

# Tutorial Proposal

## Smart Buildings for Smart Cities: IoT perspectives

**Abstract:** The "Internet of things" (IoT) is becoming an increasingly growing topic and it is expected to offer advanced connectivity of devices, systems, and services that goes beyond machine-to-machine communications (M2M) and covers a variety of protocols, domains, and applications. Smart city is first and foremost a city – one that pushes the quality of resource management and service provision to the limit possible at the time. In such an integrated understanding of the smart city concept, smart city projects are part of a general concept of city modernization. Since the hype surrounding IoT is in the market, it is expected that exploiting IoT practices can play a key role in the development of sustainable future smart buildings that are energy efficient, flexible and equipped with advanced control systems to provide the best experiences for tenants. These Smart buildings are already becoming an integral part of smart cities. Therefore, the Internet of Things (IoT) is advancing a new breed of smart buildings that are better aligned with the priorities of property owners, managers and communities. This tutorial is focused on the role of IoT for smart buildings that will play an integral part to meet the urban development vision resulting in a smart city.

### Outline:

1. Introduction
2. Motivation Behind IoT hype
3. IoT architectures
4. IoT for Smart Buildings
5. Smart cities
  - Concepts
  - Role of IoT
  - Existing practices
  - Future directions
6. Market Status of Smart buildings
  - Economy
  - Existing Development and applications
7. Major Challenges
8. A case study (Comparisons of existing practices)
9. Evaluation of Smart Buildings
10. Major Conclusions and Near Future Perspective

**Duration:**

3 – Hours

**Expected enrolment:**

From my previous experiences such as at IEEE ICIT 2017 Toronto, Canada, I am expecting minimum 50-80 enrolments.

**The intended audience of this tutorial are:**

- Undergraduate Students
- Graduate Students
- Researchers
- Faculty member (Computer science, Engineering)
- IoT industry
- Smart City industry
- Smart Building industry

**Contact information of speaker:**

**Dr. Muhammad Alam (Ph.D, Senior Researcher)** e-mail: [alam@av.it.pt](mailto:alam@av.it.pt)

Mailing address: Instituto de Telecomunicações, University of Aveiro, 3810-193 Portugal.  
Telephone number: (+351) - 234377900 (Ext. 48274).

**Muhammad Alam** holds a PhD degree in computer science from University of Aveiro, Portugal (2013-14). In 2009, he joined the Instituto de Telecomunicações - Aveiro (Portugal) as researcher and completed his Ph.D from University of Aveiro with a specialization in Inter Layer and Cooperative Design Strategies for Green Mobile Networks. He has participated in several European Union FP7 projects such as Hurricane, C2POWER, ICSI, PEACE and Portuguese government funded projects such SmartVision. Currently, he is working as senior researcher at Instituto de Telecomunicações and participating in European Union and Portuguese government funded projects. His research interests include IoT, Real-time wireless communication, 5G, Vehicular networks, Context-aware systems and Radio resource management in next generation wireless networks. He is the editor of Book “Intelligent Transportation Systems, Dependable Vehicular Communications for Improved Road Safety”. He is the author of several journal and conference publications as well as book chapters. He is also the TPC member and reviewer for a number of reputed conferences, journals, and magazines. He is IEEE and IEEE IES member. He served as general co-chair of future 5V conference and also served as session chairs in a number of reputed conferences such as IEEE IECON 2016, IEEE WFCS 2016, IEEE ITSC 2015. He also provided his services as guest editor to several journals.