

Playing RFID tag with sheets of paper

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Radio Frequency Identification (RFID) tags are an essential component of modern shopping, logistics, warehouse, and stock control for toll roads, casino chips and much more. They provide a simple way to track the item to which the tag is attached. Now, researchers in France have developed a way to deposit a thin aluminum RFID tag on to paper that not only reduces the amount of metal needed for the tag, and so the cost, but could open up RFID tagging to many more systems, even allowing a single printed sheet or flyer to be tagged.

RFID tags are an alternative technology to printed barcodes, which provide an automatic means of delivering product data without direct contact between the tag, or transponder, and the reader device. Indeed, unlike barcodes there is no requirement for the tag to be in the line of sight of the reader. RFID tags are, unfortunately, relatively expensive compared to [barcodes](#) and their uses are not as widespread. The ability to produce RFID tags at a fraction of the present cost could change that.

There are several techniques used to deposit an antenna on PET: etching, electroplating; and on paper: screen printing, flexography and offset [lithography](#). Now, Camille Ramade and colleagues at the University of Montpellier have demonstrated how a simple thermal evaporation process can deposit an aluminum coil antenna on to paper for use as an RFID tag. Aluminum is a lot less expensive than copper or silver, which are used in some types of RFID tag. The researchers suggest that the approach would reduce the cost of RFID tagging to a fifth of current prices, which could represent significant savings for inventory users operating millions of [RFID tags](#) in their systems.

"Prototypes are functional and easily detected by the reader; the next step is to optimize the design for each family of [RFID chips](#). This will significantly improve performance while maintaining the same low-cost technology on paper," the team says.

More information: "Thin film HF RFID tag deposited on paper by thermal evaporation" in *Int. J. Radio Frequency Identification Technology and Applications*, 2012, 4, 49-66.

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