit department, striving to provide the essential support required by the University of Georgia to achieve its overall mission. Campus Transit is the largest University transit program in the nation, serving approximately 11 million passengers per year.

## **Statement/(Restatement) of the Problem/Initiative**

When transporting nearly 11 million passengers a year, collecting data on transit routes, bus schedules, and passenger counts is essential to improving service reliability. Before GPS technology was widely available, Campus Transit collected service information by manually observing routes and stops as well as physically counting passengers. Though data was being

collected, the method was taxing for management and drivers. Likewise, the department could only obtain snapshots of service rather than real-time data. Real-time data was desirable because it would provide a complete picture of service levels as they were provided and afford drivers, dispatchers, and management the tools necessary to make adjustments and improve communications.

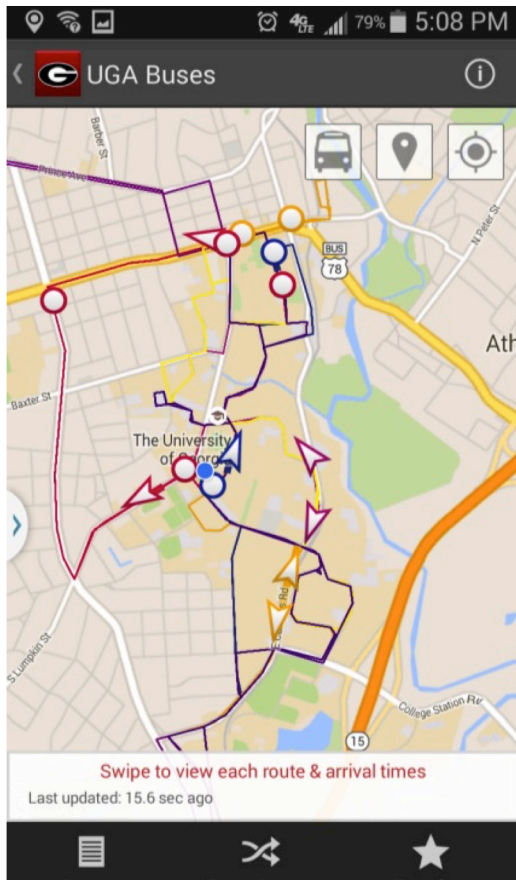
As technology has changed so too has the way in which businesses and customers connect. Before smartphones and mobile apps, Campus Transit provided route information in the form of stagnant printed rider's maps and online schedules. The trouble was that riders had limited access to the information away from home or campus and the printed and online schedules allowed no room for adjustments. If a bus was delayed, there was no way for Campus Transit to communicate the delay to a rider. Students also had a hard time knowing which buses ran on which routes. This lack of communication often left riders frustrated and unaware of which bus to take or when their bus would arrive. With the majority of Campus Transit's customers being college students, it was essential to develop a mobile form of communication so that students could receive accurate and timely route information in real-time. Consequently, a collaborative effort formed between Campus Transit, the Student Government Association (SGA), and EITS to develop a method that would allow bus information to be included on the UGA mobile app.

### **Design**

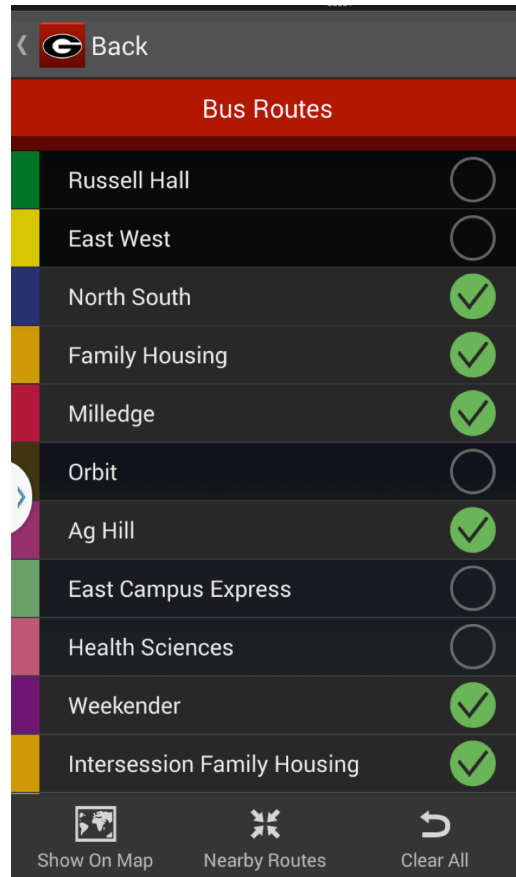
Realizing the need to collect transit data and develop mobile-friendly communications, Campus Transit implemented a fixed route ITS system provided by RouteMatch software. Fixed route software solutions help operators collect, view, and monitor real-time data. This is

achieved by collecting GPS, route, schedule, and passenger data through RouteMatch's RMVelocity Vehicle Logic Unit (VLU). The unit then pushes that information out to drivers, dispatchers, system admins, and managers. Each bus is equipped with a tablet computer which communicates with the VLU and displays route and schedule information to the driver.

The system is designed so that just before a driver starts their route, they log into the tablet with their individual ID and information specific to the user's route information is downloaded and passenger counts become active (RouteMatch provides automated passenger counters which capture ridership through infrared lights above the vehicle's doorway). GPS information is processed through an antenna connected to the VLUs. Their routes and scheduled arrival times then appear on the tablet. This is helpful because it assists the driver in knowing their routes and expected arrival times. The data received by the VLUs is also transmitted to dispatchers and customer support staff. This helps dispatchers better communicate with drivers and analyze situations. It also helps customer service staff answer customer calls regarding bus locations. Finally, this same data communicates with the UGA mobile app. UGA's app provides students with quick access to the most requested services on campus: Dining Services, Game day information, Libraries, etc. Adding route information to the UGA app was important because it meant students could now use their smartphone to view routes, track buses, and see expected arrival times. The app displays routes through a graphical view of the campus and includes access to Google Maps street-level information. With students now accessing route information at their fingertips, the department began to see reductions in customer service calls which indicated the technology was providing students with the information they needed. Students reported excitement in being able to select the correct bus for their desired destination. Analytics also show that the application is the most frequently used feature on the UGA app.



