SIMULTANEOUS WIRELESS TRANSFER OF POWER AND INFORMATION IN A DECODE-AND-FORWARD TWO-WAY RELAYING NETWORK

ABSTRACT

> We consider a simultaneous wireless transfer of information and power in a two-way relaying network, where a decode-and-forward (DF) protocol is employed for data exchange between two source devices at different rates. The data exchange is accomplished in two time phases (TPs) with possibly asymmetric TP ratios, where the relay is powered by the source devices in the first phase through simultaneous wireless information and power transfer (SWIPT) either by power splitting (PS) or by time switching (TS).

> For the network, resource allocation of the PS and TP ratios for the PS-based SWIPT and that of the TS and TP ratios for the TS-based SWIPT are studied to minimize the system outage probability.

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➢ We first solve the joint optimization problem of each case with the instantaneous channel state information and then propose suboptimal schemes utilizing one or two values for the TP ratio to lower the implementation complexity.

➢ The results from analysis and simulation show that the proposed schemes outperform the benchmark scheme with equal resource allocation and that the gain gets more prominent as the rates of the data exchanged or the relay locations become more asymmetric.

EXISTING SYSTEM

In various IoT applications, the devices for sensing and communication can be deployed in wide and hazardous areas incurring high cost and difficulty in the replacement of battery so that they are likely to rely on an external charging mechanism to remain active in the network.

PROPOSED SYSTEM

➤ In this context, we address the SWIPT in a two-phase DF-TWR network in this paper, where a relay forwards the information of two sources with the energy harvested from the signals from the two sources.

➤ Noting that the DF-TWR protocol, unlike the AF-TWR protocol, can allocate the time resources into two TPs in unequal portions for better delivery of information, we attempt to optimize the TP ratio of the DF-TWR protocol as well as the PS ratio of the PS-SWIPT and the TS ratio of the TS-SWIPT for the improvement of the outage probability of the network.

HARDWARE REQUIREMENTS

- Processor - Pentium-IV
- Speed - 1.1 Ghz
- RAM - 256MB(min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

SOFTWARE REQUIREMENTS

- Tool   -   Network Simulator-2
- Operating system   -   LINUX
- Front end   -   OTCL (Object Oriented Tool Command Language)

REFERENCES

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