

Review on ITS in Smart City

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Abstract. Smart technology creates new business in each industry and will be the role of continuous development. Non-existing or impossible new changes in industry have taken place as several smart technologies have been applied in industry areas. In this paper, we described the reviews on current state of Smart City.

Keywords: Smart, City, Intelligent, Convergence, Usage.

1 Introduction

Digital convergence is spoken of basically as convergence of various information and communication technologies, media, commodities, and services, convergence of hardware units or software units, convergence between hardware and software, convergence between humans and machines, and convergence between virtual and physical spaces [1][2][3]. The significance and waves, however, do not remain merely in the boundary of chemical combinations or increase of economic efficiency. As multiple technologies and media or cultural elements go through a sort of advancement and convergence, the boundary among them becomes vague up to the point that even classifying them is meaningless. As a result, a new social order and cultural phenomena emerge, which changes the general aspects of our daily lives.

There have already been clear signs of the ripple effects of convergence technology and a new convergence society over economics, society, culture, and politics. In integration of cutting-edge science technology into architecture and civil engineering, Intelligent Building and Smart Highway [6] are only two examples of convergence that have been embodied. Digital convergence means to create new products or services through integration of unit technologies based on information and communication technology. Such digital convergence meant simple functional integration of technologies and products in the past, but recently, it is advancing toward a higher level of industrial development and creation of new industry sectors in integration of IT into existing industry as well as organic combination among products and services.

2 Intelligent Traffic System

Smart city means a city where public functions available in common cities are networked by means of cutting-edge information / communication technology. Functions necessary for the realization of ICT-based smart city include concepts of sensor-based ubiquitous environment and intelligence [5]. Smart city is, in other terms, a future-oriented advanced city that is pursued around the world as the fruit of ICT-based convergence industry. To realize such smart city, a large-scale project widely applicable from basic industries such as environment, transportation, utility, and construction to specific home appliances need to be developed. The elements of smart city consists of the six: smart government, smart building, smart mobility [6][7], smart energy, environment and smart service.

Smart Mobility is a concept of comprehensive and smarter future traffic service in combination with Smart Technology. A smart mobility society is realized by means of the current intelligent traffic systems.

Intelligent Traffic System integrates cutting-edge technology into existing traffic system elements such as road, vehicle, and signaling system in order to improve the traffic facility, efficiency and safety. Just as a human brain controls and adjusts the physical body, the intelligent traffic system controls the traffic facilities flexibly and automatically based on traffic information acquired from various channels for user convenience to the full.

This type of ITS controls signals in reflection of the volume of traffic, regulates over-speed vehicles, collects fees on express ways automatically, provides traffic information for smooth traffic flows, provides information of times of bus arrivals and routes, and additionally provides information of other transportation means such as subway, train, and flight as well as vehicles so that users can be informed of the current traffic situation anytime and anyplace.

Currently, most drivers have no difficulty in finding the destination by using a navigation system even if they do not know the region much. In addition to finding the optimal route, this system recognizes traffic congestions in advance and finds better ways. While waiting at a bus stop, the user can find traffic information on when the next bus will arrive, how long it will take from there to the destination, etc. Intelligent traffic system makes such information available.

It is known that the intelligent traffic system in Austria sector is developing fast owing to the government's active supporting and a lot of efforts for technological development. ITS, which is also called automotive telematics, provides vehicles and drivers with necessary information and service by means of communication devices in the vehicle based on a location information system that utilizes wireless voice signals, data communication, and artificial satellites. In its initial state of development, the single term, 'telematics,' was used, but since 2009 when telematics was converged with ITS, it was called 'tele-convergence' and since 2010, 'smart traffic' also has been used. Based on a wealth researches, related sectors are progressing rapidly.

The traffic infrastructures in Singapore are divided to road, MRT, and marine traffic. Most national territories of Singapore including such islands as Sentosa and Jurong are connected through the road network, and MRT (Mass Rappid Transit), the national subway system of Singapore, and LRT (Light Rail Transit) are connected

through the NR Line and Circle-Line. Ferryboat services are also available for inter-island transportation.

According to LTA, the volume of traffic in Singapore will be increasing by 2020 60% more than now. In consideration of the limited national territory of Singapore, an efficient public transportation system was essential in response to the increasing volume of traffic, and accordingly, a master plan for ITS system advancement was established in 2008.

3 Conclusions

Intelligent Traffic System integrates cutting-edge technology into existing traffic system elements such as road, vehicle, and signaling system in order to improve the traffic facility, efficiency and safety. In this paper, we studied the concept and meaning, applicability of intelligent traffic system.

References

1. Hisang Lee, "Smart technology, Possibility of The Future Industry", LG CNS, Korea(2010)
2. Hangbae Jang, "Future of Smart Technology", LG CNS, Korea(2010)
3. Jidong Kim, "Future of Digital Convergence", LG CNS, Korea(2010)
4. NIA, "Convergence between IT based Industries and Strategy direction of National Information", (2010)
5. Navigant Research. Smart City(2013)
6. <http://www.smarthighway.or.kr/>
7. <http://www.car-2-car.org/>