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Performance Analysis of Short Range, Low Power Wireless Transceiver Antenna

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Smart wireless technique is one of the emerging technologies for intelligent home automation. There are number of wireless communication modules which can be used for the communication inside the house or office such as Bluetooth, ZigBee, Z-Wave, Wi-Fi, Insteon, RFM69HW and etc. By comparing all these module's cost and power consumption with high RF output power RFM69HW RF transceiver has been selected to be used for the smart home wireless network. The problem is this module is available in the market with no antenna. This research is about how to select a suitable antenna for low power RFM69HW transceiver module with enough receiving power level required for a smart home network. This paper contains the process of designing a suitable antenna for RFM69HW RF transceiver module for a better communication between two transceiver modules. Here different factors were considered which affect the Received Signal Strength Indicator (RSSI) value of the receiver by considering relevant equations and experimental results. The aim of this research is to select a suitable antenna for RFM69HW RF transceiver module.

Keywords: dipole antenna, monopole antenna, RFM69HW and yagi-uda antenna.