

Printing Electronic Devices: creating antennas for Radio Frequency Identification Tags

Bruce Kahn* Rajiv Sangoi, Mike Seymour and Carl Smith

Carl Smith <cgs2794@ritvax.isc.rit.edu>

Recently, new materials and technologies have fostered a move toward a convergence of microelectronic and printing technologies. Building upon RIT's expertise in printing, imaging technology, materials science, information technology, and engineering, we are investigating and assessing our capabilities in printing electronic devices. In order to examine the feasibility of this process we are printing simple single layer radio frequency identification (RFID) antennas. RFID antennas are becoming increasingly popular as a replacement for barcodes because unlike barcodes which must be scanned optically, RFID tags (an antenna with an attached microchip containing data) need only be within range of a radio frequency receiver. By analyzing physical properties (feature dimensions, microstructure, adhesion, etc.) of printed designs and their electrical characteristics we can determine the capabilities and limits of our printing abilities and apply these to making functional devices. This is a multidisciplinary project involving Imaging and Photographic Technology, Materials Science, Electrical Engineering and Printing.