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Configuring a UHF antenna for sensor nodes in harsh environments

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Abstract: Wireless Sensor Networks (WSNs) offer distinctive sensing solutions in numerous application domains which comprise harsh operating environments. Sensing in such environments expose sensing nodes to several performance degradation factors which obstruct sensing and/or data reporting. Sprouts WSN platform, developed by TRL, overcomes the challenging factors of harsh environments. In this paper we introduce the patch antenna design of Sprouts platform. Sprouts antenna is designed, simulated, and tested to fulfill extended communication range while adhering to fit within "coin sized" dimensions. In addition, the antenna is adaptable to resonant frequency shifts which result from protective encapsulation material.