DOWNLOAD PDF THE MASTER PLAN : WHAT THE RFID INDUSTRY HAS IN STORE FOR US

Chapter 1 : How to Use RFID Technology | calendrierdelascience.com

Albrecht hates anything that identifies: grocery store discount cards, airline reward credit cards, bar codes, RFID tags. She's built a following scaring the ignorant into believing that Wal-Mart wants to peek into their medicine cabinets.

RFID is a big deal. Its impact will be pervasive, personal and profound. It will be the biggest deal since Edison gave us the light bulb. It brings you great gifts with one hand, and it stabs you in the back with the other. Where your every purchase is monitored and recorded in a database, and your every belonging is numbered. Once your every possession is recorded in a database and can be tracked, you can also be tracked and monitored remotely through the things you wear, carry and interact with every day. We may be standing on the brink of that terrifying world if global corporations and government agencies have their way. We know that a Big Brother vision of the future sounds farfetched. We assure you that this seemingly impossible future is on the drawing board, and we promise that by the time you finish this book, you will be convinced, too. For nearly three years, we have devoted ourselves fulltime to combing every article, reading every white paper, pursuing every insider tip, and scanning through thousands of patent documents to piece together a picture of this planned RFID future. What we learned will shock you. If anything you read in the following pages strikes you as improbable, please refer to the endnotes at the back of the book. In a future world laced with RFID spychips, cards in your wallet could "squeal" on you as you enter malls, retail outlets, and grocery stores, announcing your presence and value to businesses. Reader devices hidden in the doors, walls, displays, and floors could frisk the RFID chips in your clothes and other items on your person to determine your age, sex, and preferences. Since spychip information travels through clothing, they could even get a peek at the color and size of your underwear. And they would have gotten away with it, too, had it not been for an international outcry when we exposed their plan. While consumers might be able to avoid spychipped clothing brands for now, they could be forced to wear RFID-enabled work clothes to earn a living. Already uniform companies like AmeriPride and Cintas are embedding RFID tracking tags into their clothes that can withstand high temperature commercial washings. Your RFID-enabled employee badge could do the spying instead. Our next generation of workers could be conditioned to obediently accept this degrading surveillance through forced early exposure. Some schools are already requiring students to wear spychipped identification badges around their necks to keep closer tabs on their daily activities. If Johnny is one-minute late for math class, the system knows. Retailers are thrilled at the idea of being able to price products according to your purchase history and value to the store. RFID will allow them to assess your worth as you pick up products and flash you a corresponding customer-specific price. Prime customers might pay three dollars for a staple like peanut butter while "bargain shoppers" or the economically challenged could be charged twice as much. After all, stores justify, why have unprofitable customers cluttering the store and breathing their air? RFID chips embedded in passbooks and ATM cards will identify and profile customers as they enter bank lobbies, beaming bank balances to employees who will snicker at the customer with a mere thirty-seven dollars in the bank while offering white glove treatment to the high-rollers. RFID could also be used to infringe upon civil liberties. The technology could give government officials the ability to electronically frisk citizens without their knowledge and set up invisible checkpoints on roads and in pedestrian zones to monitor their movements. Hitting the open road will no longer be the "get away from it all" experience many of us crave. You may already be under surveillance, courtesy of your RFID-enabled highway toll transponder. The Federal Highway Administration is joining with states and vehicle manufacturers to promote "intelligent vehicles" that can be monitored and tracked through built-in RFID devices Minority Report-style. RFID spychips in your shoes and car tires will make it possible for strangers to track you as you walk and drive through public and private spaces, betraying your habits and the deepest secrets even your own mother has no right knowing. Pair RFID devices with global positioning GPS technology, and you could literally be pinpointed on the globe in real time, creating a borderless tracking system that already has law enforcement, governments, stalkers, and voyeurs salivating.

