Title: TranTracker: A Campus Shuttle Tracking System

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Introduction

As the usage of public transit increases, specifically on college campuses, the importance of reliable and predictable shuttles is ever increasing. Both students and members of the public need to arrive to their destinations on time; this is one major issue that deters ridership of public transit. Our goal is to create a solution which will solve this problem as cheaply and effectively as possible. We intend to accomplish this by implementing a system that would track shuttles, allowing users to view locations of the shuttles and see estimated arrival times for the upcoming stops along their current route.

Preliminary Results

Our system consists of several different applications.

- The first is an Android application that uses the GPS transmitter built for Android phones. By using an Android phone, we eliminate the need to rely on proprietary software, and instead can create a more maintainable and fully-featured tracker. This also gives us access to more sensors, such as the camera, which can be used to collect ridership data. This data will make it easier for shuttle administrators to manage their

fleet and ensure that their busses are running efficiently. These phones are also relatively cheap, and can take advantage of any existing data plans to transmit their data.

- The second application is a web application that users can use to track the shuttles directly. This application utilizes Google Maps to provide the user with a map of the campus, with the shuttles' locations being updated dynamically using data retrieved from the transmitter application.
- The third application is an Android application that users can use to track the shuttles. In addition to the features provided by the website, this application utilizes the phone's hardware to provide unique features, such as notifying users when a shuttle is near their current location.
- Finally, there is an administrative website that will allow campus administrators to view data collected by the transmitter and manage the fleet.

Conclusion

We believe that our system will help reduce emissions across college campuses by making it easier for users to utilize public transportation. With TranTracker, users will be able to easily see if they can make it to the shuttles on time, hopefully encouraging them to take the shuttle instead of their own vehicles. TranTracker will also make it possible for administrators to eliminate routes with particularly low ridership, further reducing emissions. Although this system was designed with colleges in mind, in the future it could easily be implemented in other domains such as, public transportation systems in municipalities and airports.