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Wireless Energy Transmission for a Sensor Node in an Elephant Tracking System

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Abstract

Animal tracking in sensor network domain is a key area of wireless sensor network (WSN) applications. To realize the concept, this project is discussed on the use of WSN to track movements of elephants. This would allow wildlife researchers to understand the behavior of these elephants. The prototype system consists of moving one node (collard elephant) with a grid of three fixed base stations. This system employs radio waves for distance ranging and trilateration approach to localize the collard elephant. The data obtained is passed on to a web based data server and movement is shown on a digital map using browser based visualization software, utilizing Google Map Application Programming Interfaces (API). As the power conservation is critical, and interconnecting wires are inconvenient for the transmitter in the collar, wireless power transmission (WPT) concept is going to be applied as a backup power supply to boost the battery life time. As a further improvement, a pre warning system is implemented as a house hold application for prone areas of human elephant conflicts.

Keywords: *Elephant tracking, Localization , Rectenna, Trilateration, Wireless Energy Transmission*