Journal of Information Science and Engineering, Vol. 39 No. 2, pp. 389-406

Investigations on Underwater Acoustic Sensor Networks Framework for RLS Enabled LoRa Networks in Disaster Management Applications

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Underwater wireless sensor networks (UWSNs) are used for the exploration of un-derwater resources, oceanographic data collection, flood or disaster prevention, tactical surveillance systems, and unmanned underwater vehicles. Underwater Wireless Sensor Networks offer innovative ways to investigate and anticipate how aquatic environments behave. Without position information, sensed data is useless in approximating target track-ing or disaster avoidance. In this research, we propose the RLS (Reverse Localization Scheme), for short, a unique 3D centralized localization structure for MWSNs. The pro-posed approach enhances energy economy and condenses localization reaction time by an apposite level of accurateness in expressions of the motion exemplary of water currents, according to simulation findings. It reduces the number of message exchanges required for localization, average localization response time and saves vitality. Acoustic communica-tions are the most used physical layer technology in underwater networks. Radio waves r only travel great distances over conductive salty water at extremely low frequencies (30-300 Hz), necessitating outsized antennae and significant transmission power. This RLS Enabled LoRa Networks architecture is built on an ad-hoc WiFi network.

Keywords: MWSNs, reverse localization scheme, clustering, data aggregation, effective routing, energy analysis, TWSN