An Overview of SMARTCITY Model Using IOT

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Abstract — The smart city concept represents a compelling platform for IT-enabled service innovation. It offers a view of the city where service providers use information technologies to engage with citizens to create more effective urban organizations and systems that can improve the quality of life. The emerging Internet of Things (IoT) model is foundational to the development of smart cities. IoT is the network of physical objects-devices, vehicles, buildings and other items embedded with electronics, software, sensors, and network connectivity-that enables these objects to collect and exchange data. The IoT allows objects to be sensed and controlled remotely across existing network infrastructure. IoT smart-connected products and the services, their provision will become essential for the future development of smart cities .According to the Gartner, 260 million objects will be connected by year 2020.This paper will explore the smart city using a strategy development model for the implementation of IoT systems in a smart city context

Keywords — **Internet of thing, Smart city, Sensor.**

INTRODUCTION

The IoT is a recent communication paradigm that envisions a near future in which the objects of everyday life will be equipped with micro-controllers, transceivers for digital communication, and suitable protocol stacks that will make them able to communicate with one another and with the users, becoming an integral part of the Internet. The IoT concept, hence, aims at making the Internet even more immersive and pervasive. Furthermore, by enabling easy access and interaction with a wide variety of devices such as, for instance, home appliances, surveillance cameras, monitoring sensors, actuators, displays, vehicles, and so on, the IoT will foster the development of a number of applications that make use of the potentially enormous amount and variety of data generated by such objects to provide new services to citizens, companies, and public administrations. This paradigm indeed finds application in many different domains, such as home automation, industrial automation, medical aids, mobile health care, elderly assistance, intelligent energy managementand smart grids, automotive, traffic management and many others.
In this complex scenario, the application of the IoT paradigm to an urban context is of particular interest as itresponds to the strong push of many national governments to adopt ICT solutions in the management of public affairs, thus realizing the so-called Smart City concept. Although there is not yet a formal and widely accepted definition of “Smart City”, the final aim is to make a better use of the public resources, increasing the quality of the services offered to the citizens while reducing the operational costs of the public administrations. This objective can be pursued by the deployment of an urban IoT, i.e., a communication infrastructure that provides unified, simple, and economical access to aplenty of public services, thus unleashing potential synergies and increasing transparency to the citizens. An urban IoT, indeed, may bring a number of benefits in the management and optimization of traditional public

services, such as transport and parking, lighting, surveillance and maintenance of public areas, preservation of cultural heritage, garbage collection, salubrity of hospitals and school. Furthermore, the availability of different types of data, collected by a pervasiveurban IoT, may also be exploited to increase the transparency and promote the actions of the local government toward the citizens, enhance the awareness of people about the status of their city, stimulate the active participation of the citizens in the management of public administration, and also stimulate the creation of new services upon those provided by the IoT. Therefore, the application of the IoT paradigm to the Smart City is particularly attractive to local and regional administrations that may become the early adopters of such technologies, thus acting as catalyzers for the adoption of the IoT paradigm on a wider scale.

The main goal of smart cities is to improve the traditional services that are provided to the citizens and also create new and more challenging ones. This vision aims not only to citizens' prosperity, but also to economic progress and sustainability of the city. It is feasible to achieve this goal through the use of technologies and architectures which purpose is to integrate the various elements of the city and help them interact in an effective manner. The objective of this paper is to discuss the key technologies and architectures for the development of the smart city using a strategy development model for the implementation of IoT systems in a smart city context.

SMARTCITY CONCEPT

Smart city is an emerging concept. This concept is being used all over the world with different nomenclatures context fact and meanings. A smart city is a city that is well planed, and it provides the cost efficient services, environment efficiency, and technology sound service for the were of the citizen.

The six dimension of a smart city are Smart Economy, Smart Mobility, Smart Environment, Smart People, Smart Living and Smart Governance. Every city can become smarter by focusing on any of the above dimension. Smart cities can work as a tool for controlling the rapid urbanization and various problems caused by the ever increasing urban population. The implementation of the smart technologies can increase the value of city.

Bottom-Up Smart Cities

The knowledge society and social networks are the basis for the second concept of Smart Cites which are mainly driven by local inhabitants. Bottom-Up Smart Cities are trying increasingly to make use of the inductive and innovative potential of the population to achieve new creative solutions. It is important to see:”What do the people want?“ instead of “What do city councils and companies think is the best for them?“. In this case, citizens are the driving force to makes a city "smarter".

Top-Down Smart Cities

Top-Down Smart Cities were primarily run by city institutions, often in a close cooperation with ICTcompanies or other research facilities. There is a straight concept behind it, which is often focussed on measurable parameters like CO2-efficiency for example. One of the most prominent representatives is Masdar City in the United Arab Emirates, whose goal is the realization of an ecological and sustainable city in the outskirts of Abu Dhabi by the middle of this decade.

