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RFID Based Security System (Vehicle Tracking)

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***Abstract:** In this study, an attempt has been made to know how use of RFID technology helps to improve services and business process efficiency in public and private sectors. Radio-frequency Identification (RFID) is a technology that uses communication via electromagnetic waves to exchange data between a terminal and an electronic tag attached to an object, for the purpose of Identification and tracking. Some tags can be read from several meters away and beyond the line of sight of the reader. There are a variety of groups defining standards and regulating the use of RFID, including: International Organization for Standardization (IOS), International Electro-technical Commission(IEC), ASTM International, DASH7 Alliance, EPC global. RFID has many applications; for example, it is used in enterprise supply chain man-agreement to improve the efficiency of inventory tracking and management. Concern of customers regarding RFID can broadly be classified into security and privacy. Security issues deal with legitimate readers getting information from illegitimate tags, whereas privacy issues deal with illegitimate readers getting information from legitimate tags. From a consumer's point of view, the privacy issue is more important, and as a result media coverage has been much higher. However, recognition of the importance of RFID security has also been increasing.*

Even if tag data is protected, it is possible to use traffic analysis tools to track predictable tag responses over time. Correlating and analysing the data could build a picture of movement, social interactions and financial transactions. Abuse of the traffic analysis would have a direct impact on privacy.

I. INTRODUCTION

Radio Frequency Identification (RFID) originated during World War - II when it was imperative to determine whether combatants were friend or foe. Inessence, the system facilitates automatic identification through a combination of tags and readers. Today, RFID system have been successfully applied to the areas of manufacturing, supply chain, agriculture, transportation, healthcare, and services to name a few. Research in this area has been growing at a rapid pace as is evidenced by the number of articles published in the past couple years.

In context of Radio Frequency Identification (RFID), the phrase RFID infrastructure.

Describes the IT-infrastructure which is necessary to collect, alter and enrich raw RFID data before processing it to the backend-systems (business intelligence systems like ERP, etc.). In our case, we are focusing on the software components doing this job.

Hence middleware and infrastructure are to be used synonymously in this report.

In order to standardize the technical description of each vendor's solution, we have

Derived a set of evaluation criteria. Furthermore we have defined three phases the act of processing RFID-data typically has to go through if working properly. This was done by identifying and generalizing the several steps to be performed. Hence the abstract task of preprocessing data could be distinguished into three phases

A. Collecting data by managing the RFID-reader(s)
B. Enriching this collected data for further use (e.g. by alltering, accumulating, etc.)
C. Exchanging enriched data with backend-systems

Thus we have an n-tier design approach for RFID-middleware (usually a 3-tier architecture presuming one layer for each phase). As further reading will show, nearly all solutions and Meet this approach.

An evaluative report of information found in the literature related to our selected area of study. The review describes, summaries, evaluates and clarifies the proposed literature. It gives a theoretical base for the research and helps to determine the nature of research. Some related work done previously and Existing Technologies Used. The RFID system serves the purposes of identification, monitoring, authentication and alerting through this exchange of data between the tag and the reader. The process is automatic and both the tag and the reader do not need to be in plain sight. In other words, the RFID system facilitates remote and automatic identification. To improve the security tags and readers have a challenge-response mechanism which works much like the

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security question that many websites have the users complete in order to authenticate the user. Cronin compares RFID with its predecessor technology viz. barcodes. Barcodes require that the barcode and scanner are in direct line of sight for them to be scanned and the items have to be physically moved against the scanner for data collection. RFID tags, on the other hand, automatically transmit data to the reader even without a line of sight. We provides a RFID technology and also the recent advances towards standardization of the system. The authors also describe some of the recent applications in the field of apparel, and fresh produce. we summarize the various aspects involved in a RFID system and their classification schemes.

The use of the RFID technology in livestock tracking is still not the Holy Grail for all problems, since new problems evolve which need to be solved. One of the biggest problems is the lack of standardized tags and tag readers. Some of the tag readers are only able to read the information of specific tags. The lack of standardized codes leads to big obstacles in centralizing the information about certain animals in a federal global database. The information received from the breeder needs to be arranged, before storing it, to set them in to a uniform data format. A first step to solve this problem is the standardization of the information on the tags and the standardization of the tag readers.

