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SPYDROID (CHILD PROTECTION SYSTEM)

R.AJITHKUMAR , R.VETRIVENTHAN, SENTHIL KUMARAN

Abstract— The project entitled "SPYDROID" is, essentially, software that allows parents to monitor the child's cell phone. All incoming and outgoing calls, texts and multimedia messages can be seen and interrupted by the parents, who can also monitor where the children are (through GPS), access a history of where the parent have been and set up alerts if the children are going outside of approved geographical zones, are receiving texts from unapproved numbers or calls from banned persons. This system uses Android based mobile phones for the software to be run. The mobile device in the hand of the children should be an Android based device and the parents may have any kind mobile devices, since the parents are going to receive alerts from the children in SMS format only. For convenience, the alerts are also stored in the centralized server like the details of incoming call, text and multimedia messages and the timely location update of their children. Parents may later login into the centralized server and view the details of the child's mobile usage. This system is really very helpful for the parents to monitor the children through mobile phones. By using this system, the parents can avoid the unnecessary things happened for the children those who are having mobile phones by monitoring the mobile phone usage and also by tracking the children's current location through the GPS.

Keywords— Child Protection System , Mobile Phone.

I. INTRODUCTION

The main objective of the 'Child Protection System' is to trace out the status and progress of the children mobiles and update the information regarding to the parental mobiles and also to the web server. The project is developed by using Eclipse Tool as the Front-end under J2EE and MySQL 5.1 as the Back-End tool to store the details of them. The project was mainly developed by the Android operating system. Because Android is an open-source software stack for mobile devices that includes an operating system middleware and key applications. The Android open-source software stack consists of Java applications running on a Java-based, object-oriented application framework on top of Java core libraries running on a Dalvik virtual machine featuring JIT compilation.The Android SDK includes a virtual mobile device emulator that runs on the computer. The emulator gives prototype, develop, and test Android applications without using a physical device. The Android emulator mimics all of the hardware and software features of a typical mobile device, except that it cannot place actual phone calls. In parent mobile, the location of the children will be sent only in SMS format by specifying a latitude and longitude co-ordinates. But in web application, for the user convenient, it can show the children's current location in map. Date/time, speed and the address, the details are also shown in the Google map with the address and routes plotted in the map and the route paths are in the different colors according to the speed of the children which are specified by the parent.The speeds are defined by the user, when the system is installing into the corresponding children mobile. So, the parent can also see the speed of the children at the travelling period. Since, the parent can monitor and protect the children's activities in the mobile phones.

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II. RELATED WORK

A mobile phone is a powerful multimedia device, and with it, children have access far beyond the schoolyard and neighborhood. As by choose friends and make important decisions, the influence as a parent is becoming less significant. And the consequences are becoming more and more severe. In the existing system the parents cannot know the children what are doing in the mobile, to whom the children are talking and chatting. Some of children may take this as advantage and keep in touch with known and unknown persons. Children are wasting the studying times by chatting with the known or unknown persons without the knowledge of the parents. These are leads to the children's poor knowledge and less awareness in the studies. Some children are kidnapped by the kidnappers and the parents cannot find them even if the children having mobile. So in today's world there are many social problems and teen age problems are around the children. The parents are in need of protecting the children from these kinds of problems and lead them to a good position in this world. The **"Child Protection System"** is innovative product that would tackle all these problems and teen misuse of cell phones.

Child Protection System is to be developed for the users who are all in need of to know the children's day to day activities in the mobile phones. For that purpose, have to track the information's like Incoming and Outgoing SMS and Calls from the children mobile to the parent. Then also for the user's convenience, this application will find out the children's current location to the parent. These are the process under the mobile application. For the later use of the parent, the Web

application will store the above information's to the corresponding user's database. Since the user login into the web page, then all history about the SMS and Calls of the children will be shown to the user. These are the process running under the web application. This project is developed by using the Android operating system.

