GeniusPhone: A Personal Companion for Everyday Situations

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Abstract

Mobile devices have become faithful companions that keep track of most of our daily interactions and are always available to interact with. However, considering their capabilities, mobile devices play an insufficient role helping the user in his common daily tasks. The information they have access to is limited, as is the context in which it can be used. We present GeniusPhone, a system that inter-relates the users' personal information and interactions with others from their computers and mobile devices, using it to gather additional data from online public sources. The information retrieved from the personal devices, due to its personal and trustable character, helps us filter the information retrieved from other less trustable and structured sources. GeniusPhone is able to provide the users with relevant summaries about someone or something, from their point of view, at the time they want or need them. An example application that presents condensed information about a person is presented, as well as scenarios revealing its potentialities.

Keywords

Mobile Phone, Personal and Public Information, Social Interactions, Knowledge Base, Summary, Context.

1. INTRODUCTION

Mobile phones are widely used and have become essential tools for most of us. Moreover, they contain information about the users, their habits and daily interactions, as no other person or device. These tools have long surpassed their original role as simple communication tools, being always available, gathering enormous amounts of information, and being able to easily communicate with other personal devices or public information sources (homepages, social networks,..). The mobile phone is the perfect witness to each user's personal interactions and the perfect candidate to help the user whenever needed. However, they are still of little use when the user needs to meaningfully access personal information, created both on the phone and in other devices, in a related, synergistic way. Nowadays, the usage of mobile device acquired knowledge is restricted to word dictionaries, recent contact recall or other somehow basic functionalities. Even projects that try to go beyond these basic functionalities are restricted to a limited set of information (ex: [Lamming05, Beach08]), ignoring the enormous amount of personal and public information possibly available on and from a mobile device and its inter-relation. What all the above approaches lack is a usage of personal information, from different sources, taking advantage of all the knowledge the devices have about their owners. Further, little attempt is made in trying to combine such information with that from public sources. This knowledge could be used to help the user anytime, anywhere, relating, summarizing and providing important data when it is required, in a personally relevant way. Some applications might automatically present the essential information for a meeting or collect, automatically, by proximity, context or demand, all the relevant information about someone (according to our own personal experience with that someone). In a social environment it is natural to wonder "I know that person, but where from?" or "I had some things to discuss with Jack, but what were they?". GeniusPhone is able to provide answers to those questions by gathering and interrelating information from the user's devices enriched with other public information sources, to offer the user context- and personally-sensitive information when it is needed. All this information is inter-related in a semantic network providing a structured and meaningful knowledge base. In this paper, we present the current state of the system as well as an example web application using the GeniusPhone system to retrieve information about someone.

2. POSSIBLE APPLICATIONS AND SCENARIOS

GeniusPhone gathers a set of capabilities able to help the user in several different situations. We outline two meaningful ones: "I am at a party and I find someone that seems familiar talking to a friend of mine. Using his Bluetooth ID, I ask the system about our past interactions. I get the information that we were together two years ago at the 15th EPCG, and had exchanged 2 email messages and a document (that I can access if I want to). The document's subject is also shown, as are the people I have forwarded it to. I ask for more information about him. I

continue drinking my vodka and see that his wife is Maria Parker and was in a conference in Japan a week ago."

"My phone is ringing. It is a work colleague with whom I haven't had contact for a long time, but worked on some projects with. I accept the call and put it on the hand-free mode so I can see the information shown. It appears that we haven't had personal contact for six months, and the last time we shared an e-mail was two years ago. It is also referenced that by that time we both worked on Human Resources and shared 3 projects. The related documents are presented. After the regular introductory talk, he says that he has to do a project related to one we worked on and needs some documentation to understand and modify it. Thanks to GeniusPhone, I know what that project is about and immediately send him the related information."

Applications supporting these scenarios are currently being developed, using the GeniusPhone platform.

