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## Main applications of RFID along with various stages, software applications and hardware involved

Application-1	LOGISTICS CHAIN MANAGEMENT SYSTEM IN FOOD AND PHARMA INDUSTRY.				
Place of events	Process involved	Type of S/W & Hardware			
<ol> <li>Airlines and shipping companies</li> <li>Ancillary Suppliers,</li> <li>Cargo Community Networks [CCN] which are made up of some of the other participants,</li> <li>Customs and Quarantine authorities,</li> <li>Freight forwarders,</li> <li>Fresh produce exporters,</li> <li>Fresh produce importers,</li> <li>Government agencies such as freight export information providers,</li> <li>Packer/cool store,</li> <li>Transporters including road haulers and carriers in the importing country.</li> </ol>	<ol> <li>Consignment</li> <li>Supplier</li> <li>Transport and</li> <li>Storage</li> </ol>	<ol> <li>Central database</li> <li>A communication secured network</li> <li>Internet with three interactive databases.</li> <li>Database and applications (data in a range of formats (maxima, minima, averages, graphical etc)</li> <li>Passive tag - RW</li> </ol>			
Application - 2	GLOBAL SUPPLY CHAIN OF SEMICONDUCTORS.				
Place of events	Process involved	Type of S/W & Hardware			
<ol> <li>International suppliers</li> <li>Airport</li> <li>Customs agency</li> <li>Distributors</li> <li>Shipping dock</li> <li>Manufacturers</li> </ol>	<ol> <li>Transport</li> <li>Inventory</li> <li>Shipping</li> <li>Origin of port</li> <li>Transshipment port</li> <li>Destination port and</li> <li>A consignee</li> </ol>	<ol> <li>Program instructions can be in any appropriate form, such as source code, object code, or scripting code.</li> <li>Computing device: Enterprise servers, Application servers, point of sale terminal etc</li> <li>Passive tag - RW</li> </ol>			
Application - 3	SUPPLY CHAIN MANAGEMENT OF HIGH-VALUE ELECTRONIC ITEMS & PHARMACEUTICALS.				
Place of events	Process involved	Type of S/W & Hardware			
<ol> <li>Warehouse</li> <li>Truck</li> <li>Freight container</li> <li>Sea vessel</li> <li>Distribution center</li> </ol>	1. Shipping 2. Recipient	<ol> <li>Central data processor is operable for communication with an internet router.</li> <li>Low frequency tag ? 300 KHz</li> </ol>			
Application - 4	TRACKING SYSTEM				
Place of events	Process involved	Type of S/W & Hardware			
1. Assembly line 2. Warehouse	<ol> <li>Package handling</li> <li>Baggage handling</li> <li>Parts assembly</li> <li>Navigation through marked waypoints</li> <li>Item retrieval and packaging</li> <li>Inventory control</li> </ol>	<ol> <li>Business applications (cause sorting and loading instructions to appear on the items so that wearer?s of the data acquisition and display device do not have to read each item?s label.)</li> <li>Passive tag</li> </ol>			