A. LITERATURE REVIEW

Information workers often interleave multiple projects and tasks. Although workers may switch among tasks in a selfguided manner, a significant portion of task switching is caused by external interruptions. We have sought to understand the influence of interruptions on task switching for information workers. Beyond understanding the costs of interruption, characterizing the density and nature of interruptions—and user's experiences with recovery from interruptions—promises to provide valuable guidance for designing user interface tools that can assist users' recovery from interruptions. We report on a diary study of task switching and interruptions over the course of a week. The study revealed that participants performed significant amounts of task switching and encountered numerous interruptions. We found that the reinstatement of complex, long-term projects is poorly supported by current software systems. To address several key problems with recovery from interruptions, we discuss several designs for supporting task switching and recovery that were motivated by the results of the study. The contributions of this research include a characterization of office workers' multitasking behaviours over a week, and the formulation of designs for software tools that promise to enhance productivity.

B. Multifactor Authentication Schemes

Interaction and communication between humans with smart mobile devices are a new trend of development in Internet of Things (IoT). With the powerful sensing capability of smart device and human mobility, various services could be provided by building a trusted chain between service requesters and suppliers. The cognition of social relations between mobile nodes is the basis of final mobile-aware services. It involves many decision factors, such as time, space and activity patterns. Using social network theory, a new cognitive model for social relations of mobile nodes in IoT is proposed. Firstly, nodes' social relations are reasoned and quantified from multiple perspectives based on the summary of social characteristics of mobile nodes and the definition of different decision factors. Then the location factor, interconnection factor, service evaluation factor and feedback aggregation factor are defined to solve the shortcomings in existing quantitative models. Finally, the weight distribution is set up by information entropy and rough set theory for these decision factors; it can overcome the shortage of traditional methods, in which the weight is set up by subjective ways and hence their dynamic adaptability is poor. We compare our cognitive model to existing models using MIT dataset by defining a variety of test indicators, such as network overall density (NOD), the degree center potential (DCP), the network distribution index (EI), etc. Simulation results show that, the cognitive model has better internal structure and significant validity in network analysis, and thus can provide mobile-aware service effectively in dynamic environment.

III. SPYDROID OVERVIEW

The main objective of the 'Child Protection System' is to trace out the status and progress of the children mobiles and update the information regarding to the parental mobiles and also to the web server. The project is developed by using Eclipse Tool as the Front-end under J2EE and MySQL 5.1 as the Back-End tool to store the details of them. The project was mainly developed by the Android operating system. Because Android is an open-source software stack for mobile devices that includes an operating system middleware and key applications. The Android open-source software stack consists of Java applications running on a Java-based, object-oriented application framework on top of Java core libraries running on a Dalvik virtual machine featuring JIT compilation.

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The Android SDK includes a virtual mobile device emulator that runs on the computer. The emulator gives prototype, develop, and test Android applications without using a physical device. The Android emulator mimics all of the hardware and software features of a typical mobile device, except that it cannot place actual phone calls. In parent mobile, the location of the children will be sent only in SMS format by specifying a latitude and longitude co-ordinates. But in web application, for the user convenient, it can show the children's current location in map. Date/time, speed and the address, the details are also shown in the Google map with the address and routes plotted in the map and the route paths are in the different colors according to the speed of the children which are specified by the parent.The speeds are defined by the user, when the system is installing into the corresponding children mobile. So, the parent can also see the speed of the children at the travelling period. Since, the parent can monitor and protect the children's activities in the mobile phones.

IV. IMPLEMENTATION

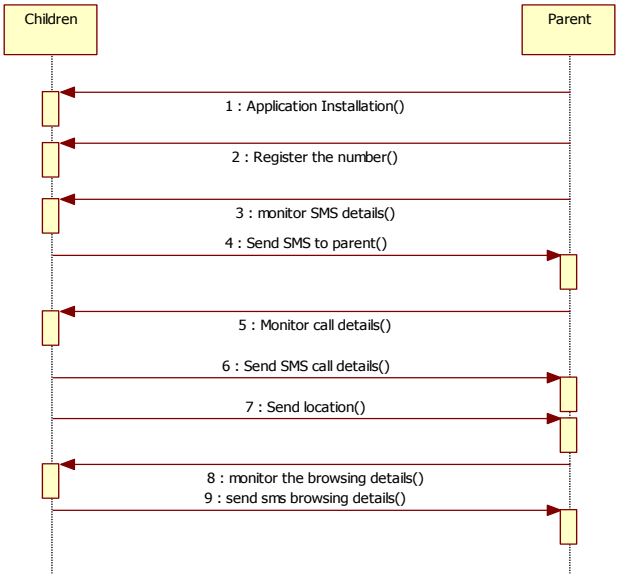

Figure 1.Sequence diagram showing the steps involved in creating a spydroid (1. Application installation) (2. Register the parent number) (3.monitor incoming and outgoing call) (4. Sent SMS call details)