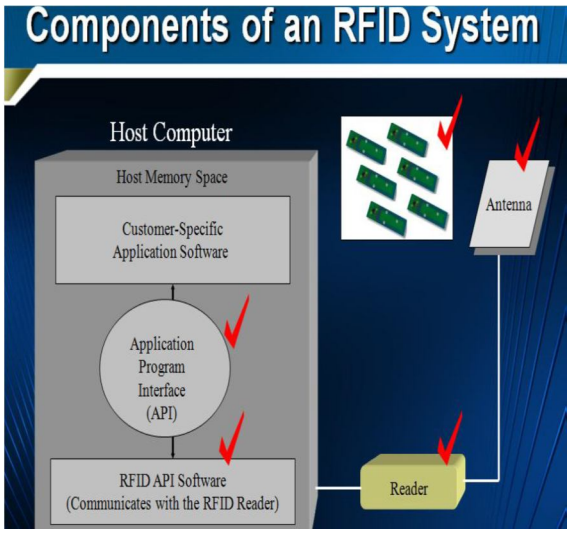

Figure 1.1

II. APPLICATION

The main purpose of RFID is automated identification of products and people. One of the biggest advantages of RFID over conventional systems such as bar codes, is that neither line of sight nor physical contact is required for an object with an RFID tag to be identified, as is the case with bar codes where line of sight is required and smart cards, where contact is required. It is hoped that RFID tags will become widely used, replacing all manner of current identification as well as introducing applications not dreamed of earlier. One of the reasons is

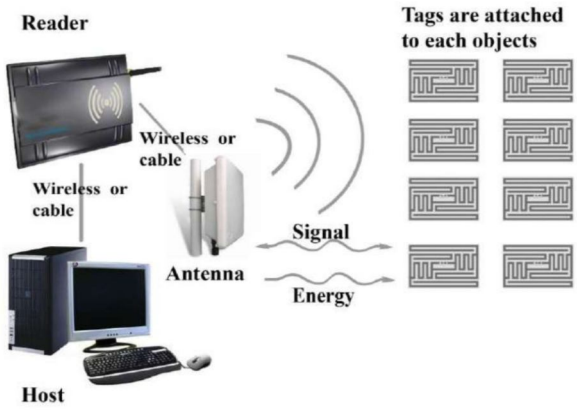

Fig 2.1 - RFID systems

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that the prices of RFID tags have been falling steadily. RFID tags are viewed as the next generation successors to bar codes. This makes it necessary for their cost to below, as they will add to the cost of the item on which they are included. To the best of our knowledge, the cheapest tags available in the market cost .07 cents per tag, if they are bought in volumes . The cost seems likely to drop to .05 in the near future. From a financial point of view, such prices would facilitate the use of RFID in all manners of applications where identification is required. As mentioned, the main application of RFID is for automated identification, and it is hoped that RFID devices will replace all manners of optical identification techniques. To explain the numerous advantages RFID possesses, we include here in Table I a comparison of RFID tags and bar codes for quick reference.

Commercial applications of RFID can be found today in supply chain management, automated payment systems, airline baggage management, and so on. According to RFID update.com, one of the catalysts for the RFID industry has been mandates issued by Wal-Mart.

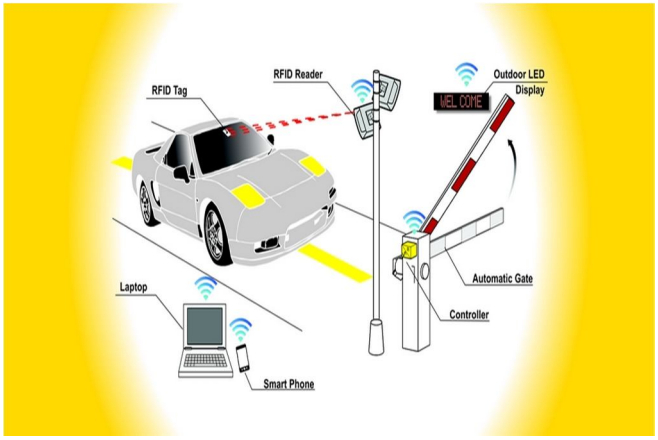


Figure.2.2 (RFID systems in traffic Management)

A. How it works ?

1) When vehicle meets with the crossing of traffic the system reads information from RFID Readers/Tags placed on the road and transfers this information to embedded module.

2) The details are transmitted to the specific location stored in database (Police station, Owner and Hospital).