In order to establish this city, a completely undeveloped area was planned in the plain desert. The newly founded Masdar Institute of Science and Technology aims to provide the scientific backbone for developing new technologies, which are used during the city-building process and could act as a

marketing instrument to attract talented students from over the world.

Network Architecture Based On Virtualization Network for Smart Cities

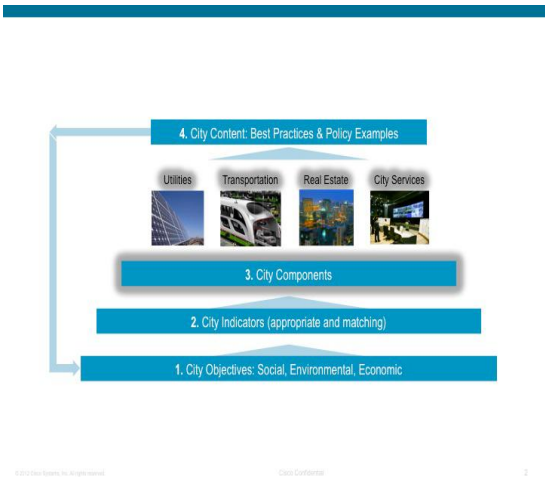
A Smart city must combine legacy networks and new communication architecture; in order to configure existing communication networks to achieve compatibility and interoperability.

The requirements toward a network often change impact direct and indirect costs of purchasing networking equipment and its rapid depreciation; in response decoupling of functionalities in a networking environment to develop new networking proposals, services and test platforms for smart cities.

Cloud Computing Architecture for digital services into Smart Cities

The smart cities as an strategy propose relevant trends to incorporate information systems, sensors and analytical of data to support a sustainable environment. We propose an architecture for cloud computing and HPC as a platform to implement the smart city digital services. Some of the first services are related to parking, data processing, security and sensing pollution.

FRAMEWORK OF SAMRT CITY



The four layers of framework provide a logical flow that enables stakeholders to "push" through and test initiatives.

The components of each layer are further detailed for better understanding of the framework.

Layer 1: City Objectives – Improving Social, Environment, and Economic Pillars

At a high level, most city discussions center on policy question such as, "If we spend money on transportation, how will it improve the city?" While these questions are common among city leaders and stakeholders worldwide, they can change depending on the person's role and perspective, and are often difficult to answer in anything but qualitative terms.

To understand how a city operates, a framework must ultimately link the city's objectives (pillars) to projects, policies, and initiatives.

Layer 2: City Indicators

Matching Indicators to city objectives because city objectives are high level and somewhat ephemeral, it is important to link them to existing, published "city indicators," which measure and benchmark cities using defined and specific methodologies.

Layer 3: City Components – Detailing City Assists

This layer of the framework details the physical components of a city – utilities, transportation, real, estate, and services – which are then linked to city objectives, indicators, and content.

Layer 4: City Content – Mapping Objectives to Best Practices and Policies

This layer encompasses the "how" – How Smart City solutions are implemented. It links directly to layer 3 and then to layer 1, as it provides information and enables the identification of information that is relevant to layer 1.

CONCLUSION

Smart city is a "booming" phenomenon, which is still ambiguous in literature. Many different sciences look into the smart city domain and this can be met both in the academia (from the involved journals, schools and scholars) and the industry. Almost all sciences can be met in the smart city domain, which approach this phenomenon from different perspectives. Scholars and schools across the world are being or have been investigated this phenomenon and an indicative "picture" is provided. On the other hand, three alternative industries appear to meet in this domain and create an emerging corresponding market: the ICT, the construction, and the electronics.

To answer this chapter's question, a holistic literature review was performed, with a method that was inspired by Niehaves (2011). In this respect and with regard to the initially grounded research question, a smart city was viewed with four disciplinary perspectives, which were documented to form the corresponding smart city fundamental theories: ICT, urban planning and growth, living labs as large-scale testing beds, eco or green city and corresponding ecological aspects, and creative industry in a city. All the above scientific areas appear to "meet" in smart city and various outcomes are generated. Moreover, corresponding concepts illustrate almost all urban challenges and how they can be addressed by the ICT. Furthermore, all recent ICT trends were found in the corresponding literature analysis: IoT, Big Data, Open Data and e-Government, and Smart Grids are only some of these trends.

Finally, eight different models have been introduced for smart city analysis, which can all align to a common conceptual framework consisting of eight perspectives (application domains).

- Smart city concept can be used for transformation any city into a Smart city.
- Smart city have various overwhelming benefits & it a win - win situation for both various, government & the citizen.

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