

A Survey on Intelligent File Organizer by Using RFID

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Abstract -To find particular file in the largest collection of files is practically time consuming. In this paper we present RFID based system for file information and location using TPS (Two Phase Sampling) protocol which quickly zooms on the category information it makes easy to find files belonging from same category. Also DSA (Digital Signature Authentication) used for providing security to each operation. Only authenticated users can get file location and information. Our system maintains precision as well as security and consumes less time to find particular information.

Key Words: Radio Frequency Identification, Multi-Category, Tag's, TPS = Two-phase sampling protocol.

1. INTRODUCTION

Radio frequency identification (RFID) is changing into ubiquitously available during a kind of applications, together with library inventory warehouse management, object tracking etc. Among these applications, RFID tags square measure usually hooked up to things that belong to completely different classes, e.g., subjects of books during a library, categories of medicines during a pharmacy, or brands of garments during a covering outlet. When a tag is related to a selected object, the category-related information regarding this object¹ is probably going to be preloaded into the tags memory. Since this info reflects the class attributes, every tag within the same class carries identical category-related info. The problem of category info collection during a multi-category RFID system that is referred to as info sampling. To resolve this downside, the present work must either collect all tags info or take the complete tag set under consideration when once uninflected an interested tag from others, resulting in long collecting method. The main reason for this can be that these solutions square measure designed for a few specific applications however not tailored to the sampling downside that has two new features. Since tags within the same class carry identical category-related information, we don't got to question every individual tag. One tags response from every class is enough to report the corresponding info.

We tend to don't care that tag in a class responds to the reader; anyone within the class will be a candidate for coverage. By considering higher than 2 options, we tend to propose an efficient two-phase sampling protocol (TPS) that consists of two phases. In the initial part, the reader separates a class from others that helps us quickly zoom into a class instead of the complete tag set. Within the second part, the reader isolates and discretionary tag from the separated class by mistreatment the geometry distribution of tags. Each economical two steps build TPS way superior to existing solutions. In this system we are going to implement DSA algorithm. The Digital Signature Algorithm (DSA) can be used by the recipient of a message to verify that the message has not been altered during transit as well as ascertain the originator's identity. A digital signature is an electronic version of a written signature in that the digital signature can be used in proving to the recipient or a third party that the message was, in fact, signed by the originator. Digital signatures may also be created for programs and data so that the integrity of the data and programs may be verified at any later time.

In our system we are going to apply DSA encryption at the time of storing data or RFID tag information in to the database. Because of this tag information or data is secure and does not access by unauthorised user. DSA Decryption is going to apply at the time of accessing data from database.

2. LITERATURE SURVEY

2.1 AuRoSS: an Autonomous Robotic Shelf Scanning System:

In this paper, they have demonstrated the AuRoSS system. It uses a mobile base robot and a specially designed arm to carry RFID readers. A surface tracking method has been proposed for shelf scanning with high tracking accuracy. A mobile macro-mini concept is adopted to further enhance the tracking quality. Scanning result demonstrated good accuracy in scanning. The team is collaborating with library staffs to address the usability in wider range. In the system can be further enhanced by adding new capabilities such as sorting the books after the wrongly placed books are found or lead the library staffs to the wrongly placed books. It could also be used to guide the users to the book that they are searching for. In all, this work has proved that the concept of using such a platform for book scanning in libraries is feasible and worth further exploration.

2.2 RF-Scanner: Shelf Scanning with Robot-assisted RFID Systems:

In this paper, they present RF-Scanner that automates shelf scanning in a library by combining the robot vehicle and RFID technology. They give an overview of the system architecture and formulate two important problems: localizing miss-shelved books and detecting lying-down books. For localization, we take full use of the phase profile and use the super V-zone to pinpoint the tag's position. For detection, they observe the pose differences of stand-up books and lying down books, and put three metrics together to detect the abnormal placement. Based on the system design, they implement RF-Scanner and put it into practical use in our school library. Long-term experiments and studies show that RF-Scanner is able to achieve fine-grained localization of miss-shelved books as well as accurate detection of lying-down books.

2.3 Efficiently Collecting Histograms over RFID Tags:

In this paper considering the problem of collecting histograms over RFID tags. Based on the ensemble sampling method, we respectively propose effective solutions for the basic histogram collection, iceberg query problem and top- k query problem. Simulation results show that our solution achieves much better performance than others.

2.4 Design of Library Smart Bookshelf Based on RFID

In this paper has achieved the initial intentions on the whole, although there is plenty of room to improve. For the prototype, we have done some tests to analyze the reliability of the library smart bookshelf system. According to the results, the system is workable and reliable. Library smart bookshelf is very useful for librarians. They can check inventory at any time by click the button. Besides, they can check the misplaced book and the correct place of the misplaced book by click the button also. On the other hand, the automatic check can make sure librarian replaces the misplaced book in regular intervals. So students can find books easily. In this only carries out limited tests in small range, and lacks ample verifications of practical application in entity library. So we can't make sure the practical accuracy after enlarging the experimental samples. Another defect is that we don't consider the cost in project like some views put forward by researchers.

2.5 Mobile Robot Navigation and Target Tracking System

For vision based robotic systems, controllers for mobile robot navigation, path planning, and target tracking, number of resources available for testing and have already been implemented for various robots and robot systems. Many systems allows small robots to play tournament style sports, and robots to autonomously navigate indoors and outdoors. Problems with the more expensive systems lie in their scalability due to their use of high-end equipment and need for computing power. In this paper the combination of low-cost color imaging and 3D depth is proposed to replace high cost imaging systems. To supply the necessary computational power we suggested use of a remote server to perform target recognition and tracking in addition to aggregating data on performance of the robot. Fuzzy logic will provide the control mechanism necessary to follow and navigate towards targets. Target selection and registration is a field not yet explored by this author and is subject of future research.

3. SYSTEM DESCRIPTION

In this system, we are going to introduce an efficient two-phase sampling protocol (TPS). By quickly zooming into a category and isolating a tag from this category, two-phase sampling protocol (TPS) that consists of two phases. In the first phase, the reader separates a category from others, which helps us quickly zoom into a category instead of the entire tag set. In the second phase, the reader isolates an arbitrary tag from the separated category by using the geometry distribution of tags. Both efficient two steps make TPS far superior to existing solutions. We analyze the protocol performance and discuss the optimal parameter settings that minimize the overall execution time. Also we are going to apply DSA encryption algorithm at the time of storing/inserting tag information in memory/database and performs DSA decryption at the time of retrieve tag value from memory/database. Because of this security is providing to each operation of different tag.



4. CONCLUSION

We study the matter of class data collection during a multi-category RFID system. Considering the new options of the matter, we propose a two-phase sampling protocol (TPS) that 1st quickly zooms into a class and then isolates an arbitrary tag from the class by victimization the pure mathematics distribution of tags. Also applying DSA algorithm which provides security to each operation.

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