File Annotation and Sharing on Mobile Devices in PAN via Bluetooth

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Abstract- Now a day's as a technology advances in low end devices, mobile phones are equipped with large storage capacity and even lot of extra features are also available including camera, additional communication interfaces etc. User can easily use these features. However problem arises when number of file increases. In this case organizing and managing these files become tiresome work. This paper presents a framework to annotate and search files on mobile devices. To improve a searching at mobile devices semantic file annotation is used which annotates the file according to their different contexts. In proposed framework file annotation and searching is performed by annotating the file with their vital attribute which are extracted from the underlying operating system of the device. The file search can be performed on mobile itself or on Personal Area Network (PAN) also by the use of Bluetooth.

Index Terms- PAN, kXML parser.

I. INTRODUCTION

Significance of mobile phone cannot be neglected now a day's which plays a essential role to stay alive with day by day life. As the technology advances, mobile phones are offered with elevated storage capacity and supplementary features like camera, additional communication interface, etc. However difficulty generated as user start using such features and it generates a huge files. From the huge collection, it becomes complicated to memorize the file name and its contents. The default file system available with device provide the way to store in separate folder but still it doesn't help due to naming convention used. Usually when image is captured using mobile camera, it gets stored with default file name like img000, img001, etc, which are not descriptive sufficient to memorize. To improve search technique file annotation is implemented which annotates the file with its vital attribute from the underlying file system of the mobile phone, and sues vital attribute information as the annotation tags and parse those tags using kXML parser to store in XML form. The proposed framework annotates file with three fundamental attribute and two additional tags are also added .XML is used to parse the XML data. File can be searched through any attribute on device itself or other connected device within Personal Area Network (PAN) by the use of Bluetooth. Proposed framework is implemented in Java Micro Edition (J2ME).

II. LITERATURE SURVEY

Recent research discovered various techniques between which semantic file aware system is the most approved alternatives to traditional hierarchical file system. The data model was proposed to represent semantic information in file system which provides two main features: *extensibility* and *handling schema valuation*. Similarly, various procedure was proposed for integrating attribute in [3, 4]. Efforts have been made to expand file annotation on mobile devices but it show complication due to resource limitations.

In paper [5] W.Viananl, J.B. Filho2, J.Gensel, M.Villanova Oliver, H.Martin focused on Context Photo Ontology which makes the use of annotation that allows the development of better management and retrieval for images. In the context of Semantic Web, the use of ontologies for annotation representation is more suitable for making the content machine understandable.

Soules CAN, G.R Ganger [6] found that when data set associated with a user grow up, organizing that information turn out to be more complicated. As the chain of command provides valuable aspect, they cannot manage easily. A new flexible attribute-based naming scheme is required to manage large set of data.

B.Gopal and U. Manber [7] offered innovative file system that provides content-based and name-based access files at a time. The proposed framework allows both methods to be used at any time, thus gives advantages of both.F.monaghan, O'Sullivan [8] presented Web service and ontology based image annotation approach to annotate files. A.Girgensohn, J. Adcock, M. Cooper, J. Foote, L.Wilcox [9] in his paper stated that users could simply gather number of images. The goal was to make arranging and browsing of images easy and quick, which provides scalability to huge data.

Pratibha Singh, Dipesh Sharma [10] presented a framework to make communication within Personal Area Network(PAN).Communication in this framework is made via Bluetooth .Bluetooth is a wireless technology standard for exchanging data over short distances from fixed and mobile devices, creating personal area networks (PAN) with high levels of security.

In all mechanism, either annotation process or retrieval process will not be viable in case of network failure.

A new mechanism is needed to annotate all type of files on mobile devices.

III. PROPOSED FRAMEWORK

This paper presents a framework to improve a searching technique which is capable for retrieving files on mobile devices with minimum efforts. Complete framework is implemented In J2ME and consists of different modules including Annotation process, Search Process and Bluetooth.. Each module performs a specific task. Fig. 1 shows the proposed framework architecture.

