



Intelligent Transport Systems Apps in South Korea

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Annotation: In this article given applications used in South Korea. Also analyzed opportunities of application and tools in public transport of country.

Key words: transportation, ecology, sustainability, green energy.

Introduction

Korea, another leading country in the field of ITS, the second article of the National Transportation System Efficiency Act No. 11020 refers to systems that increase efficiency and safety in the operation and management of the ITS transportation system. transport infrastructure and vehicles through electronic, control and communication technologies . After the 1988 Olympic Games in the country, economic recovery in the country and especially in the capital Seoul led to increased demand and traffic congestion. It is observed that the classic methods used to solve traffic problems before the spread of ITS, such as building new roads and increasing public transport lines, were not enough after some time. According to estimates, the cost of traffic congestion in the country reached 18.5 trillion South Korean won per year in 1997, and total logistics costs reached 16.5% of the country's gross national product in 1998 . After the 1999 assessment found that 14.4% of the country's national budget was spent on infrastructure construction, the country began to look for ways to maximize the use of existing roads instead of building new ones.

Research

Applications in the AUS architecture created by the Korean government corporate structure are generally grouped into 7 groups:

1. Advanced Traffic Management Service: Applications in this group are traffic flow management system, incident management system and automatic traffic management system.
2. Electronic fare collection service: This group includes electronic payment system and electronic tickets.
3. Advanced public transport service: This group includes public transport information system and public transport management system.
4. Advanced traffic information service: basic information transmission system and traffic information management coordination system belong to this group.
5. Commercial Transport Operations: This group consists of logistics information management system and dangerous goods vehicle management systems.
6. advanced information service: In-vehicle and out -of- vehicle passenger information systems are included in this group.
7. Advanced vehicle and highway service: Applications in this group are safe driving support system and automatic driving support system.

Along with ITS applications, ITS applications were put on the priority agenda under the "Advanced Green City" program, one of the 17 new growth goals set for the country's



development in 2001 . The development process of ITS in the country can be divided into two periods as the period before and after the National Transportation System Efficiency Act of 1999 . This from the law Previously, ITS applications were primarily in transportation solve problems to do technological for and academic pilot projects in circles in the form of started _ Established in 1990, the Traffic Broadcasting System, which allows the exchange of traffic information at a basic level, is both in the academic environment and also led to an increase in research activities in the private sector. South Korea's National Police Service and South Korea Expressway Corporation (KEC - Korean Expressway Corporation) jointly implemented pilot projects in the field of road transport during this period. The advanced traffic management system and pilot project, which was used to control traffic conditions at intersections from 1991 to 1994, was put into practice in 1997 at 61 intersections of 10 major roads in Gangnam Province. Between 1992 and 1994, the FTMS (Freeway Traffic Management System) project was commissioned by KEC, providing electronic variable message signs that provide information about traffic jams, accidents and other incidents on highways. After the law was passed, the "National IT Master Plan 21" was implemented to implement ITS nationally, and the "5 Major City ITT Plan" was implemented to implement medium and long-term ITS in metropolitan cities. As part of these plans, Daejeon, Daegu, Jeonju, and Jeju were selected as ITS model cities by the Ministry of Construction and Transport, now known as the Ministry of Land, Infrastructure and Transport (MOLIT) . distribution of ITT applications by local state authorities was started. studied. In addition, a national highway management system was established and managed by the same ministry. In 1995, KEC and MOLIT jointly started a project for an automatic toll collection system, and after three years of testing, a system called Hi-Pass was put into use in 2000 . After problems with communication standards arise. Overcoming in 2006, this system is used throughout the country . Hi-Pass, South Korea's highway toll collection system, operates at 344 toll booths by the end of 2011, and 5.6 million vehicles registered in traffic use the system .Local governments have also launched AUS applications for public transport such as BMS (Bus Management System) and BIS (Bus Information System - Bus Information System), while MOLIT has integrated these systems to facilitate access to information for bus passengers living in different cities. . The above-mentioned law was expanded in 2009 and became the legal basis for the new Master Plan, the "Integrated Transport System Efficiency Law", and then the "National ITS Master Plan 2020", which will be updated at the end of 10 years.

As of 2013, South Korea's highways with a total length of 3,906 km have ITS applications, including basic information transmission system, incident management service, highway traffic flow management service. About 2,500 km of highways have traffic information centers established by the regional highway construction department, accounting for 19 percent of non-motorway roads. Between 2006 and 2012, the South Korean Institute of Transportation initiated the most extensive ITS R&D research into the development of devices based on in-vehicle and roadside vehicle and infrastructure communications. This research will collect data from highways and vehicles with systems that provide real-time traffic information services and monitor traffic flow for faster and safer travel with roadside devices. In this system, first of all, traffic volume, speed and density of vehicles on the road are determined by CCTV (Closed Circuit Television) system or vehicle detectors . Then, the collected data is processed by the traffic information center according to the needs of operators and users, and finally, the processed data is transmitted to the relevant parties via VMS (Variable Message Sign), internet or mobile phone. Another application is an automatic control system that detects and automatically fines traffic violations such as traffic light violations, speed limits, overloading violations, lane violations, and illegal parking. On the other hand, T-Money cards, which are used in South Korea's public transportation fare payment system, can be used for shopping, as well as subway, bus, taxi, and parking fees.

In South Korea, research is carried out according to the Master Plan, which is determined by the



central government and forms the legal framework for ITS projects of the central government and local government agencies. It is important that this plan is created by the central government for the spread of ITS, which provides many facilities from planning to technology standards and project evaluation. Local governments can also draw up their own environmental plans based on their needs and receive financial and technical support from the central government for projects that are not too small. A before and after comparison analysis and an impact analysis should be conducted to implement the ITS project in South Korea.

Conclusions

By 2022, approximately one fourth of all highways in South Korea are expected to have full use of ITT applications, increasing the number of traffic information centers from 48 to 75. Thus, average travel times will be reduced by 15% to 20% and traffic congestion will be reduced by 20%. At result the public transport of South Korea is one of the best due to ITS applications, which is used in this country.

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