3) Whenever the vehicle crosses the particular road area, the data from Vehicle tag is read and based on the location, an information regarding location of the vehicle will be sent to the system data base.

B. On Road Unit

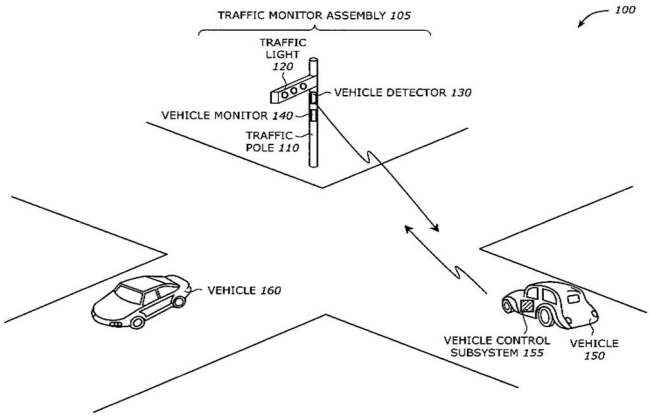
1) 'N' number of RFID tags to transmit general area information and alert on

2) special zones like school, hospital, weak bridges and zigzag bends etc.

3) UHF Semi passive tag is used in our application.

4) Its coverage is a maximum of 50 Meters.

5) The location information are stored in this tag.



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III. CONCLUSION

The main purpose of this note is to draw attention to the Centrality of the role of RFID system in tracking of vehicle. In coming years, tracking of equipment with RFID is emerged as a major field in its own right. In a reversal of long-standing attitudes, the use of RFID in place of other is destined to gain respectability. This is certain to happen because it is becoming abundantly clear that in dealing withB Real-world problems there is much to be gained by exploiting the tolerance for imprecision. In the final analysis, it is the exploitation of the tolerance for imprecision that is the prime motivation for RFID.

REFRENCES

[1] Dr. Anthony, T. Henderson, and D. Kotz, Privacy in location aware computing environments, IEEE Pervasive Computing,2007.
[2] S. Lederer, J. I. Hong, X. Jiang, A. K. Dey, J. A. Landay, and J. Manko , Towards everyday privacy for ubiquitous computing, Computer Science Division, University of Califonia, Berkeley, Tech. Rep. UCB-CSD-03-1283, 2003. [Online]. Available: http://www.cs.berkeley.edu/ io/publications/privacy-techreport03a.pdf
[3] A. Beresford and F. Stajano, Location privacy in pervasive computing, IEEE Pervasive Computing, 2003.
[4] A. R. Beresford and F. Stajano, Mix zones: User privacy in location-aware services, in Pervasive Computing and Communications Workshops (PERCOMW), 2004.
[5] U. Hengartner and P. Steenkiste, Access control to people location information, ACM Trans. Inf. Syst. Secur., 2005.
[6] D. Boneh, G. D. Crescenzo, R. Ostrovsky, and G. Persiano, Public key encryption with keyword search, in EUROCRYPT, 2004.
[7] S. Wang, X. Ding, R. H. Deng, and F. Bao, Private information retrieval using trusted hardware, in European Symposium On Research In Computer Security (ESORICS), 2006.
[8] Z. Yang, S. Zhong, and R. N. Wright, Privacy-preserving queries on encrypted data, in European Symposium On Research In Computer Security (ESORICS), 2006.
[9] Marc Langheinrich. A survey of rd privacy approaches. Personal and Ubiquitous Computing, 13(6):413421, 2009.
[10] Eun-Kyung Ryu and Tsuyoshi Takagi. A hybrid approach for privacy-preserving rfid tags. Computer Standards and Interfaces, 31(4):812815, 2009
[11] S. Weis, S. Sarma, R. Rivest, and D. Engels, Security and, Privacy Aspects of Low- Cost Radio Frequency Identi_cation Systems, in International Conference on Security in Pervasive Computing, 2003.
[12] D. Molnar and D. Wagner, Privacy and Security in Library RFID: Issues, Practices,and Architectures, in Conference on Computer and Communications Security, 2004.
[13] K. Oua_ and R. C.-W. Phan, Privacy of Recent RFID Authentication Protocols, in 4th International Conference on Information Security Practice and Experience ISPEC 2008,
[14] D. X. Song, D. Wagner, and A. Perrig, Practical techniques for searches on encrypted data, in IEEE Symposium on Security and Privacy, 2000.
[15] D. Boneh, G. D. Crescenzo, R. Ostrovsky, and G. Persiano, Public key encryption with keyword search, in EUROCRYPT, 2004.
[16] S. Wang, X. Ding, R. H. Deng, and F. Bao, Private information retrieval using
[17] trusted hardware, in European Symposium On Research In Computer Security (ESORICS),2006.
[18] Z. Yang, S. Zhong, and R. N. Wright, Privacy-preserving queries on encrypted data, in European Symposium On Research In Computer Security (ESORICS),2006.