Application - 5	SUPPLY CHAIN MANAGEMENT.		
Place of events	Process involved	Type of S/W & Hardware	
<ol> <li>Storage facility</li> <li>Shipping container</li> <li>Shipping vessel</li> <li>Airport</li> <li>Shipyard</li> <li>Military heavy assets</li> <li>Warehouse</li> <li>Factory</li> </ol>	<ol> <li>Shipping goods</li> <li>Transportation (truck)</li> <li>Retail or wholesale locations</li> <li>Train depot</li> <li>Inventory</li> <li>Delivery</li> <li>Outbound transit</li> <li>Inbound transit</li> <li>Advanced shipping notification</li> </ol>	<ol> <li>Firmware and software to modulate and demodulate the data for the particular protocol</li> <li>Various communication algorithms and command response algorithms</li> <li>UPS Supply Chain Solutions</li> <li>Passive tag ? RW ? Low freq. or 900 MGz</li> </ol>	
Application - 6	INVENTORY ALONG A DISTRIBUTION CHAIN		
Place of events	Process involved	Type of S/W & Hardware	
<ol> <li>Distribution</li> <li>Storing</li> <li>Manufacturer (warehouse)</li> </ol>	<ol> <li>Inventory</li> <li>Monitoring</li> <li>Transportation</li> <li>Tracking</li> <li>Retailer or consumer</li> <li>Wholesaler</li> </ol>	<ol> <li>Anti-collision software</li> <li>Program for correlating the environmental condition data with the location data.</li> <li>The data reporting medium is a computer display, a LAN, or a web page.</li> <li>Active or passive tag- RW</li> </ol>	
Application - 7	ASSET AND MATERIALS MANAGEMENT SYSTEM.		
Place of events	Process involved	Type of S/W & Hardware	
1. Lay down yard 2. Warehouse 3. Asset storage	<ol> <li>Inventory</li> <li>Shipping</li> <li>Asset management</li> <li>Tracking asset material         <ul> <li>Material identification information</li> <li>Description of the material</li> <li>Purchasing details</li> <li>Storage and maintenance details</li> <li>Material location and</li> <li>Destination information.</li> </ul> </li> </ol>	<ol> <li>Software applications (Web application" TagDetect") files may be in HTML format, XML or other formats.</li> <li>Software applications supporting a client-server system or n-tiered computer system.</li> <li>Internet and Central data repository</li> <li>Active or passive tag - RW</li> </ol>	
Application - 8	POINT-OF-SALE AND POINT-OF-DELIVERY AND/OR DISTRIBUTION.		
Place of events	Process involved	Type of S/W & Hardware	
<ol> <li>Distribution</li> <li>Micro-warehouse</li> <li>Manufacturing</li> <li>Marketing</li> <li>Customer relation management</li> </ol>	<ol> <li>Point of sale</li> <li>Delivery</li> <li>Inventory</li> <li>Billing</li> </ol>	<ol> <li>MW (Micro-warehouse) enterprise application</li> <li>XML middleware such as Biz Talk.RTM. software.</li> <li>ERP system, web ordering system</li> <li>Passive tag ? RW - freq 2.45 GHz</li> </ol>	

Application - 9	REUSABLE TRANSPORTATION MEANS.		
Place of events	Process involved	Type of S/W & Hardware	
1. Distribution	<ol> <li>Tracking:         <ul> <li>Receptacle or</li> <li>Container or</li> <li>Cacking or</li> <li>Pallet or</li> <li>Trolley car.</li> <li>Wholesale distributor</li> <li>Chain sales store</li> </ul> </li> </ol>	1. No Software application 2. Passive tag - RW	
Application - 10	MATERIALS HANDLING		
Place of events	Process involved	Type of S/W & Hardware	
1. Express mail 2. Storage	1. Transport 2. Tracking 3. Delivery	<ul> <li>Software modules may include:</li> <li>1. A database module configured to store data on the storage medium.</li> <li>2. A decision module configured to determine the presence or absence of stale mail based on information provided by the database module.3.</li> <li>3. Passive or active tag ? read only</li> </ul>	
Application - 11	COMMERCIAL ENTERPRISE (PERSONNEL AND ASSET RETENTION SYSTEM (PARS))		
Place of events	Process involved	Type of S/W & Hardware	
<ol> <li>Industrial sites</li> <li>Power plants</li> <li>Refineries and</li> <li>Ports of entry</li> </ol>	<ol> <li>Tracking</li> <li>Monitoring</li> <li>Inventory</li> <li>Security</li> </ol>	<ol> <li>Company databases are:         <ul> <li>Material management systems</li> <li>Procurement systems and</li> <li>Time and attendance systems.</li> </ul> </li> <li>Applications programming</li> <li>Information access through standard formats such as XML and HTML.</li> <li>Passive tag - RW</li> </ol>	
Application - 12	TRACKING CARGO THROUGH CUSTOMS.		
Place of events	Process involved	Type of S/W & Hardware	
1. Airlines 2. Distributor	1. Shipping 2. Receiving 3. Tracking	<ol> <li>Central server runs a program which acts as a central host for processing the information communicated between the different computers.</li> <li>Passive tag - RW</li> </ol>	
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Application - 13	SUPPLY CHAIN MANAGEMENT IN BEEF INDUSTRY.		
Place of events	Process involved	Type of S/W & Hardware	
1. Factory	1. Identifying 2. Tracking	1. BeefLink.TM. Software (is a collection of components written primarily in VISUAL BASIC® 6.0 programming language and	

	4. Livestock production and processing cycle	ACTIVE X® programming methodologies.) 2. Inventory-type report can easily be generated. 3. MicroSoft Excel 4.Passive tag- read only
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