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Said-Amirhon Makhmudov  
National university of Uzbekistan  
Teacher of the History faculty

## GENERAL CHARACTERISTIC OF THE INTELLECTUAL TRANSPORT COMPONENT OF SMART CITY MANAGEMENT ON THE EXAMPLE OF THE EXPERIENCE OF UZBEKISTAN

**Abstract:** The article discusses the latest achievements of modern governance and the importance of the smart transportation component in smart city governance. The author analyzes the effective reforms carried out in Uzbekistan in recent years and their practical significance, and finally a number of conclusions.

**Key words:** Smart management, smart city, smart transport, surveillance cameras, Atto, navigation system, geolocation, smart payment system, road traffic accident.

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### Introduction

Today's innovative development has already covered all spheres of society. In this regard, the management sector also should be noted. As you know, today "Strategy of Action" became basis of all important reforms. At the same time, based on foreign experience resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. RCM-48 has adopted on January 18, 2019 about "The Concept of the implementation of smart urban technologies" and the Plans for 2019-2021 years "Practical measures for the implementation of the Concept of implementation of smart urban technologies"[1].

If we look at foreign literature and magazines, we could see how importance of "smart cities" and their relevance for today's development.

For instance, article of M. Batty, K.W. Axhausen, F. Giannotti, A. Pozdnoukhov, A. Bazzani, M. Wachowicz, G. Ouzounis, and Y. Portugal, which published on December 5, 2012 in The European Physical Journal special topics (Smart Cities of the Future) they have mentioned about emergence of smart cities - "There are powerful networks in the world today, including: all transportation systems, utilities, smart metering, local weather, pollution levels and waste, destruction, land planning, energy saving and use of construction technologies, the list of

health information systems is endless. The point is, we urgently need a map of the region so that we can combine these different activities[2].

In short, the main need for the emergence of a smart city is to create a systematic and useful solution against growing and expanding systemic problems. It consists of striving from chaos to synergy.

According to the study by University of North Texas scientists Saraju P. Mohanty, Uma Chopalli and Elias Kougiannos, global population growth in recent years and by 2050 more than 70% of the population could live in cities. It means that 80% of greenhouse gases would be concentrate in cities. This assumption, which is becoming increasingly realistic, is being taken as a factor by scientists, who point out that "smart cities" as a unique strategy for overcoming the problems that may arise in the process of rapid urbanization. In this regard, a number of requirements have been developed by the International Organization for Standardization (ISO), which believes that these standards play an important role in ensuring the safety and quality life conditions of a smart city[3].

The world experience has considered different and comprehensive views on the studying issue. Another proof is ATIS. ATIS is a complex of large companies in the field of information and

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communication technologies (ICT) to address common, important priorities, headquartered in the United States. The main tasks of ATIS are to reach agreements on problem solving and development of new business opportunities, to have a long-term, strategic vision for the development of the process of industrial transformation or to create a platform for cooperation with other states' industries and stimulate to innovation[4].

Smart Cities Technology Roadmap by ATIS has published in the U.S. in 2017, and mentioned completely about details components of the Smart cities[5].

The first component is Smart Transport. Although the term did not appear for a long time, today the term is widely used not only scientifically but also socially. At the same time, this factor is an important factor in the system of "smart management". The development of the engineering industry, the growth of the population and the establishment of a perfect, reliable and, most importantly, fast and cost-effective transport system are urgent issues. In the example of Tashkent, which is the capital city, and the central cities of the regions, the above task is an important issue on the agenda. The concept envisages the introduction of the following measures through the introduction of technological solutions in the field of "smart transport":

First, automation of the traffic control system and monitoring of traffic flow indicators, including real-time monitoring of traffic conditions;

This will optimize traffic and ensure comfortable movement in the face of increasing private and public transport. This, in turn, will help to avoid possible congestion on the roads, problems with technical deficiencies, as well as the timely resolution of alternative solutions. The correct and timely movement of public transport will ensure that citizens can reach their destination quickly and efficiently.

