Study of device and handling of information for IoT society

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Research Contents

・Fabrication of snow depth measuring device using IoT

　In our research group is study of snow depth measuring device using IoT. At first, as a background, I describe traditional snow depth meter. Two types of snow depth meters, namely, (i) ultrasonic type and (ii) laser type are normally used. However, these snow depth meters are not suitable for IoT due to high price. In our approach, we aim at measuring snow depth using soil moisture sensor. Moisture sensor can detect substance (include moisture) from impedance. It is likely that snow contact may lead to reduction of impedance of soil moisture sensor. This figure shows the schematic diagram of the whole system. Soil moisture sensor is arranged 20mm and 40mm from ground. Sensor data is sent to AWS cloud platform by wifi of raspberry pi. Finally, the sensor data can be visualized using PC. Currently, the price of the fabricated device is around 60 euro. We are aiming at a price of around 17 euro. Moreover, I plan to estimate optimal routing for removal of snow through using the KIBAN platform.
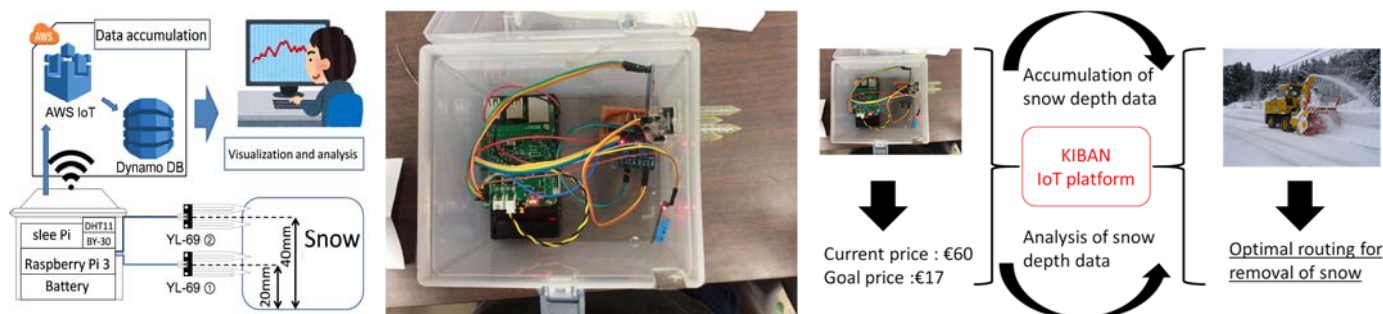
・Study of handling of information for IoT society

　Recently, many researchers have proposed internet of things (IoT) technology. IoT is one of the internet technogies. Even sensor network is no exception, and being expected to be applied in wide fields such as a medical field, environmental field, manufacturing industry and the like. However, there are many real problems to be solved in IoT-related devise. Among them, the following security of IoT-related devices are of noteworthy. In this study, establish a network of IoT sensor. After that, it implements security on a signal obtained from the sensor. Implement security dedicated to confidentiality, versatility, and low cost.

Available Facilities and Equipment

KOSEN SEEDS