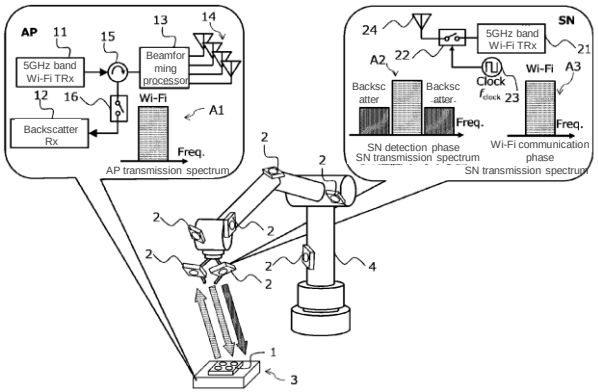
Tohoku Univ. Technology

Communication system, signal processor, signal processing program, and communication method

Backscatter signal processing and sidelobe suppression



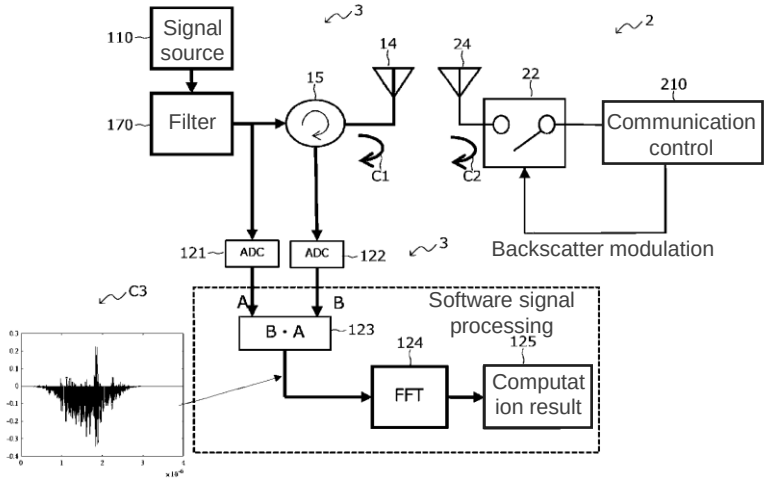
1.Antenna
2. Sensor node
3. Access point
4. Machine tool
14. Antenna element
15. Circulator
16. Switch
22. SPST switch
23. Clock
24. Antenna element

Overview

In the Internet of things (IoT) society, all kinds of objects will be connected to network such as internet. For an example of a factory, an access point equipped with multiple antenna elements installed at the base of a machine tool can track a sensor node on an object attached at the extremity of machine tool arm moving at relatively high speed. A known method of capturing the position of the sensor node is to use the backscatter wave of the signal transmitted by the access point. However, there is a problem that sidelobe is generated near the modulation frequency signal of backscatter.

This invention is able to suppress the sidelobe generated near the backscatter modulation frequency signal that appears in the demodulated signal spectrum. The access point is characterized by demodulating the modulation signal by multiplying the received modulation signal with the transmitted signal. This enables suppression of sidelobe generated near the modulation frequency of the backscatter in the demodulated signal spectrum.

Output backscatter signal converted to digital signal and perform signal processing



2. Sensor node
3. Access point
14. Antenna element
15. Circulator
22. SPST switch
123. Multiplier

Product Application

- Communication and sensing with artifact that does not have communication capability
- Wireless IoT communication

IP Data

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