Postal Service has its way. They would like to embed every postage stamp with an RFID chip that would enable point-to-point tracking. Even more disturbingly, RFID could remove the anonymity of cash. Already, the European Union has discussed chipping Euro banknotes, and the Bank of Japan is contemplating a similar program for high-value currency. Your every purchase could be under the microscope. So could your trash. In the RFID world, scanning trash could be a simple as driving down the street with a car-mounted reader on trash day. How about the "smart" house? The potential is staggering. Home RFID networks will allow family members to remotely track you during your "golden years," or times of incompetence, real or otherwise. Doors can remain bolted to keep you from wandering, toilets can monitor your bowel habits and transmit data to distant physicians, and databases can sense your state of mind. But chipping inanimate objects is just the start. The endpoint is a form of RFID that can be injected into flesh. Pets and livestock are already being chipped, and there are those who believe humans should be next. Incredibly, bars have begun implanting their patrons with glass-encapsulated RFID tags that can be used to pay for drinks. This application startles many Christians who have likened payment applications of RFID to biblical predictions about the Mark of the Beast, a number the book of Revelation says will be needed to buy or sell in the "end times. Wal-Mart has mandated that its top one hundred suppliers affix RFID tags to crates and pallets being shipped to selected warehouses. According to one industry analyst, there are now sixty thousand companies operating under RFID mandates and scrambling to get with the spychip program as quickly as possible. You may have already brought a spychip home with you. RFID chips it put on order in early Why would anyone want to keep such close track on everyday objects? The answer is simple. Businesses want the technology to give them complete visibility of their products at all times. They also believe it could help them fight theft and counterfeiting. Theoretically, it could even eliminate the checkstand, since doorways could scan your purchases automatically when you leave the store and charge them to an RFID-based account. RFID-enabled refrigerators really could keep track of containers of food, warn about expired milk, and generate weekly shopping lists. High-tech washing machines really could automatically choose appropriate water temperatures based on instructions encoded in RFID-enabled clothing labels. Snow, New York Times quote available at www.

Chapter 2 : Plano's plan for the future is becoming a PR nightmare | Commentary | Dallas News

Tracking assets on the item level is beneficial across a broad cross-section of industries, but the retail sector has one of the highest ceilings in terms of opportunity from the use of RFID.

Why China is no closer to rivalling Boeing or Airbus 30 Oct A year ago, Chinese government departments across the country received an order from the general office of the Communist Party to hand in a timeline detailing how soon they could replace existing computer hardware and software programmes with domestic substitutes. Competing with the US is not a one-day or two-day matter. Now that sense of frailty has been transferred to the chip industry, spurring renewed efforts to build a domestic alternative. And there are signs that a shift in the tech landscape, as China embraces all things digital and pushes into new areas such as artificial intelligence, could help it towards that goal. China has in fact been trying to develop its chip industry for a number of years, even before the MIC plan. It has poured in billions of dollars of subsidies, grants and investments, but progress has been slow. SMIC uses what is called nanometre process technology, which refers to the size, in billionths of a metre, of the circuits on a chip. TSMC is preparing to make 5nm chips by with 3nm chips planned for Intel is working on 10nm technology. The smaller the circuits, the smaller and more powerful the chips â€" and consequently the gadgets they power â€" can be. Under MIC, China aims to meet 70 per cent of domestic chip demand with home-grown products, but, according to leading industry official Ding Wenwu, the industry has three shortcomings: Ding is president of the National Integrated Circuits Industry Fund, which was established in to build up manufacturing processes and help companies acquire assets internationally. At the same time, a new generation of Chinese firms is grasping for opportunities in more specialised areas of the semiconductor industry where there is less ground to make up, and even a chance to take the lead. The government is also heavily promoting artificial intelligence, an area it wants the country to take the global lead in. These areas require different types of chips. For example, there is the system-on-chip that includes not only a CPU, but often a graphics processing unit, RAM memory, ROM memory and a communications modem to connect to the internet of things and devices. Chinese firms are making over 40 per cent of global smartphone sales, and have strong positions in PCs, tablets, notebooks, and many other devices. He said that once the playing field was level, China would be in a better position to gather the technologies, skills and talent to advance the domestic semiconductor industry, including into the development of mainstream chips. Big companies from other industries are also taking note of the potential as technology penetrates ever wider areas of life. E-commerce giant Alibaba Group Holding, which has moved aggressively into big data and AI, expects to launch its first neural network chip in April next year, and is developing smart chips for an internet of things infrastructure as well as for areas such as self-driving cars. The company, which also owns the South China Morning Post, bought a Chinese chip design firm in April, one of five investments in the sector in four years. NAND chips can store data without being powered, and are increasingly used in portable devices such as laptops. As China looks to find its niche, however, political tensions with the US over its efforts via the MIC plan have erupted into a trade war. In US eyes, the plan smacks of unfair government interference in industry that disadvantages US firms and seeks to exclude them from the market. Semiconductors are particularly sensitive as the industry occupies a central place in the US view of its own national prowess, and the country worries that its dominance is under threat. The US government has blocked several Chinese attempts to take over American and European chip companies over the last few years, and earlier this year showed the harm it can do to Chinese industries by banning ZTE from buying American technology for seven years after it found that ZTE had violated US sanctions on doing business with Iran and North Korea. Even as China ramps up its semiconductor industry, however, the reliance on foreign technologies will not go away completely. For US market leader Applied Materials, for example, sales of semiconductor tools to China accounted for 25 per cent of total revenue in the quarter ended April He said he had submitted to his supervisors a zero per cent short-term target for conversion.

