

The Utility and Limitations of Radio Frequency Identification: ABSTRACT

In today's world Radio Frequency Identification (RFID) is a technology that is used almost in all aspects of human life. Not until the 1960's, this type of technology was only found in the military applications and academics research labs. Then came the electronic revolution. The electronic article surveillance was born and applied in stores as theft protection system. Since then RFID is used everywhere, from electronic toll payment systems to ID cards, electronic passports as well as patient monitoring and identification systems. The Radio Frequency Identification uses radio frequencies to identify different homogeneous and heterogeneous object or set of objects. The main components of the RFID are interrogator also called a reader and transponder, called a tag. Since the RFID is used everywhere it is being subjected to all kinds of attacks and abused because of its vulnerabilities. The vulnerabilities are not only issues of privacy and ethics but also of immature architecture and public law. The most common attacks are cloning, replay attacks, denial of service and common theft. All those attacks possess threats to the growth and expansion of this type of technology. The main types of protection of the RFID against those attacks are "rolling codes" algorithms, cryptography and setting general laws for usage and governing or overseeing of this technological advancement. Since the RFID is under attack there are other emerging technologies that are worth investigating as potential substitute for the RFID systems. The alternatives that could be used instead of RFID are retinal scanning, digital fingerprinting, and DNA fingerprinting. These are mostly focused on human authorization but expansion is also possible. Even with other technologies being explored, still the RFID is significantly becoming the most important technological advancement in the area of identification, security and supply chain management.