



The Ivy League University, based in New York, was challenged with finding a new lighting control system, which is IoT-enabled and – according to the number of buildings – easy to retrofit. Not an easy task, as the campus encompasses 36 acres of upper Manhattan real estate and is consisting of 360 buildings and hundreds of thousands of lighting fixtures.

By Ara Bederjikian, CEO, OBX Computing Corporation

The Future is Now –

Profile of IoT-ready University Campus

The Challenge

The existing lighting environment was very fragmented with a patchwork of multiple vendors and technologies. Moreover, mass fixture replacement strategy was not logistically feasible so the new system had to be compatible with the legacy lighting fixtures. Since a complete replacement of all lighting units could not be realized, the new control system had to be compatible with the existing lighting units.

In order to ensure a simple and cost-efficient retrofitting within the framework of the large-scale project and to prevent an inter-

vention in the existing building structure, a wired solution was out of the question. Also the maintenance effort should be as small as possible, therefore a solution using batteries was no option as well.

The requirement was to implement a platform that provides full automation, where every aspect of lighting can be controlled through a single interface. But the real challenge was to integrate the entire campus lighting [new and existing luminaires, interior and exterior lighting as well as various technologies such as LED lamps, fluorescent lamps, metal vapor lamps, etc.](#) [into the](#)

new system. More importantly, a lighting control system was required that is scalable and interoperable with IoT devices to convert the campus into a smart IoT ready environment.

The Solution

In order to meet the specific requirements, the decision was made to use the Universal Gateway System (UGS) of OBX Computing Corporation. The OBX UGS not only met the requirements for full automation and independency of the manufacturer and technology, but has also convinced with wireless mesh connectivity and current measurement



The UGS provides wireless control of lighting, easy configuration of scenes and lighting rules as well as monitor and report functionalities.



functions. The combination of the UGS with self-powered lighting controls based on energy harvesting technology enables the definition of lighting scenes and rules which allows enormous energy and cost savings. For example, presence sensors can be used to determine whether a room is occupied or not. If no student is present, the system turns off the lighting and enables energy-efficient operation.

In addition, the cloud-based system provides remote monitoring and 24/7 automated support services. EnOcean-based sensors help to generate reliable data and

send it to the cloud via UGS. Access to the OBX system is done with authorized login data via an authenticated web browser, encrypting all communications and system data.

In order to avoid disturbances of the university operation as far as possible, the system was installed in several phases. The user-friendly OBX customization options have been used to configure switching rules for the presence and ambient light sensors in accordance with the different requirements of different environments. A positive side effect was the improvement of WLAN cover-

age in previously underserved areas by the hotspot function of the individual OBX gateways.

The Ivy League University is therefore setting a good example and demonstrates how universities in the USA can use an intelligent, IoT-capable lighting control to enable energy-efficient and cost-effective operation.

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