Chapter 3 : How Does RFID Make An Impact On Retail Industry

Tracking everything and everyone: the RFID threat --Spychips the basics of RFID --The master plan: what the RFID industry has in store for us --The spy in your shoe: how everyday objects could report on their owners --There's a target on your back: how marketers plan to use RFID to manipulate and spy on customers --The RFID retail zoo.

Journal of Global Positioning Systems Vol. In Korea, telematics is regarded as the technology to enhance and make everyday-driving experience more comfortable and safer. An essential part of the telematics is navigation and it is mainly based on GPS as the choice of positioning technology. The accuracy of GPS, however, is approximately ten to twenty meters. Combining with map-matching technologies, most navigation systems guide drivers with a best effort manner. In this paper, we incorporate RFID technology into a navigation system to improve the accuracy. The skeleton of the idea is as follows: With this scheme, the accuracy of positioning can be dramatically improved, especially in tunnels and in downtown areas. Preliminary results show that this idea is feasible. Core components of a telematics system include positioning technology, Human-Machine Interfaces HMI , and a navigation module. Over the last few years, telematics has drawn much attention in major indu strial countries. Korea is one of the nations that end eavor to capitalize on telematics. Telematics is one of the eight new services and also one of the nine new growth engines in the IT Strategy. As mentioned above, positioning technology is a core component of telematics and most of telematics devices sold today rely on GPS as a choice of the positioning technology. With GPS, it is inherently difficult, if not impossible, to get a position in a tunnel or in downtown areas surrounded by skyscrapers. This issue in GPS would not be resolved for many years to come. To enhance the accuracy to a level at which lane-by-lane route guidance can be possible, using RFID technology for positioning is proposed. Recently, RFID comes under the spotlight for its potential for changing the world by replacing barcodes and providing many services that are unknown today. In addition to the replacement of barcodes, RFID has gaining interests in mobile phone and consumer electronics industry www. The RFID positioning can be divided into four steps: Apart from the RFID system, we also propose to use a tag database. Due to the memory constraint on the tag and the data size that needs be written in a tag, the use of a database for Chon et al.: In addition , the speed of th e RFID communication also makes the use of the tag database indispensable. Preliminary results show that the RFID communication speed does not solely depend on the bit data rate in the specification. Another performance study on the tag database access time indicates that the access time is marginal. They, however, did not take the velocity of robots into account, whereas in vehicle navigation fast RFID communication would be crucial. This paper is organized as follows: The results of performance study are provided in Section 4. Conclusions and future work are described in Section 5. An RFID system consists of tags, a reader with an antenna, and software such as a driver and middleware. Tags are usually affixed to objects such as goods or animals so that it becomes possible to locate where the goods and animals are without line-of-sight. A tag can include additional information other than the ID, which opens up opportunities to new application areas. An RFID reader together with an antenna reads or interrogates the tags. An antenna is sometimes treated as a separate part of an RFID system. It is, however, more appropriate to consider it as an integral feature in both readers and tags since it is essential for communication between them. There are two methods to communicate between readers and tags; inductive coupling and electromagnetic waves. In the former case, the antenna coil of the reader induces a magnetic field in the antenna coil of the tag. The tag then uses the induced field energy to communicate data back to the reader. Due to this reason inductive coupling only applies in a few tens of centimeter communication. In the latter case, the reader radiates the energy in the form of electromagnetic waves. After the tag wake up, some of the energy is reflected back to the reader. The reflected energy can be modulated to transfer the data contained in the tag. Three frequency ranges are generally used for RFID systems: Detailed characteristics of these three frequency ranges along with examples of major applications can be found in RFID Handbook Finkenzeller, The communication range in an RFID