Second, public transportation management software;

In this regard, to provide traffic participants with information about road conditions and situations, public transport schedules through an automated system. At the same time create applications that allow you to monitor the movement of public transport. This allows passengers to get an idea of public transport, taking immediate action in the event of a traffic accident. A number of practical steps have been taken in this regard. For example, in June 2017, two types of cameras were installed in Tashkent and later at the intersections of regional centers. One of them works in video surveillance mode and is installed to monitor the streets and intersections, while the other detects violations on the roads, sends information about the offending driver to the database and imposes administrative sanctions on him. serves to apply. According to the program, by 2021, all intersections and central streets of Tashkent will be 100% camera-controlled.



1 Surveillance camera

2 Camera that detects traffic violations

Picture 1.

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At the same time, the above-mentioned types of cameras and "smart traffic lights" are being installed

at the main intersections of the central cities of the regions.



**Picture 2. Smart traffic light system in Tashkent.**

Third, the full implementation of security systems in public transport;

Of course, the necessary measures have already been taken. That is, this system is not unfamiliar to Tashkent. Each car of the Tashkent metro operating in Tashkent is equipped with cameras that allow you to observe a 360-degree angle. At the same time, surveillance cameras which has human face identifier function and activity of operators have installed at each metro station. Today, large-capacity Mercedes and Samarkand-made MAN buses are equipped with security cameras, which is an important factor in ensuring the safety of citizens traveling on public transport.

Fourth, the introduction of information technology, 5G-compliant communication devices and actuators, a comprehensive Internet network and other elements that provide data transmission and storage;

Of course, the exchange of information in a high-quality form necessitates the use of the latest network system. Currently, measures are being taken to bring the 5G system already used by China, Japan and some

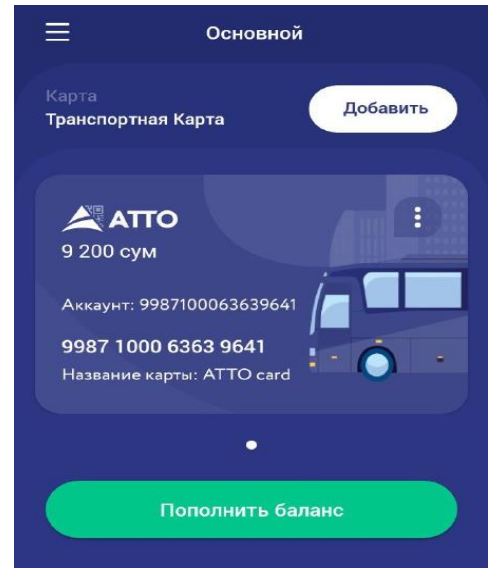
European countries to Tashkent and regional capitals. The Ministry of Information and Communication, mobile and Internet companies have developed a roadmap of necessary measures under the Strategy of Actions and are gradually implementing it.

Fifth, the introduction of urban Internet platforms for the Smart City;

The first issue to be addressed in this regard is the development of "smart placement" technology, which determines the space for the placement of vehicles and their distance. It is also planned to introduce electronic payment systems for the use of vehicles during the day, thereby continuously monitoring the status of passenger traffic. At present, all lines of the Tashkent metro and passenger buses have an electronic plastic card "Single Transport Card" (General transport card), which allows passengers to pay with a single movement. To do this, you need to install the mobile application ATTO.uz on your mobile phone and attach a single transport card to it. The application allows each user to make instant payments and monitor card transactions[6].

