Communication Experiment of the Sensor Network in Chikuma City

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Internet of Things (IoT) where data of many kinds of sensors are collected through the Internet may become one of important social infrastructure technologies. Various sorts of data collection demonstration experiments through wireless technologies in many areas have been implemented to improve public services and solve problems in the community through use and application of the collected data. We are conducting data collection experiments using private LoRa (Long Range), which is one of the low-power wide area (LPWA) communication technologies, BLE and LTE in Chikuma city, Nagano prefecture, Japan. In this experiment, we set up LoRa relay stations at ten locations in the city like the governmental buildings. The LoRa relay stations have IoT Cameras and high-quality images are transferred. In addition, beacon transmitters were installed in the community buses and other cars. The location and time information were transferred from the cars to the NICT Science Cloud servers in real time through the relay stations. Weather stations are set near the all relay stations and data are transferred by these LoRa relay stations. A few tenths of small environment sensors are deployed in Togurakamiyamada Junior High School. These sensors are connected by BLE to LTE relay stations. Data are monitored in real time at WEB site. Many kinds of sensors could be connected through this sensor network and new applications are expected.

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