system is mainly determined by the output power of the reader to communicate with the tags. The field from an antenna extends into the space and its strength diminishes with respect to the distance to tags. The antenna design determines the shape of the field so that the range is also influenced by the beam pattern between the tag and antenna. Although it is possible to choose power levels for different applications, it is usually not allowed to have complete freedom of choice due to legislative constraints on power levels as in the case of the restrictions on carrier frequencies. This technique, however, would not replace GPS rather it is a complementary technique. In this section, we give an overview of the RFID positioning and describe the feasibility of the idea. First, RFID tags need to be installed on a road in a manner which could maximize the coverage and the accuracy of positioning. This dep loyment scheme is discussed later in this subsection. Upon installatio n, necessary information such as coordinates of the location where the tag is installed needs to be written on each tag. The accuracy of this position information is v ery critical for this technique to be successful. The position information can be acquired by using DGPS or some other methods, which would take much longer time to compute the location. Contrary to GPS in navigation systems where real time positioning is necessary, the time for getting the accurate information would be tolerated since this computation would take place once. Vehicles, then, need to be equipped with an RFID reader that can communicate with the tags on a road. Therefore the vehicles need also to be equipped with a GPS receiver and inertial sensors such as a gyroscope for positioning when there are no tags around. While driving, the vehicles constantly monitor the presence of a tag. On detection, the reader retrieves the information from the tag including coordinates of the location, which are supposedly very accurate information. Figure 1 shows a scheme of deploying RFID tags on a road. The deployment should be done step by step: Due to this nationwide scale, governmental actions are necessary. Among other things, the research includes the development of RFID positioning. Contrary to the robo t case, an RFID tag in our application will be installed on a road, where the operation environment for the tag is very harsh; high temperature in summer, low in winter, dusts, rain, snow, etc. To be more useful the tags should contain the information about the road property number of lanes, which lane it is on, how far to the nearest intersection, etc other than the location information. More data decreases the communication speed and requires more memory, which leads to high cost. In summary, there are issues to be addressed before full- fledged deployment of RFID tags nationwide. The first issue is making RFID tags that can withstand a harsh environment. The second one is fast communication speed between readers and tags. The third one is the data size. Besides these three issues, there are other issues such as standards frequency, data format, air interface, etc , which are not covered in this paper. Although it is very important, the environmental problem is beyond the scope of this paper. We only address the communication speed and the data size issues in this and the next section. Information such as absolute coordinates of the location will not be changed. On the contrary, relative coordinates and the property of the road on which the tag is could change some time unlikely, though. Moreover, we can embed more useful information such as nearest museums, restraints, and gas stations. However, the contents of the information vary all the time. The data size as well as the dynamic nature of it prevents from writing all the information at the installation time. To address this issue, we devise a tag database which stores information corresponding to the tags available on the roads in a region country for instance. The information stored in the tag database is whatever information on real tags and more such as point of interests. Another reason for the necessity of the tag database comes from the speed of the RFID communication. As we show in Section 4, however, getting only identification ID is very feasible even at such a high velocity. Once the ID is retrieved, it can be efficiently Chon et al.: The tag database is a collection of tags and a part of the digital map that a navigation system may carry. Generally, a digital map consists of cells each of which contains network information for route guidance. The network information is a graph with nodes and links. Figure 2 shows a class diagram of the digital map. In the diagram, TagDB is an aggregation of Tag objects which represent tags in a real world. Each cell has links to the collections of nodes, links, and Figure 2. Tag Database Class Dia gr am tags. For simplicity, we only show the attributes of the Tag object. This last field is for the number of lanes

