

## Optimizing Resource Allocation and Indoor Location Using Bluetooth Low Energy

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**Abstract :** The recent tendency of "Internet of Things" (IoT) has developed in the last years, causing the emergence of innovative communication methods among multiple devices. The appearance of Bluetooth Low Energy (BLE) has allowed a push to IoT in relation to smartphones. In this moment, a set of new applications related to several topics like entertainment and advertisement has begun to be developed but not much has been done till now to take advantage of the potential that these technologies can offer on many business areas and in everyday tasks. In the present work, the application of BLE technology and smartphones is proposed on some business areas related to the optimization of resource allocation in huge facilities like airports. An indoor location system has been developed through triangulation methods with the use of BLE beacons. The described system can be used to locate all employees inside the building in such a way that any task can be automatically assigned to a group of employees. It should be noted that this system cannot only be used to link needs with employees according to distances, but it also takes into account other factors like occupation level or category. In addition, it has been endowed with a security system to manage business and personnel sensitive data. The efficiency of communications is another essential characteristic that has been taken into account in this work.

**Keywords :** bluetooth low energy, indoor location, resource assignment, smartphones

**Conference Title :** ICATM 2016 : International Conference on Air Transport Management

**Conference Location :** London, United Kingdom

**Conference Dates :** February 25-26, 2016