

# Integrating Embedded RFID Information Technology for Better Surveillance and Management of Productive business and logistics

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**Abstract**— This document offers an introductory implementable approach towards application of radio frequency based tags for identification and security measures in advance or immediately after the malfunctioning. Practical implementation of which involves affixed tags and handheld or bench top scanner or reader. How facility makes the things more manageable is exemplified in the following text..

**Keywords**— Radio frequency, Tags, scanner.

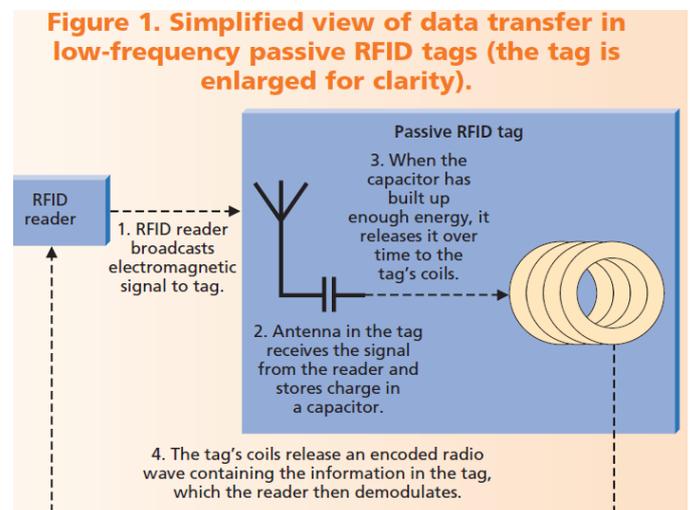
There is requirement of the solution for the various business problems such as identification of asset or tools, while it is in the supply chain or in storage before sell. With the advancements in the information technologies for various implementable ideas it becomes possible to maintain the record and manage the same. The implementation reduces the unnecessary burden on the system in terms of various databases and major security issues.

As inculcating technology without its comparison with the existing manual mapping and coding for identification is not credible to certain extent, it is always better to have glance at what exact one mean by RFID and how it is implemented and what is solution to these needs in present scenario.

RFID (Radio Frequency Identification) is sophisticated conceptual small scale technology which really broadens the minds concerning privacy and security of the entities. A tag consist of small chip with data in it and an antenna to transmit information from chip wirelessly. Passive tag has no internal battery and transmits the data when activated by the reader in the close proximity of the tag.

The objects e.g. assets, furniture, equipment, computers or tools with RFID tags-kind of labels can be used to uniquely identify these objects and can be queried contactlessly from some distance, which along with tracking them can be used on inventory to move quickly efficiently and accurately managing the stock and fulfil orders.

How exactly and in really simple manner the technology is self explanatory can be seen with help of Fig.1



One can view RFID work considering storage of database and interrogation in its block diagrammatic representation as shown in the Fig.2

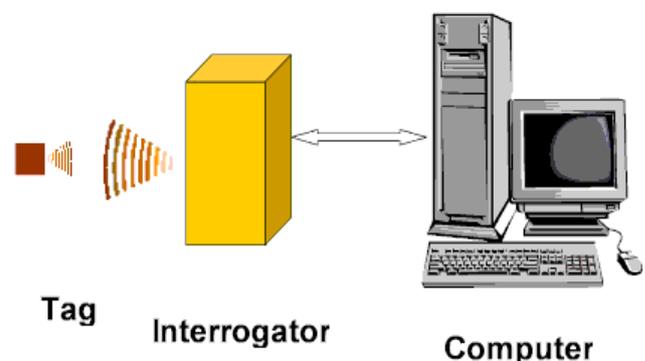


Fig.2. Basic representation of RFID system

Various forms of tags in accordance with the application orientation is shown in Fig.3



Fig. 3. Various size and shapes of RFID tags

Many a time's popular technology like barcodes may sound cheaper and then naturally it pops up in the mind that why would one opt for complex if simpler one works. Barcodes may be relatively slow and matters if mass productive or large scale logistics is under consideration. That is the one which is little more labour intensive to scan from same viewpoint.

Barcodes can be read only one at a time which do matter if an assistant in a library is scanning the books. There is stringent requirement of line of sight communication and overcome by the vicinity enabled operation of RFID. Alongside multiple tags can be read at once. One more additional and interesting advantage of RFID is it can inform you precise location of the object in the room.

Coming to the exemplification of these all almost everyone is aware about the decision of the world's largest retailer Wal-Mart, the one who have used this technology to track their products and Target is another of its kind.

I.D systems Inc of Hackensack N.J has installed RFID tags across the country which are linked to the ignition, such a way that an employee needs an authorized badge to start the engine. I.D systems received contract from U.S department of homeland security to develop tracking system to track vehicles and workers associated with baggage handling at airports (By Jeffery Barker, Medill Reports Chicago)

Hospitals are using RFID to track equipment throughout facility. Read-write tags can physically store their position and time throughout their movement in the supply chain.

In fact one can say that RFID tags are often a complement or a major adjunct, but not a substitute, for UPC or EAN barcodes. RFID allows tracking from a specific distance which offer flexibility in the management and in case of type asset which is not very easy to move.

In the situations stated above where the tag is re-used the RFID stood very good aid for intelligent tracking and efficient time saving management which obviously includes Asset tracking, reusable containers, harsh environments, and non line-of-sight applications for example are classic candidates for an RFID system and anyone will find that initial cost issues will disappear surprisingly when you look at the return on investment.

Surveillance is getting easier, cheaper, smaller, and ubiquitous. Sure, it's possible to destroy an RFID tag. One can crush it, puncture it, or microwave it. No one can drown it, however, and one can't demagnetize it. And washing RFID-tagged clothes won't remove the chips, since they're specifically designed to withstand years of wearing, washing, and drying.

#### CONCLUSIONS

The return on the investment for small business or firms might be very little to count if small time frame or duration is concerned whereas for larger businesses and bigger durations it sounds to be countable. Logistics in the supply chain is the major candidate for this award according to the Steve Halliday, VP of Technology for AIM, Inc. based in Pittsburgh, PA, USA

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