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“ATTO” card

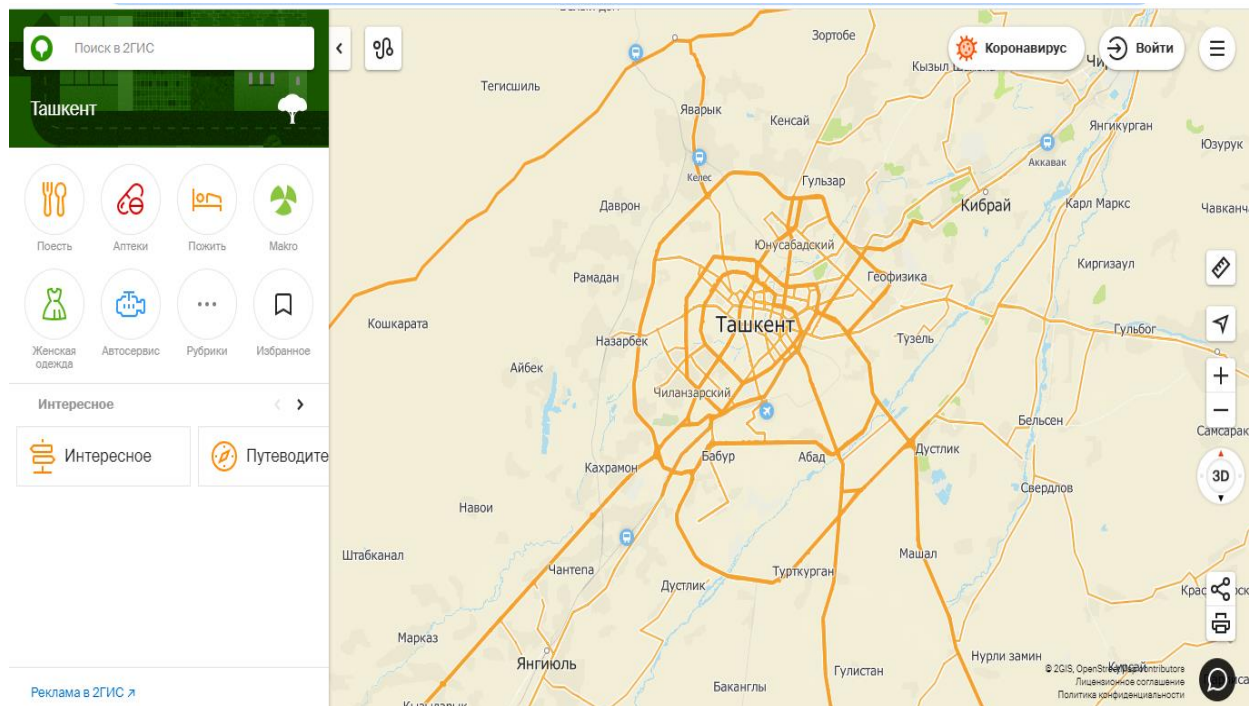
“ATTO” mobile application

**Picture 3.**

Fifth, Geoinformation Technologies and Navigation;

Of course, the presence of this system will serve to effectively meet the needs of foreign guests, tourists, or staff coming on a business trip to the city in the future. Of course this requires the creation of a

number of perfect applications. For example, Google has features such as Google map and Google Earth, while Yandex has developed its own Yandex search engine. Several national systems have been produced that perform similar functions. Examples include Tashkent Map[7], 2GIS, [8] and Tashbus [9].



**Picture 4. 2GIS mobile application.**

The essence of the problem is how the components mentioned and explained above will

work in the future. With the full implementation of the smart transport system, the following positive results

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can be achieved. In particular, statistics show that an average of 9-10 thousand traffic accidents occur in the country every year [10].

More than 2,000 of them end up killing civilians. This is stated in the concept of road safety in the Republic of Uzbekistan in 2018-2022 [11].

The transition to a smart transport system will reduce the number of accidents per year. At the same time, with the help of SOS signals or surveillance cameras, which are currently being tested in cities and roads, the Ministry of Internal Affairs, the Ministry of Emergency Situations and the Ministry of Health will

be able to integrate into the affected areas. This will increase the chances of saving the lives of citizens who die due to untimely first aid. It is also possible to ensure the free movement of citizens in vehicles through secure, geolocation, smart transport payment systems, the ability to pay quickly and easily through electronic payment systems, the ability to travel from abroad or across the country without problems. 'is guaranteed. At a time when urbanization is evolving and the number of pressing problems in transport and logistics is growing, the Smart Transport System is the most effective innovative solution.

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