

Introduction

The purpose of this project is to investigate and implement different uses for the physical web on a university campus using BLE (Bluetooth Low-Energy) beacons. The physical web uses BLE beacons to transmit URLs which are picked up by an application on a mobile device. Different beacons can be used to broadcast different URLs meaning the web pages you get vary depending on proximity to different beacons [1].



[2] Beacon transmission

Aims

- To find different uses for physical web beacons on campus.
- To broadcast (using the beacons) relevant information depending on location within the campus.
- To improve learning time within classrooms.

Objectives

- To conduct research into existing uses for the physical web.
- To implement these findings within the campus.
- Evaluate and critique the effectiveness of the implementations.
- To create a conclusion based on the results produced.



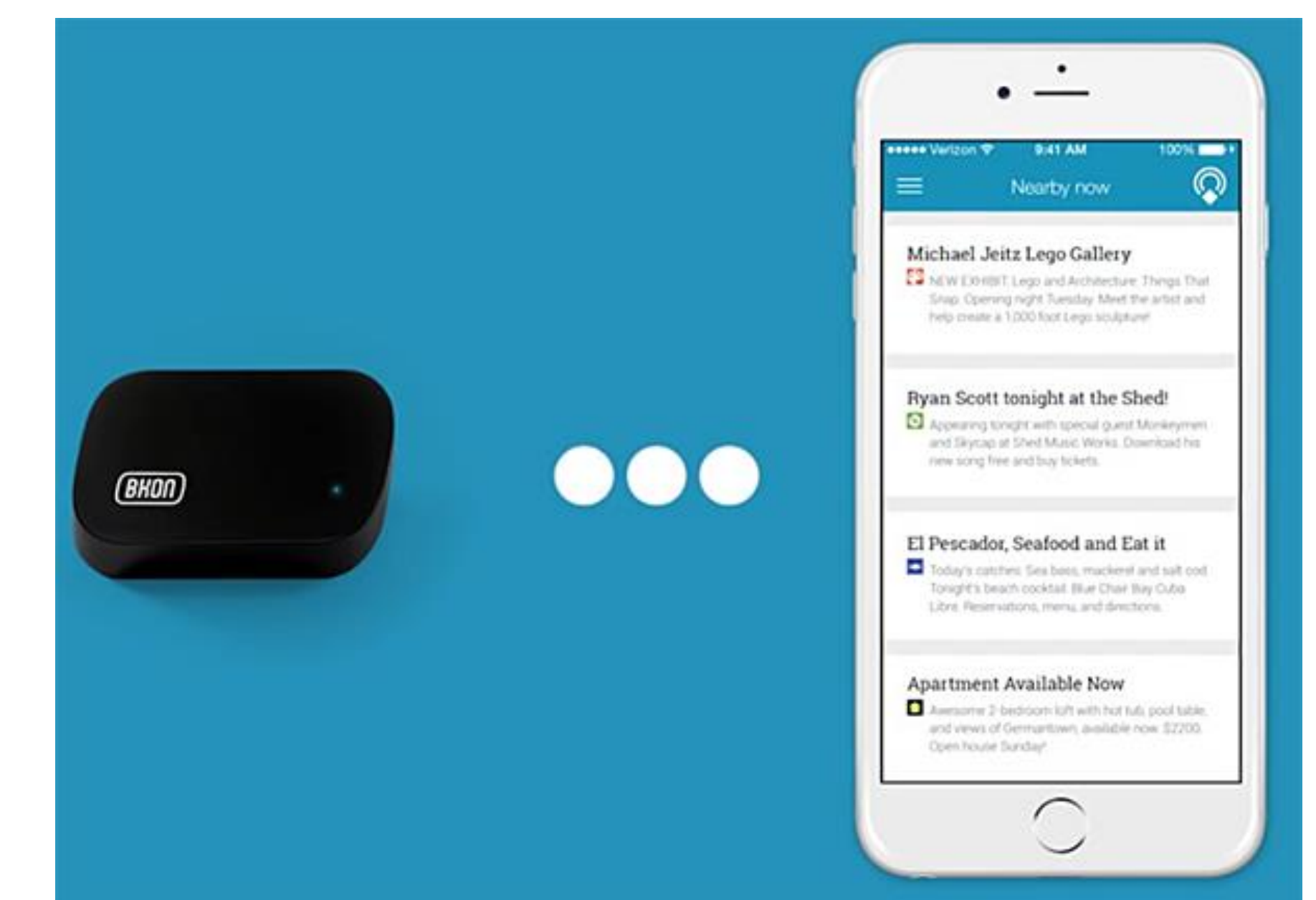
[3] Example of an eddystone beacon

Resources Required

- Smartphone/tablet running IOS and Android. – This is to test compatibility and performance on different operating systems.
- Google physical web app – To configure beacons and receive URLs.
- BLE beacon – To broadcast the URLs to the devices.
- Computer – To conduct research and write up findings.
- Internet/library – To conduct research.

Potential Risks

- Each beacon will be broadcasting a URL. Some of these URLs will be linked to materials, such as assignments, relating to specific courses. This could allow people a way to gain access to material they are not allowed to see. This would be related to Data protection laws.
- Another risk could be the BLE beacons being hacked to broadcast malicious URLs. This is a factor which will be covered within the report.



[4] Google physical web app

References

- [1] R. Want, B. N. Schilit, and S. Jenson, "Enabling the internet of things," Computer (Long Beach, Calif.), vol. 48, no. 1, pp. 28–35, 2015.
- [2] "The Future of Beacons by the CEO of Estimote." [Online]. Available: <http://beekn.net/2015/08/future-beacon-technology-guest-post/>. [Accessed: 05-Oct-2017].
- [3] "BLE Nrf51822 Ibeacon Indoor Position Eddystone Beacon - Buy Eddystone Beacon,Nrf51822 Ibeacon,Beacon Product on Alibaba.com." [Online]. Available: https://www.alibaba.com/product-detail/BLE-NRF51822-iBeacon-Indoor-Position-Eddystone_60653047979.html. [Accessed: 05-Oct-2017].
- [4] "AroundMyHometown's Physical Web." [Online]. Available: <http://www.aroundmyhometown.com/directory/physicalweb.aspx>. [Accessed: 05-Oct-2017].