



The transit hub is accessed via smart applications and provides context, traffic and event-aware travel planning services to city residents, commuters and visitors.

The hub supports real-time notifications and alerts to help riders track their routes and potential delays, as well as facilitate information flow (dynamic route demand) from potential riders to transit service providers.

A critical aspect of this work is an integrated decision support tool, which allows riders to plan future trips and enables city officials to assess and improve the efficacy of transit options based on models generated from ridership data.

This work integrates several data streams generated from sensors including automated vehicle locators, personal smart phones, and beacons.

Transit hub is an example of a city hub. Smart city hub, a concept developed by Siemens Corporate Technology provides a platform for information integration and providing an interactive experience to city residents with the purpose of enhancing their quality of life.



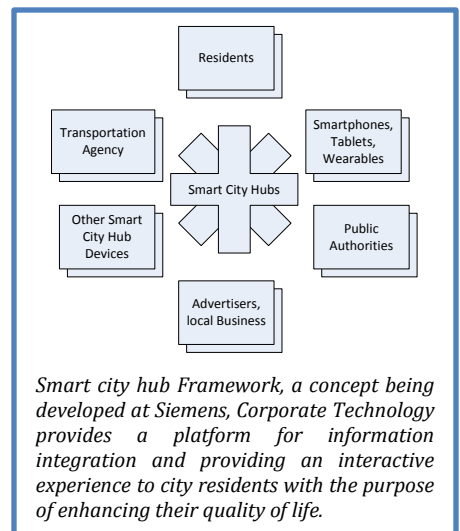
TRANSIT HUB - SMART ANALYTICS FOR PUBLIC TRANSPORTATION

Traffic congestion in a number of metropolitan cities is growing rapidly. For example, congestion in the metropolis of Nashville has nearly doubled in the past decade. Thus, improving public engagement and increasing the public transit efficiency is necessary. Making transit services easier to use and providing incentives that make the experience competitive and, at times, even better than personal automobiles are keys to attracting customers.

Engineers at Institute for Software Integrated Systems, Vanderbilt University working with partners at the Nashville Metropolitan Transit Authority and Siemens Corporate Technology are building an intelligent service hub for public transit. The Transit Hub platform integrates data streams generated from sensors including automated vehicle locators (AVLs), personal smart phones and beacons to provide context, traffic and event-aware real-time travel planning services to city residents, commuters and visitors. Information that affects commuting and traveling in an urban environment, such as sport events, concerts and weather events can be used to help citizens make smarter decisions about their commute or business.

The differentiating aspect of our system compared to similar systems is its ability to conduct predictive analytics, started by the commuters, to study “what-if scenarios”. Given the ongoing development in downtowns and limited parking people want to ensure that they’re not going to be late for the event with the busses stuck in the same traffic jams as all the individual cars.

The platform is accessed via a smart phone application that enables commuters to plan their travel schedule in advance, identifying recurring trips. The estimated trip time based on the predicted traffic congestion, planned city events and service alerts is then calculated and provided for comparison. Service disruptions are pushed as a notification to the end user and are used in real-time for re-planning the trip. Latest trip for the day is automatically activated in the real-time. The platform tracks the location of the next bus for the current trip and notifies the commuter when it’s time to get to the stop. Using a low energy Bluetooth device, the application can detect when the customer is on the bus and the view is updated to track both the current and the next leg of the trip. In future this service will be extended to support crowd-sourced real-time tracking of transit vehicles that do not have AVLs.



Smart city hub Framework, a concept being developed at Siemens, Corporate Technology provides a platform for information integration and providing an interactive experience to city residents with the purpose of enhancing their quality of life.

Context-specific incentives, based on configured campaigns, are provided to encourage the commuter to choose the public transit option. Understanding how humans interact with the transit hub combined with incentives is necessary to understand how these technologies can improve the utilization of the transportation infrastructure and support improved commuter experience. Providing data for the city to correlate scheduled routes with demand, this platform is expected to enable cities to improve the transit system efficiency and reduce private trips, which should lead to reduction in emissions.

For more information contact: Dr. Abhishek Dubey at Vanderbilt University at 615 322 8775 (phone) or abhishek.dubey@vanderbilt.edu

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Disclaimer: City hub is still under research and the real product may differ from the concept