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Abstract
The readability of near-field RFID tags is less dependent on the material of the product, the storage method of the product, the characteristics of the tag, and the quality of the reader. However, near-field RFID label fabricated tags usually do not work well when they are attached to metal because there are eddy currents on the metallic surface, as well as they are not flexible and are expensive. In this study, tags with the Split-Ring Resonator (SRR) antennas are developed. It is possible to use the tags with the SRR antennas on the metal to enhance the effective magnetic permeability. Due to the enhancement of the sensitivity of the tags, the tags with SRR antennas are more appropriated for the flexible metals, like aluminum foil packaging materials (Tetra Pak).
In this study, the new designed near-field RFID tags with the SRR antenna are applied to the aluminum foil packaging products and are integrated with appropriate Warehouse Management Information System. The tags with SRR antennas are suitable for the enhancement of the sensitivity of the tags and can add the range of the Reader, through the information storage systems management applications, make the best of the merchandise inventory information, rapid response to various suppliers, manufacturers and suppliers to achieve effective coordination and timely replenishment efforts to reduce inventory and reduce inventory costs that to enhance warehouse management performance.
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