

A Survey on Smart Cities using IoT

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Abstract - The city of today and tomorrow is an intelligent city, synchronized, and able to optimize information, its flows and its energies. Smart city refers to using information and communication technology to sense, analyze and integrate the key information of urban operation core system so as to make various demands including livelihood, environmental protection, public security, urban services and industrial and commercial activities Smart response. Its essence is to make use of advanced information technology to realize the city's smart management and operation so as to create a better life for people in the city and promote the harmonious and sustainable growth of the city. With the continuous development of human society, the future city will host an increasingly large population. At present, our country is in a period of accelerating urbanization. The problem of "urban disease" in some areas is becoming more and more serious. In order to solve the difficult problem of urban development and realize the sustainable development of the city, building a smart city has become an irreversible historical trend in urban development in the world today.

Keywords: IOT, smart cities, Sensors.

INTRODUCTION

Managing transportation and treatment can be much easier, saving resources and time throughout the process. This will also help to comply with the city's sustainability plans. Transport is another of the great beneficiaries of the possibilities offered, since it allows to control with exactitude the times and situation of each of the elements, creating more efficient management plans and providing information of vital utility to users. All this helps environmental management, making it possible in an incredibly efficient way. Last, but not least, tourism can take advantage of data analysis by sending information in real time of assistance, situation of an attraction, relevant information about it or, even, coordination on means of transport. As if all this were not enough, the information can go both ways, providing real statistics at the moment that will serve for a better administration of the valuable resources of the city. A city with solutions controlled by data from hundreds or thousands of sensors can benefit from the analysis to create more efficient patterns and operating protocols. It also allows receiving information from users in order to improve services. But returning to the six keys, some examples we can observe, for example, in the intelligent parking. The automatic services register the affluence of vehicles in a certain zone and moment, something that the users can consult to optimize the time driving, thus liberating the streets of traffic. The lighting can be managed intelligently to reduce unnecessary consumption. Waste management is one of the great

challenges of modern cities due to its exponential increase.

TRANSFORM CITIES WITH IoT:

1. Smart Buildings

Buildings play a critical role in a city, acting as a fundamental building block for a city - providing comfort and security for its citizens. People tend to spend 80 to 90 percent of their lives inside buildings, making buildings an integral part of their lives. We have the most advanced sensor platform on the market. The first direct solution is lighting control. Connecting our modern sensors we obtain control / monitoring all of the lighting of the whole building achieving savings in lighting of up to 85%. However, the most important thing is what comes after the illumination. Intelligent Energy Management Solutions helps companies manage their teams, and associated business processes in a standard, centralized platform across dispersed geographies.

One sensor for each light

- Processor executes a single program in each sensor
- With cable connection for reliability,
- wireless connectivity for Open for

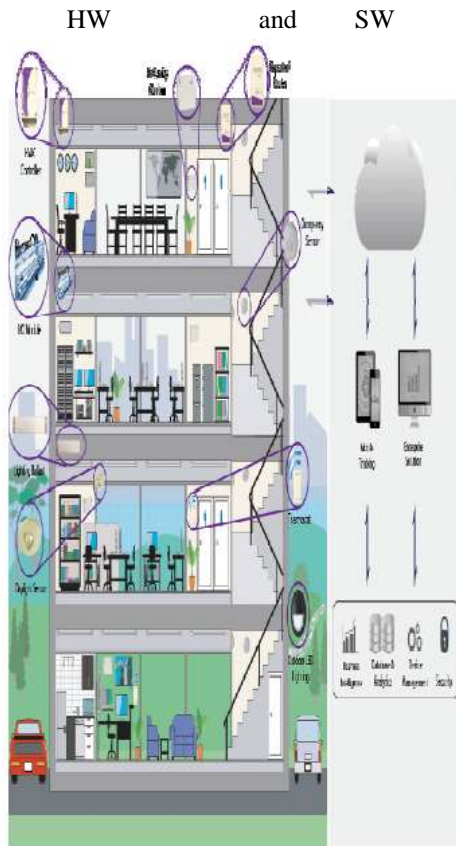


Fig 1: Smart Buildings

2. Smart Mobility & Transport



Fig 2: Smart Mobility & Transport

Urban mobility has always been about moving people from location to location through motorized personal or public transport. However, the proliferation of sensors,

smartphones and intelligent high bandwidth networks are compelling towns & cities around the world to re-think urban mobility and consider technology enablers to drive towards a vision of “smart” mobility. Furthermore, the fundamental assumptions underpinning mobility are being challenged. The Internet Of Things (IoT) has been touted as a promising technology enabler to deliver on a vision of smart mobility. We will examine the current state of IoT ecosystems, IoT enabled smart mobility efforts across the globe and help

delineate the architectural considerations and cross-industry industry collaboration that would be essential to successfully deliver on smart mobility initiatives. A simple use case around a town/city smart mobility service will be used to illustrate our approach.

3. INTELLIGENT TRANSPORT SYSTEMS

Traffic is the basic human needs, : the main traffic (people or goods) by means of transport at this stage With the rapid development of the Internet of Things, any device can be connected to the Internet, people and vehicles in the traffic environment, as well as the transportation industry, with the focus on the intelligent transportation system that integrates the electronic, communication, information, control, mechanical and management technologies and is safe, efficient, economical and environmentally friendly Roads can communicate with each other and will certainly have a lot of impact on the transport system. Therefore, I hope that with this self-challenge, we can explore the impact in this area and find out where we can focus on the Internet of Things in transport.

