

RFID and ZigBee Sensor Network for Ecology Observation of Seabirds

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Abstract—We have been conducting an ecological observation of seabirds. The system used in the previous study utilized the wired network, and has been difficult to construct a scalable sensor network. Furthermore, that system couldn't distinguish types of the seabirds (e.g., male/female parent, chick), which is useful information for biologist to verify their hypothesis. Therefore, in this paper, we propose the ZigBee sensor network using the RFID system for ecology observation of seabirds. The proposed network has been installed in Awashima Island. An observation of seabirds has been conducted in Awashima Island for about two months in 2011. From the observed results, we have confirmed that sunrise and sunset affect leaving the nest or returning to the nest of seabirds. Furthermore, with the use of the RFID, it is evident that chicks are often training at night, which has not been verified by the existing sensor network. In 2012, we have also started the observation under the same conditions as 2011. By analyzing the observed data which have been obtained until now, some difference of the homing pattern between a male parent and a female parent have been found.

Keyword—Sensor Network, ZigBee, RFID, Biological Research, Streaked Shearwater



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