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# Dual base station backscatter communication architecture

What is integrated sensing and backscatter communication (isabc)?

In line with this trend, we present an innovative system called the Integrated Sensing and Backscatter Communication (ISABC) system and evaluate its performance. This system comprises a full-duplex base station (BS), a backscatter tag, and a user. The tag reflects the BS transmitted signal and provides data to the user.

Are Ambient backscatter systems a good idea?

How-ever,Ambient Backscatter systems can be beneficial from two perspectives: First,they can reduce the need for energy for a communication system to extremely low powers or even passive. Second,they increase the capacity and reliability of large wireless IoT networks,as presented in .

What is a bistatic backscatter system?

Technology flexibility: Bistatic backscatter system design presents a general and technology-independent communication paradigm that allows a variety of excitation signals and modulation schemes to be used in situ.

Which mmWave backscatter system provides accurate localization?

However,past work either enables accurate localization of the backscatter node or provide only uplink communication. In contrast,MilBackis the first mmWave backscatter system which provides accurate localization,uplink and downlink communication.

In order to elim-inate dedicated readers, instead resource to other widely avail-able wireless infrastructure/devices like mobile phones, Blue-tooth devices, cellular/IoT base stations, etc., ...

Researchers are challenging the traditional approach to network design by exploring the integration of communication and sensing capabilities. In line with this trend, we ...

We first present the basic principles of ambient backscatter communications covering architecture, basic techniques, and primer knowledge of ambient signals. After that, ...

As a key enabling technology of the Internet of Things (IoT) and 5G communication networks, millimeter wave (mmWave) backscatter has undergone noteworthy ...

2.1 Architecture An Amb-BackComs system typically consists of three main components, i) ambient sources, ii) backscatter tags, and iii) backscatter receivers, as shown in Fig. 1 (a) ...

Abstract Backscatter Communication (BackCom) technology has emerged as a promising paradigm for the Green Internet of Things (IoT) ecosystem, offering advantages ...

Backscatter communication (BackCom) has attracted considerable attention in recent years for its novel approach to wireless communication [10].

Therefore, compared with conventional ambient RF sources, e.g., cellular base stations or digital video broadcasting (DVB) base stations, the signal power of sensing ...

Backscatter presents an emerging ultralow-power wireless communication paradigm. The ability to offer submilliwatt power consumption makes it a competitive core ...

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This system inherently employs a distributed architecture consisting of two transceiver (TRX) base units and one or more backscatter tags. A key challenge in bistatic ...

Therefore, this paper aims to provide a contemporary and comprehensive literature review on fundamentals, applications, challenges, and research efforts/progress of ...

This article will introduce the state-of-the-art antenna design and radio frequency (RF) system integration for wirelessly powered backscatter communications, covering both ...

The system features a full-duplex base station (BS) that employs NOMA to serve  $K$  NOMA users while leveraging a backscatter tag to enhance communication and sensing ...

1) Two-Way Backscatter Communication and Localization: The first challenge is to develop a low-power backscatter node which can enable two-way communication and ...

To show the superiority of employing RIS as the backscatter device in improving the backscatter communication, we take the RIS-assisted ISABC system in [5] as an example, ...

Abstract--Backscatter communication offers a promising solution to connect massive Internet-of-Things (IoT) devices with low cost and high energy efficiency. ...

Ambient backscatter communication (AmBC), an emerging mechanism for batteryless communications that can utilize ambient radio-frequency signals to modulate ...

It begins by introducing the fundamental principles of backscatter communication, highlighting its ultra-low power consumption, low-cost deployment, and typical three-tier ...

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