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Design of Flexible Antenna for Body Area Network Application

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Abstract: *This project focuses on designing a flexible antenna for Body Area Network (BAN) applications, which are vital for wearable technologies in healthcare, fitness, and communication. The project addresses the limitations of traditional rigid antennas by utilizing materials like conductive textiles and flexible polymers, ensuring the antenna conforms to the body's shape while maintaining performance. The design process involved simulations using Ansys HFSS studio to optimize parameters such as gain, return loss, and radiation patterns. By using conductive textiles and polymers the antenna is able to stretch, bend around joints, every while maintaining adequate performance fit for application. The performance of the fabricated antenna was measured by vector network analyser and on-body scenarios showing acceptable performances in terms of flexibility, mechanical stability, and correctness for BAN applications. Introduction Due to the wide popularity of mobile communications and also a new interest in the monitoring human health using wearable devices, there is an increasing significance at Body Area Networks (BANs), still they are limited due to low-quality features.*

Keywords: Body Area Network

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