Wireless Sensor Networks with Temporary Cluster Head Nodes

Abdo Futahi, Alexander Paramonov, Andrey Koucheryavy. Saint-Petersburg State University of Telecommunications, Russia aahf_84@mail.ru, alex-in-spb@yandex.ru akouch@mail.ru,

Abstract. The clustering in the Wireless Sensor Networks (WSN) is one of the most important investigation areas. There are many cluster head selection algorithms which were developed before today. These algorithms were developed to 2D and 3D spaces, WSN with fixed and mobile sensor nodes. The main goal of all of developed algorithms is the energy consumption decreasing and WSN life-time increasing. The new algorithms for clustering appeared during last time. These algorithms based on the idea of temporary cluster head using. The round length optimization and the impact of the temporary cluster head node moving on the network operation investigation in this paper.

Keywords - Ubiquitous sensor networks (USN), LTE, Mobile Temporary Cluster Head Node, Round, Round length.



A.Futahi was born in Ibb, Yemen 24.02.1984. Graduated from St. Petersburg State University of Telecommunications in 2009 bachelor's degree and in 2011 master's degree. He is PhD student at "Telecommunication Networks" department. A.Futahi's scientific areas of interest are cooperative networks and wireless sensor networks.



Alexander Paramonov was born in Leningrad 19.05.1962. After graduated from Leningrad University of Telecommunication in 1984 he going to Telecommunication Research Institute named LONIIS, where A. Paramonov working up to May 2013. He became the Ph.D and D.Sc in 1996 and 2015 respectively. A.Paramonov is the St. Petersburg State University of Telecommunication (SUT) professor from 2013. He is professor of SUT department "Telecommunication Networks and Data Transmission". His scientific areas of interest are the network planning, teletraffic theory, IoT and its enablers.



Dr. Sc. Andrey Koucheryavy was born in Leningrad 02.02.1952. After graduated from Leningrad University of Telecommunication in 1974 he going to Telecommunication Research Institute named LONIIS, where A.Koucheryavy working up to October 2003 (from 1986 up to 2003 as the First Deputy Director). He became the Ph.D. and D.Sc. in 1982 and 1994 respectively. A.Koucheryavy is the St. Petersburg State University of Telecommunication (SUT) professor from 1998. He is Chaired professor of the department "Telecommunication Networks and Data Transmission" from 2011. He is honorary member of A.S.Popov's society. Prof. A.Koucheryavy was the vice-chairman Study Group 11 ITU-T (Study periods 2005-2008, 2009-2012). His scientific areas of interest are the network planning, teletraffic theory, IoT and its enablers.