3. GENIUSPHONE

GeniusPhone manages the users' personal information and their interactions with others in a mobile context, to obtain relevant and timely information about some person, document or subject. Mobile devices are a good source of information, mainly regarding past interactions (exchanged messages or calls or even to physical proximity, if using Bluetooth). All this data, together with other personal and public information can provide insights on the user and surrounding context. The personal information can be used to filter data from other less trustable sources thus reducing the search universe and resolving ambiguities. At the same time, it guarantees that the resulting information is gathered from the user context and point of view.

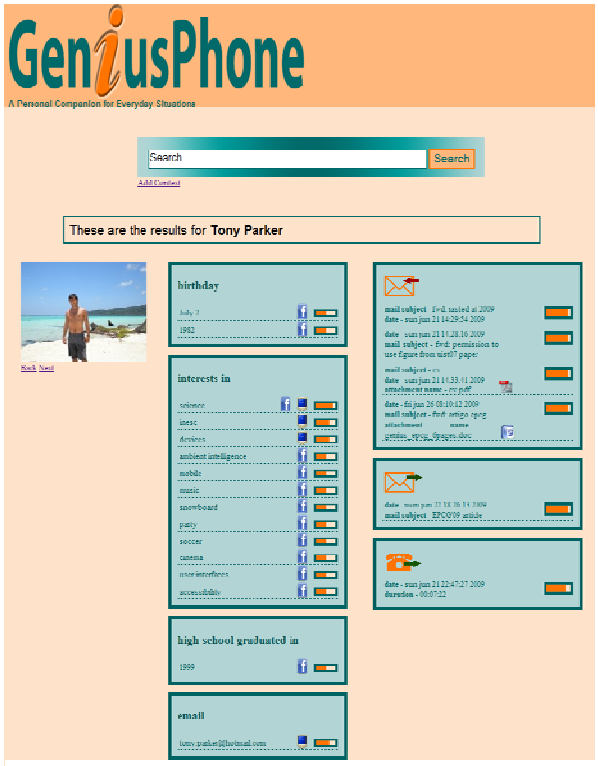

Figura 1 - GeniusPhone example application

The GeniusPhone platform, is able to collect and interrelate personal information from the user's devices (mobile devices and personal computers) like documents and their metadata, emails (and the attachments therein), calls, web pages, SMS, agenda, call logs, etc., and inter-relate it as a consistent whole. It can then, at the users' request, find relevant data about a particular subject or person by looking not only at that personal information, but also at online sources (blogs, personal pages, facebook and other social networks), establishing semantic relationships between the different data items, and selecting those more accurate and personally relevant to the user. Although having the information structured turns this process easier, GeniusPhone can also deal with non-structured information provided by, for example, blogs and webpages.

An Example Application. Figure 1 shows an application to assist the user when in need of information about someone. The user searches for a person's name (with the option to add additional and known context), and GeniusPhone presents a resumed set of information about that someone. In this case, GeniusPhone was able to retrieve the person's photo, some information about his interests, birthday, e-mail, high school graduation and some exchanged mails and a phone call. It is also possible to access the source of information (e.g. the facebook profile) or a document presented, for example, as an attachment of a mail. Weight is also represented to show which information is more credible.

4. CONCLUSIONS

Requiring a document, a mail message, or trying to remind where we know someone from is a common task for almost everyone. Current communication technologies enable us to interconnect our personal information spaces and access information everywhere at anytime. However, the available amount of information is enormous and to be useful it must be contextualized and summarized. GeniusPhone gathers personal information from the user's devices, and use it as a filter to the information available in public sources like search engines and social networks. After an iterative process of searching, renewing and improving the information retrieved, from the user point of view, GeniusPhone is able to present contextualized structured information. The plug-in based architecture allows us to easily extend the GeniusPhone Platform, so in the future we plan to explore new information sources. Particularly, we will extend our web search plug-ins to be able to recognize relevant chunks of information about persons, particularly personal web pages, or events. We want as well to evaluate the system with users to study the usability and impact of the applications.

5. REFERENCES

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