of the link, type of the road highway, local, etc , and so on. In Java language and most of other programming languages, type long is 8 bytes, type float and int are 4 bytes, and type short is 2 bytes. Summing up, the data size of a tag is 30 bytes. Therefore even with a million tags on the roads, thereby in the database, the size of the tag database is approximately 30MB. Since more and more embedded devices have large flash memories and even gigabytes of hard drives, the sheer size of the tag database would not be a big issue. We are in a very early stage of a research project and constructing right test equipments and environment. Nevertheless, preliminary results of experiments on communication speed and tag database access time are provided in this section.

Chapter 4 : IMB files for RFID Patent:Identification and tracking of persons using RFID-tagged items

How RFID has transformed the industry: To start, it offers 65% to 95% inventory accuracy, which has an enormous impact on a business' bottom line. It also optimizes omnichannel and digital, which are key elements of any marketing strategy.

Enter your email to reset your password Or sign up using: In place of a barcode, you have an RFID tag or "transponder," read by a hand-held reader, door-mounted reader, or some other configuration. You might not have heard of radio frequency identification, or RFID, but you probably encounter it every day. And it could be a valuable tool for your business. Many large companies and organizations have adapted RFID to business applications, such as supply chain logistics. But because many of the companies that supply the DoD and the retail chains are small and mid-sized businesses, and because RFID has more business uses, RFID is a technology tool with which businesses of all sizes may need to become familiar. So if you are a small company that has containers, tools, vehicles, inventory, files, and so on, then RFID can help improve the way you do business. Many of our business cases are built by eliminating manual scanning, error proofing processes, and eliminating the non-value added labor associated with correcting errors such as expediting, searching, cycle counting, and reconciliation. Before you even consider types of RFID technology, identify the business challenges you are trying to solve and the business processes you could put in place if you had near perfect visibility to your inventory and assets. Common starting points are areas where there is a repetitive need for data entry done manually or with barcodes, Thompson says. Improved IT asset utilization by tracking servers, notebooks, or lab equipment. Improved document management by tracking the location, status, and chain of custody of legal documents. Rental and "check-out" situations, such as tools or at an equipment rental outlet. Reducing inventory by providing an accurate picture of existing inventory and eliminating the need for over-ordering "backup inventory. Eliminating repetitive data entry, such as situations in which shipments are tracked by hand on a clipboard only to be entered later into a computer database. Keeping tabs on high-value assets or products, for example, calibration equipment, construction tools, or medical devices. Tracking high-turnover products, like clothing in racks, hundreds of books at a bookstore, or tires on a rack. Identifying and tracking returnable bins, racks, and containers like plastic totes, beer kegs, or gas cylinders at a medical supply house. And finally, in meeting customer mandates. RFID can help companies manage many elements of their business that is not managed by their IT systems today, such as parts, tools, returnable containers, vehicles, and so on. The benefits that can be achieved are increased customer loyalty. Passive tags have no internal power source, but they draw power from the reader. These are usually the most inexpensive tags and are often disposable. Active tags contain a battery used for transmitting and are usually more expensive but can often be reused. Semi-passive, a hybrid of passive and active, use a battery to operate the RFID chip, but communicate using power from the reader. Typically, higher frequencies offer more bandwidth and data exchange, and a higher communication range, Thompson says. There are very few highly experienced integrators, and they tend to focus on bigger companies that can spend more. Getting a good integrator involved in a smaller project can be a challenge, but if the scope of the project is well defined and the small company understands the benefit it will get, then an integrator will take the work. A reputable consultant will have numerous clients and references, and ideally, one with a product or process similar to yours. Are they really a hardware vendor trying to upsell software or services? Are they really a barcode integrator trying to sell RFID? Are they really a software provider trying to sell integration and deployment services? Make sure your integrator can point to successful projects they have deployed which have delivered business results. Be clear about the help you require. If you need help with the business case, then make sure to choose an integrator who can help you up front, building the project justification, as well as deploying the solution. Be sure they will not just be assisting by phone. However, the implementer should be able to describe what equipment was used, how it was integrated, what challenges were overcome, and the business results of the

