

無線溫度感測器基礎節點之設計

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摘要

As technology advances, changes in the environment monitoring index the more attention, in the home automation, in order to achieve the purpose of saving energy and reducing carbon and home security, home automation into environmental monitoring is necessary. The trend of home automation is on the integration of multiple sensors (temperature, humidity, infrared, light intensity and Hall sensors), so that it can achieve the full purpose of monitoring, along with other household electrical appliances, the requirement of digital life and home security can be fulfilled.

This thesis focuses on the design of wireless simple node with temperature sensor. Our simple node uses Nordic nRF24LE1 core processor with its own RF transceiver for data transmission. The transmission spectrum is in the ISM band, 2.4GHz, to avoid special licenses for radio frequency use. The companion temperature sensor is Dallas DS1821. Since both ICs are low power consumption, the power are 14.7mW and 9uW on Tx mode and standby mode respectively. This will fully extend its usage time and in the meantime, the transmission distance is over 20 meters.

關鍵字：Sensor, RF transceiver, Simple Node, nRF24LE1, DS1821