

From Radar to Reader

The Origin(s) of RFID

Abstract

The talk will present the results of a more or less scrupulous research into the technological origins of the so called Radio Frequency Identification or RFID. The focus herein will be kept on the aerial interface, simply because communicating via radio signals is the characteristic feature of RFID. All the constitutive spatial properties of this technology are defined and set by this particular way of linking objects and databases together. Secondly this paper deals only with the "passive" class of RFID, meaning that the mobile identifier of an object (transponder or tag) is powered by the radio signal of the interrogating device (reader). Being independent of a contained source of power is the decisive aspect that makes a RFID tag viable as a mass device and therefore opens up all the visions of ubiquity and of a networked physical world as well as all the business plans and media hypes that currently surround this acronym.

Tracing back the history of an intrinsically hybrid technology like RFID is no simple task. An article in the *Proceedings of the Institute of Radio Engineers* of 1948 has always been credited as being the first actual description of a passive RFID system. It demonstrates, among other things, how a radar beam can be modulated by a reflecting object (yes, the object itself!) so that it delivers an identification number of that very object. While it is hard to tell whether this experimental arrangement in fact constitutes the first embodiment of RFID - the development of a certain composition of several technologies has no single event to cling upon - the claim bears relevance in so far as it sheds light on a decisive moment in the history of media technologies. RFID came about to be an experimental formation when radar became mature. The massive research undertakings in the field of radar during the Second World War have turned the electromagnetic spectrum into a controlled environment, penetrated by an armada of newly designed electronic apparatus. The maturation of radar, coming with all its subdevelopments in tube and detector design, was an integral part of the so called "electronic turn". Radar is a technology that scans space and turns that space into electronically coded spatial information. While in contemporary sources it has often been referenced as "seeing" beyond eye's capabilities (during night, fog, beyond the horizon), the inventive usage of radar to carry a modulated number turned electronic seeing into electronic reading. So the main hypothesis of this talk is, that the basic concept of RFID has been conditioned during that very electronic turn. RFID, as we now, after decades of minituarization and sophistication of chip design, experience it, is simply a realization of what has already been disposed in the early stage of the electronic age. An age where we (therefore) apparently still live in.

The talk will show what the concept of passive RFID is and how it became materialized around 1948. It is an excursion into the early days of microwave radar, but also of the electronic computer and even the digital concept of barcodes which all have been introduced in parallel. Yet while the computer already shapes our way of working, producing perceiving and knowing and even the barcode has trickled down into our everyday life, RFID has still to prove its envisioned role in our electronic age.

Selected Bibliography

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- Rosol, Christoph (2007), RFID - Vom Ursprung einer (all)gegenwärtigen Kulturtechnologie. Kulturverlag Kadmos, Berlin.
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Curriculum Vitae

Christoph Rosol has studied history of science and technology as well as media studies in Berlin (under Friedrich Kittler) and Toronto (Ian Hacking, Derrick de Kerckhove et al.). During this time he also worked at the Max-Planck-Institute for the History of Science in Berlin as a student assistant. He currently works on his Ph.D. concerning the history of climate simulation and weather modification under the supervision of Bernhard Siegert at the Bauhaus University Weimar.

His master thesis analysed the current technical developments in the field of RFID and put this evolvement into a broader technological, historical and cultural perspective. This perspective encompassed the present usage - in particular the visions associated with that technology in military logistics - as well as the historical foundations of RFID as being an off-spin of radar technology.

Topic Related Publications

- Rosol, Christoph (2006a), *RFID for Real*. De:Bug. Zeitschrift für elektronische Lebensaspekte, H. 104, S. 52–53.
- (2006b), *Wanzen für die Welt*. brand eins, H. 10, S. 42–50.
- (2007), *RFID - Vom Ursprung einer (all)gegenwärtigen Kulturtechnologie*. Kulturverlag Kadmos, Berlin.
- (n.d.), *Kollisionen: RFID und die zeitliche Logistik der Signale*. In: Axel Volmar und Wolfgang Ernst (Hg.), *Zeitkritische Medienprozesse*. Kulturverlag Kadmos, Berlin, vrstl. Ende 2007.