Stony Brook University 4G Smart Campus

The new Wi-Max 4G deployment covering Stony Brook University and Stony Brook Hospital enables a high-speed communication medium which will bridge the communication gap between the campus community (students, faculty, staff, and visitors), the campus facilities, and the surrounding community.

We envision a Smart Campus which leverages on the increased bandwidth, widespread coverage, large user capacity, and mobility benefits of 4G to create a Stony Brook Campus Information Cloud and provide the campus community with real-time information about the happenings on campus and the surrounding community. For example, real-time traffic conditions, event information, impromptu gatherings, sales or coupons, restaurant specials, campus services would be readily available. The Smart Campus would provide both the campus community and visitors with real-time information concerning all aspects of campus, from real-time bus information to emergency events, building closures to student gatherings, all at the fingertips of the user. Previously hardware limitations and deployment costs for widespread communication coverage on campus was too high due to the limited range of each Wi-Fi and mobile device. New 4G technology enables campus wide deployment with minimal additional wireless infrastructure. Current 3G and Wi-Fi technology only has sufficient bandwidth to enable users to “pull” information from the Internet on request. The 4G network will allow users to be “pushed” information from the Stony Brook Campus Information Cloud dependent on the users location on campus, social profiles and interests, and/or campus affiliation.

The focus of the first project phase is on smart transportation. During this three year
project, we plan to deploy 30 4G smart busses, 4G enabled digital signage at bus stops and information kiosks, and develop mobile campus communication gateway applications via the web, iPhone, iPad, Android tablets and mobile devices, and on other mobile platforms. Each of the smart transit busses would be equipped with GPS, ridership tracking, audio and digital signage, and Wi-Fi connectivity for riders. Drivers will interface with the smart transit system through Android tablets deployed on each bus to support student ridership and route management. Each bus stop and interactive information kiosk will be supported by an Android tablet which will provide riders with a real-time and interactive experience. Information on the transit routes, campus announcements and emergency notifications, as well as information on community events, services, and advertisements will be pushed directly to the tablets. The mobile applications will provide all students, faculty, staff and visitors with a single portal from which they can obtain campus information, location-driven real-time events, and emergency alerts.