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Internet-of-things based Smart Tracking

Internet-of-things (IoT) being an emerging technology has been introduced as a more reliable and promising solution to meet the today's communication requirements. Radio frequency identification (RFID) is among one of the enabling technologies to support IoT. The proposed tag is multi-resonator based structure, loaded with 7- triangular shaped cascaded resonators. Each triangle is loaded with two open slots. The slot positioning for each triangle structure is different so that they can produce resonances at different frequencies. Therefore, the tag is capable of transmitting 7-bit data, as each resonator corresponds to one bit. The tag can generate $2^7=128$ binary combination to tag multiple items/objects. The tag structure is designed and analyzed for three different substrates, i.e., Taconic TLX-0, RT/duroid 5880 and Kapton®HN. The low-cost frequency signature based chip less RFID tag can be used in smart tracking applications.