Development of GSM cellular communication system, functional scheme and arrangement of devices

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ABSTRACT: In this article, we describe the development, functional scheme and arrangement of devices of the GSM cellular communication system, in the era of rapid development of current technologies and related fields, it is very important and necessary to be aware of GSM.

Key words: cellular communication, GSM, devices, GSM-modules, Wired telephone connection.

INTRODUCTION: A characteristic feature of the modern world is communication in motion is used. Communication in motion in many countries at present subscribers have exceeded the number of fixed network subscribers. Many subscribers according to the reliability and quality of services of the fixed network, mainly broad band despite some advantages in terms of network and multimedia capabilities, are giving up landline communication. The reliability and quality of cellular communication currently depends on location, weather and depends on the radio-electromagnetic conditions, so the subscriber always cannot be sure that communication will be provided at any place and at any time possible.

MATERIALS AND DISCUSSION: PQ3673 of the President of the Republic of Uzbekistan dated April 18, 2018 "Implementation of innovative projects and departmental information systems" Decision on organizational measures of rapid integration, 2017 No. PF-4947 dated February 7, 2007, "Republic of Uzbekistan". Decree on development action strategy, Uzbekistan 185 of the Cabinet of Ministers of the Republic of March 7, 2018 —Communication, to further improve the quality of information and telecommunication services, this

textbook is specific to the implementation of the tasks provided for in the Decision on measures and other regulatory legal documents related to the field.

GSM is currently the most common system in Europe and the CIS countries is a mobile communication standard. In the USA there is a modification of this system. Its supporters are good quality of speech, short message (SMS) services they emphasize its availability, operation in complex climatic conditions, conditions of multi-beam propagation and minimum signal loss ratios.

One of the main functions of GSM networks is mobility management is considered, its task is to direct calls to subscribers includes the function of controlling their location. Without this function networks built on the basis of the GSM standard in any country of the world subscribers own phone to receive services in the appropriate service areas cannot use their devices. Such services are high in data speed transfer, short message (SMS) transfer, Intelligent Network (IN) services, such as mobile virtual enterprise network (MVPN) service. GSM technical specification interoperability with other standards developed taking into account its capabilities, that is, it is different standards guarantees the presence of interfaces with mobile communication networks, also it should be noted that the main aspect of the GSM standard is the specifications can be modified, they are "openness", that is, development is not considered completed in the sense of and to meet future needs can be filled. Various applications have been developed for the GSM standard. As you know, houses, fields, it is enough to protect yards, houses and cars. It is a complex issue, to solve it effectively there are various defenses, there is a need to use systems. It is characterized by wide functionality and high level of security. The most effective security system (complex) is GSM signaling is considered Here again, biased to transmit signals of danger not wire trunks that can be easily damaged, it is important to use high-frequency channels of mobile communication. Receiving a signal from a phone operating in the GSM range and connected any automation by enabling/disabling hardware a large variety of GSM-modules that allow remote control, they are gates that can be opened and raised, parking lots, cars residences, country yards, opening a gate in private houses, engineering irrigation systems, lighting, heating systems, servers and routers used for remote control of loading. Group access to the object reliable and cheap controller for control and many other purposes. GSM-modules are the most widely used.

5A350901 – intended for the specialization of mobile communication systems. The purpose of the textbook is to organize GSM standard mobile communication systems general and operating principles, as well as specific to mobility management is to highlight the features.

Personal "Multiton" is one of the first systems of mobile communication call system can be calculated. In this system, the dispatcher receives a personal radio calls the employee to do it. An employee who receives an acoustic call finds a landline and calls the dispatcher. At the next level of service, the employee not only receives the call, but the caller sees the subscriber's number on the individual reception display, but it can be contacted only by landline phone (Paiging Systems). The highest level of such a system is within the system from the

individual radiotelephone to carry out conversations and to the general telephone network through the dispatcher allows exit. Enterprises with such systems (PMR, PAMR), hospitals, industrial complexes, etc. will be equipped. RMR means communicate when subscribers cross the boundaries of radio coverage zones which does not provide continuity, does not have automatic roaming, etc, the same set of communication services available to system subscribers, including means private radio communication systems that do not guarantee payment issues.

RAMR unlike RMR, public telephone networks provides communication between subscribers and active subscribers. The main forces in the design of systems in motion are radiotelephones focused on ensuring high reliability of receiving messages, therefore, certain achievements have been made in this direction, and they are in progress. Wired telephone connection in terms of data quality approached the level. This led to radio communication on the move massive increase in the number of radio subscribers using allocated frequency resources led to a decrease due to the high transfer of developers efficient to create capable systems and allocated frequency spectrum encouraged intensive research in the field of use. It is fundamental which has a newly built structure and organization of communication, exactly, many cellular communication in motion where base stations (BTS) connect to a single network systems (HSAT) are recognized as the most promising. In the process of moving subscriber station (MS) from one BTS to another, according to its commands deal with automatic reconnection, which ensures continuity of communication provides.

In HSAT, the frequency channels are separated by a protective distance from each other is used multiple times by subscribers in pushed cells. Such a build in principle, the number of active frequency channels increases, which means higher throughput and provides more effective use of the frequency spectrum (Cellular Radio Systems).

CONCLUSION: At the same time, the GSM standard, which is included in the second generation networks have not lost their relevance and are widespread in many countries and continents is being used. The popularity of the standard is so high that the abbreviation GSM is now. It is understood as a "global system of radio communication in motion". The GSM standard is more advanced than other second generation digital standards . It is distinguished by good energy and quality indicators, the highest safety and has communication confidentiality characteristics. Eight per carrier by default time division of channels with time windows (KVA) is used.

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