solution. Then thoroughly verify them. Then ask the RFID manufacturer for a reference, and whether the implementer is certified on that equipment, Thompson suggests.

Chapter 5 : Gettings Started with RFID | Avery Dennison | RFID

Adhering To The Master Merchandising Plan: Most chain retail stores have their own planogram, designating where each product should go in the store. However, the more stores that a retail chain operates, the harder it is to get each store to execute the central buyer's merchandise plan precisely.

But the IoT â€" especially when it comes to radio frequency identification RFID â€" also has huge potential to transform any retail operation. The way it works is simply that each product is given a radio frequency ID tag and that tag has its own unique magnetic signature. RFID is also the same technology that you see on new tap-and-go credit cards. Because the tags are read magnetically, it is a more efficient system than a typical visual scanning system because the tag and the reader do not need to be line-of-site to communicate. Therefore, the immediate benefit for an RFID-based system is that a typical retailer can reduce the time required to take a typical physical inventory by something like 90 percent. In other words, if it took 3 days to take an inventory using barcode scanning, that same inventory would take 45 minutes using RFID. RFID also increases accuracy substantially. Usually manual-scanned physical inventory has a 4 percent inaccuracy rate. And that number is compounded throughout the year, so cycle counts done throughout the fiscal year can reach more than 60 percent inaccuracy by the holiday selling season. Conversely, RFID typically has less than a 0. Here are some more innovative uses for RFID: Adhering To The Master Merchandising Plan Most chain retail stores have their own planogram, designating where each product should go in the store. With enough readers placed in strategic locations throughout the store, most merchandise can be tracked within a very small area. This means that the central buyer can get a report of all of the misplaced merchandise in each store. This means that if a cellphone accessory is mistakenly placed in the video game section, it will show up on a report and can be immediately remedied in the field. In addition, oftentimes products remain in the stockroom when in fact they should be out on the floor. Of course, this kind of click-and-collect strategy is predicated upon the accuracy of the inventory count in each store. In other words, if the system says that there are two units of a certain SKU in a particular store, but actually there is an inaccuracy and there are zero, they will deliver a terrible customer experience when the customer shows up at the store only to find out that the product is not there. The far better accuracy of RFID will allow retailers to have a much greater confidence level that the product is actually in the place that the system says it is. And that record can be overlaid with sales data so that we understand what specific displays and traffic areas within the store deliver the most sales. Of course, different spots within a particular store may work better with some products than they do with others. RFID technology can also help determine the best possible scenario when considering the SKU type, store type and display area. The ability to skip the manual scanning process entirely makes a radical difference in wait times, especially during peak periods. In addition, RFID capability at checkout greatly reduces the cash reconciliation error at the register. The trickier issue is whether or not the actual RFID tag can be forged, but that is fodder for another discussion. There are more and more companies that can deliver a range of RFID-related products and services, from hardware to full-blown systems. Kynix is one of them.

Chapter 6 : Using RFID for Accurate Positioning

For now, it's all voluntary, and the New World Order has to reply on making cool devices to lure us in to wanting to be tracked - iPhone, smart phones, RFID chips - but the day is coming where you.