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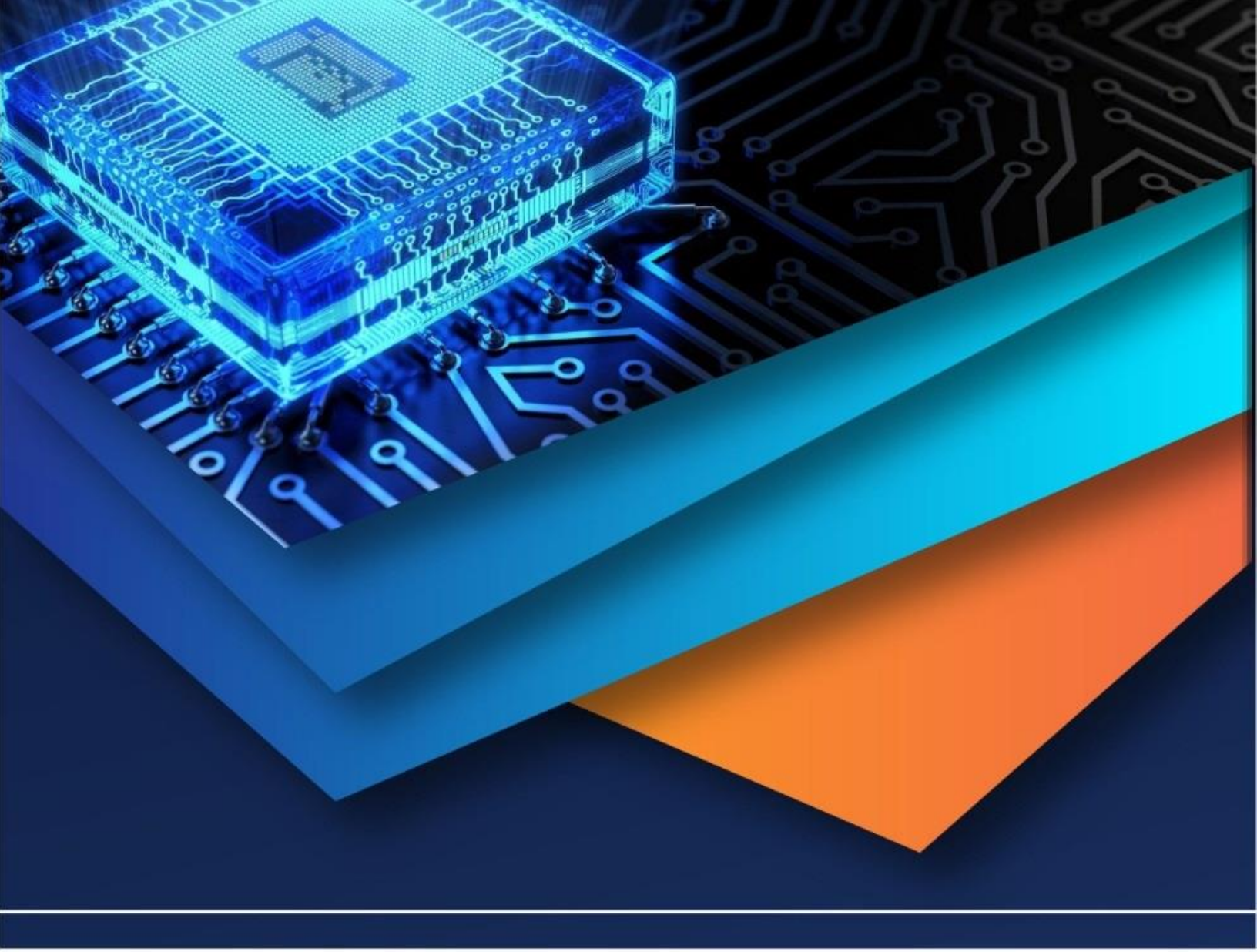

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