Intelligent Transport System (ITS), is the advanced information technology, communication technology, sensing technology, control technology and calculator technology, such as the efficient integration It is applied to the entire traffic management system and established a comprehensive, real-time, accurate and efficient integrated traffic and management system that plays a large and comprehensive role.

The intelligent transportation system can generally be divided into the following nine aspects of service

4. SMART ENERGY / SMART GRID

- ▶ Advanced Public Transport Services (APTS)
- ▶ Advanced Passenger Information Service (ATIS)
- ▶ Advanced Traffic Management Services (ATMS)
- ▶ Advanced Vehicle Control Security Services (AVCSS)
- ▶ Car Business Services (CVOS)
- ▶ Emergency Support System (EMS)
- ▶ Electronic Payment Service (EPS)
- ▶ Information Management Services (IMS)
- ▶ Vulnerable User Protection Services (VIPS)

In view of traffic environment (people, vehicles, roads and platforms) of the nine major services of the ITS, the future will focus on four aspects of the IOT, including the physical layer, the perception layer, the network layer and the application layer, ITS) and the Internet of Things (IOT).

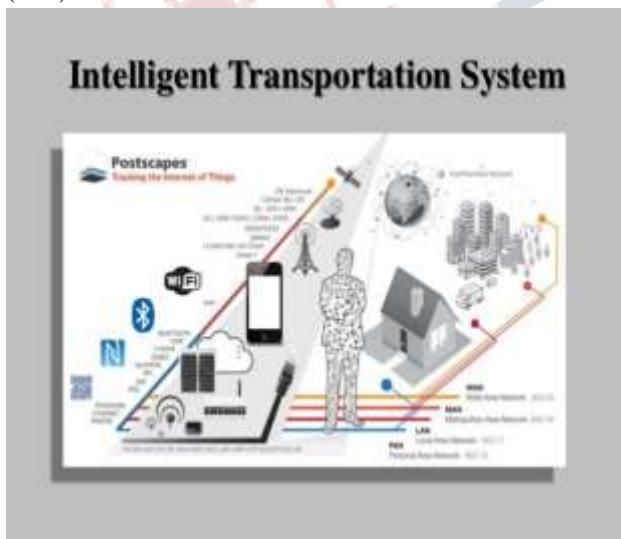


Fig 3: Intelligent Transport Systems

The electric companies are undergoing a significant transformation in their infrastructure, their new objective is to develop intelligent electricity networks, that is, that allow the participation of the consumer with the supply and generation, the integration of renewable energies to the networks and a more efficient distribution and safe. For this work, the new Information and Communication Technologies (ICTs) will be responsible for helping to build smart networks better connected. Such is the case that by the end of 2016 there will be millions of smart devices connected to the new smart electric networks; the Internet of Things (IoT) will be one of its main pillars. Smart Grid The construction of Smart Grid a term that is also known as smart electric networks - is an evolutionary process that transforms traditional networks into intelligent electrical networks. One of the main functions of the Smart Grid is to have automatic measurement and efficient communication systems with which it will be possible to make precise analysis of habits that will help to manage the demand with a more precise load control, likewise, it will improve the analysis and control of losses, among many other benefits. In the development of Smart Grids, the IoT and its omnipresent networks will allow the connection of meters, sensors and all types of terminal equipment with computer systems that will incorporate reliability and efficiency to the electricity supply.

In addition, it should be noted that other trends that drive the IoT in the electricity industry are the flexibility of the networks, the need for self-recovery and resilience of the distribution infrastructure; using the mass data technologies, cloud and social networks on the user's side, achieving holistic solutions in this transformation towards smart electric networks.

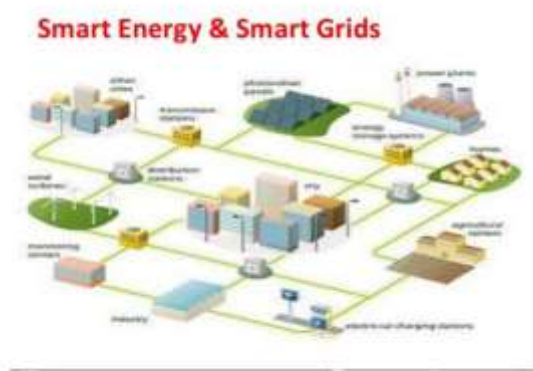


Fig 4: Smart Energy & Smart Grids

CONCLUSION:

Sensors contribute to making smarter cities even smarter. The bank of intelligent sensors is a matrix of standard sensors mounted on light poles that detect their location (GPS), the quality of the air, the proximity to detect the movement of traffic or pedestrians, the supervision of the light level, the humidity, the temperature and much more. The possibilities are unlimited and also present an excellent opportunity to poll the citizens and encourage their participation. Intelligent street lighting is the first step for a connected city. Lighting Control includes software that provides information that supports decision-making and will help you get your project started in a brighter and more connected city.

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