Animal Wireless Body Area Networking

ABSTRACT:

Wireless Body Area Networking (WBAN) around animal body has emerged as an important line of study for the advancement in the field of precision animal farming. Use of low power, high energy efficient methods for communicating in a farm environment is key to improve battery life in size constrained communication devices. This study focuses on various communication methodologies and protocols that can be used in a multi-hop animal body area network topology within a farm environment. A detailed analysis of the advantages and disadvantages of the different protocols is presented. Narrowband radio frequency (RF) based communication protocols are studied in detail using FEM based simulations in conjunction with experimental data to analyze the results. Use of broadband Electro-Quasistatic (EQS) Intrabody communication is investigated with respect to its applications in animal body area networking. A collaborative intelligence platform is also investigated using different communication technologies which working in tandem to provide an energy efficient solution for wireless data transfer in a sensor network.