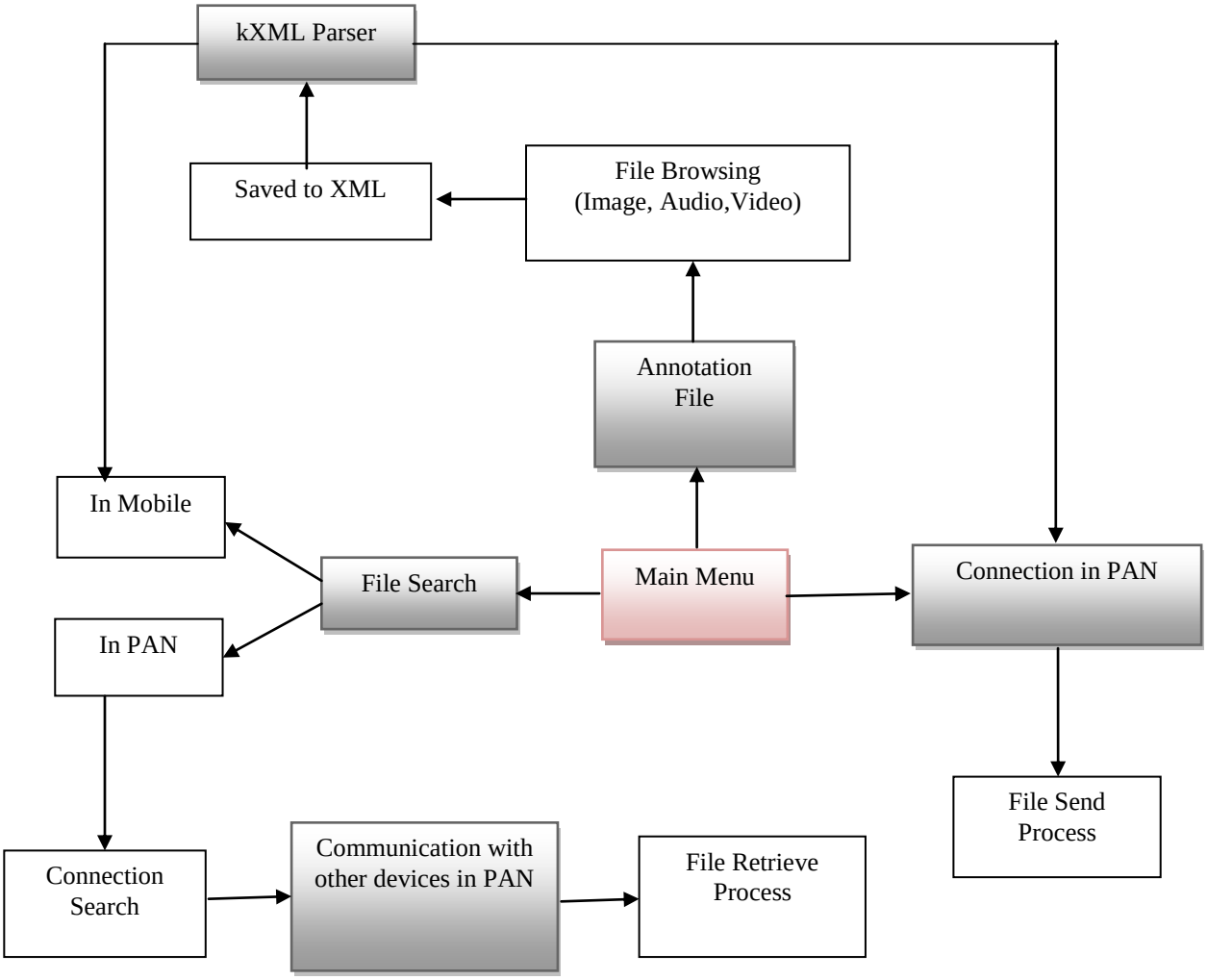

Fig 1: Proposed Framework Architecture

Annotation process annotates file with fundamental attributes and store it into XML format. Search process does the searching of required file with various attribute. Bluetooth is added to search a required file and to transfer file in PAN.

In a scenario, a user had taken few pictures on his family function using mobile phone camera which were saved by default naming like image123, image124, etc. After some days user need some specific picture but forgot the name of required picture. She also not able to remember whose mobile was used to take picture because most of the member took picture at that function. To search for the required picture she has to browse all image file till he finds the required picture. She has to repeat browsing other family members mobile devises also. For the same situations, the framework presented in this paper gives easy way to retrieve file using advanced search method. With the help of fundamental attributes of file user can easily retrieve the file, even though file is not annotated with optional tags. If required file is not on her mobile phone, it can be searched on all other mobile also by forming PAN via Bluetooth.

IV. FILE ANNOTATION

Fig. 2 shows the file annotation process.

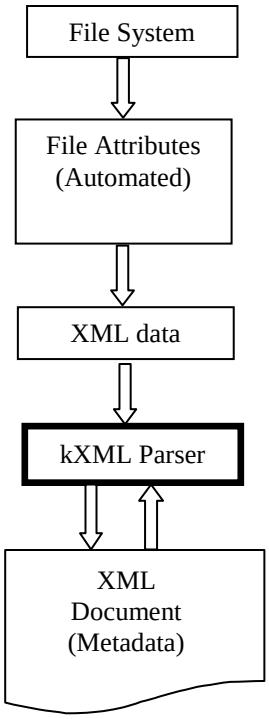

Fig. 2 File Annotation Process

File Annotation relates with the underlying operating system of device to obtain the fundamental attribute of file which are used as annotation tags for corresponding file. Files are annotated with its attribute which are extracted from underlying file system. All attribute are parsed and stored in XML format. The meta-data consist of two parts, Automated and Optional. In Automated meta-data part, files are annotated automatically with three attribute, file name, file size, and date of creation, while Optional meta-data adds two more tags, keyword and description. Optional meta-data is added by user itself.

V. SEARCH PROCESS

Search process nearly interacts with all other process included in a framework and plays essential role in proposed framework. To search information about the required file this process uses kXML parser for processing XML document. As file is annotated with Automated and Optional tags, search can be performed with different available attribute. If search is performed within PAN, search process uses Bluetooth to form a network. Fig. 3 shows attributes stored in XML file as meta-data.

```
<? Xml version="1.0" ?>
<start>
  <file>
   <FileName>ABC.PNG</FileName>
   <FileCDate>Jan 13  11:23:20 GMT
    2013</FileCDate>
   <KeyWord>First, Sample</KeyWord>
   <Description>My First Image</Description>
  </file>
</start>
```

Fig.3 Annotation Tags

VI. BLUETOOTH

Bluetooth is a wireless technology standard for exchanging data over short distances and it is available in almost all new mobile devices. With the help of Bluetooth proposed framework form PAN. PAN allows sharing and managing of data within a formed network.

VII. CONCLUSION

This paper presents a framework that improves semantic file annotation and file retrieving in PAN at mobile phones. The framework is implemented as full featured MIDlet and adding Optional tags as meta-data surely enhance the search ability to retrieve files based on keywords and description.

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