*Students can view multiple routes at one time and see exactly where the buses are on those routes.*



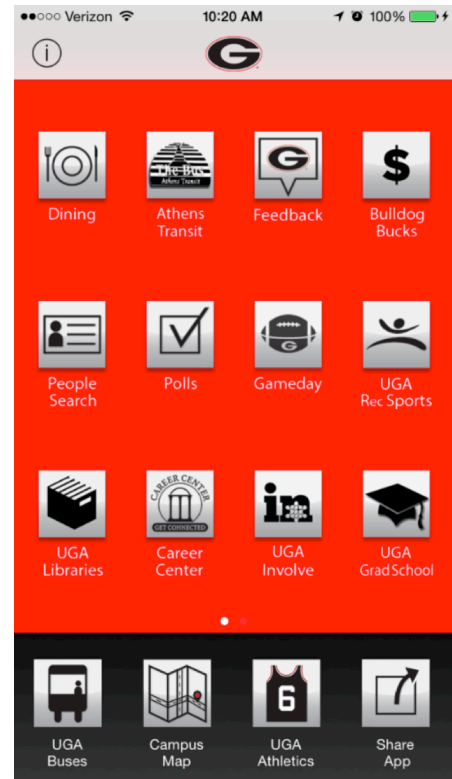
*Students can select specific routes to view as they wait to catch the bus.*

## **Implementation**

To implement the program, Transit vehicles first needed be equipped with the VLUs, GPS antennas, and tablet computers. The department piloted the AVL program with their disability service fleet for five months. This allowed the department to test the equipment and software on a smaller group of vehicles as opposed to the much larger fleet of fifty-seven buses. Dispatchers and supervisors received training from RouteMatch personnel on how to operate the system. Training on the system takes place during the driver’s line training, the time in which

they work in service with another driver, and continues in the form of reminders and new feature updates.

As the “back of the house” capabilities for real time location assistance were put in place, Campus Transit spent four months working with the Student Government Association (SGA) and UGA’s Enterprise Information Technology Services (EITS) to develop a custom transit tracking application for the UGA app. After the AVL systems were installed in all the buses and the application was accessible, marketing worked to spread the word through press releases and advertisements. Because of its intuitive user interface, students were able to easily teach themselves how to use the app. After the feature was developed for Campus Transit, SGA and EITS worked to incorporate Athens’ city transit system on the app as well. This further increased customer service as it reached students living in off-campus student housing all across Athens and gave them information beyond the boundaries of campus.



### **Benefits**

The effects of the RouteMatch software were positive for the students/riders, Campus Transit, and the University. Examples of such outcomes include:

- **Reduction in Customer Service Calls**

- Individuals accessing UGA's mobile app can now view bus locations and see arrival times. This has reduced the number of calls made to Campus Transit inquiring about bus locations by more than half.
- **Provides Riders with Convenient Real-Time Route Information**
  - Riders now have access to bus arrival and departures, real-time vehicle tracking, route information, and schedules through their smartphone or computer.
- **Provides Passenger Counts for Strategic Development**
  - By monitoring rider usage through passenger counts, Campus Transit will be able to capture more accurate rider counts and adjust routes accordingly.
- **Prevents Bottlenecking**
  - By using the data gained through the RouteMatch software, Campus Transit can adjust schedules to provide more consistent service.
- **Builds Ridership Loyalty**
  - Being able to communicate real-time route information to customers and adjust route logistics as needed helps to build trust between Transit and riders.
- **Expanded Partnerships**
  - EITS and SGA at the University of Georgia were able to give students even more route information by including Athens Transit information on the UGA app.

## **Retrospect**

In looking back over this experience, Campus Transit would definitely make the same decision to implement fixed route and paratransit management software. The system has opened



doors to more robust data analytics, improved services, and real-time, mobile-friendly route information for students.

If other campuses decided to implement a transit management and mobile app program, there are a few considerations that should be taken into account. Universities may want to implement longer pilot programs before completing the entire rollout. This will help drivers and dispatchers gain more confidence with the program. When planning implementation, consider your high-volume times. Rolling the program out during low-impact times such as a summer semester may help drivers and dispatchers get comfortable with the system. Low-impact times also give IT personnel easier access for testing and troubleshooting. Review and thoroughly discuss your transit system's volume with the implementation team so that the technology will be able to support demand. In this review, it is important to identify high-volume times such as the beginning of a semester or sporting events. Finally, investigate your options when it comes to hardware and choose more rugged hardware which can withstand high-impact demands, especially if you are operating at a large university.

Looking forward, additional opportunities exist to capitalize on the capabilities this system offers. By applying the passenger count data collected from the automated passenger counters, Campus Transit will be able to make operational adjustments based on more accurate data. Increased on-time performance, improved ridership, and reduced fuel costs are some of the benefits that are expected to result from applying the data. The department will also integrate the alert system which will notify drivers as to when their vehicle is too quickly approaching another bus. This allows drivers to make corrections to prevent bottlenecks.

Today's students expect information that is readily available via their mobile devices and quick, easy access to that information. Transportation to and from campus is an essential service

necessary to ensure our students' success. Connecting students to that service in a timely fashion enhances the experience by reducing unnecessary wait times and frustration.