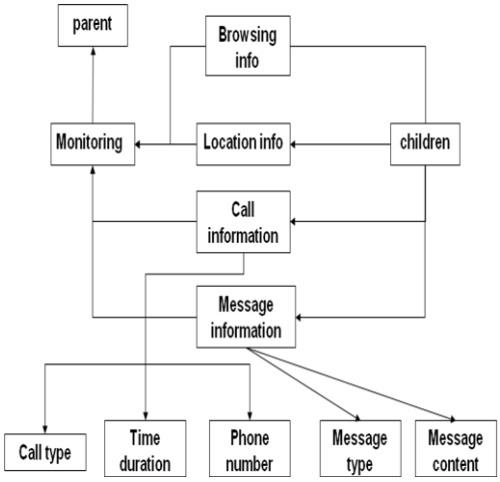

Figure 2. System Architecture

A Sequence diagram is an interaction diagram that shows how processes operate with one another and what is their order. It is a construct of a Message Sequence Chart. A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios. A sequence diagram shows, as parallel vertical lines (lifelines), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur. This allows the specification of simple runtime scenarios in a graphical manner.

The Sequence Diagram models the collaboration of objects based on a time sequence. It shows how the objects interact with others in a particular scenario of a use case. With the advanced visual modeling capability, you can create complex sequence diagram in few clicks. Besides, Visual Paradigm can generate sequence diagram from the flow of events which you have defined in the use case description.

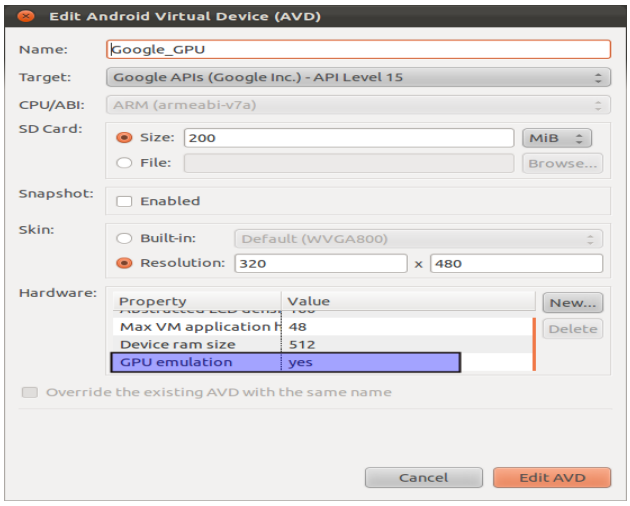

Fig. 3. To define an Android Virtual Device (ADV) open the AVD Manager dialog via Windows → AVD Managerand press New button.

Select the Enabled for Snapshots box. This will make the second start of the virtual device much faster. Afterwards press the Create AVD button. This will create the AVD configuration and display it under theVirtual devices.

Android 4.2.3 builds on the performance improvements already included in Jelly Bean — vsync timing, triple buffering, reduced touch latency, CPU input boost, and hardware-accelerated 2D rendering — and adds new optimizations that make Android even faster.

For a graphics performance boost, the hardware-accelerated 2D renderer now optimizes the stream of drawing commands, transforming it into a more efficient GPU format by rearranging and merging draw operations. For multithreaded processing, the renderer can also now use multithreading across multiple CPU cores to perform certain tasks.

Android 4.2.3 also improves rendering for shapes and text. Shapes such as circles and rounded rectangles are now rendered at higher quality in a more efficient manner. Optimizations for text include increased performance when using multiple fonts or complex glyph sets (CJK), higher rendering quality when scaling text, and faster rendering of drop shadows.

Improved window buffer allocation results in a faster image buffer allocation for your apps, reducing the time taken to start rendering when you create a window.

V. EVALUATION

A. Reliability Study

Android is a Linux-based operating system designed primarily for touchscreen mobile devices such as smart phones and tablet computers. Initially developed by Android, Inc., which Google backed financially and later bought in 2005, Android was unveiled in 2007 along with the founding of the Open Handset Alliance: a consortium of hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices.

Figure 4. Android 4.2.3 builds.

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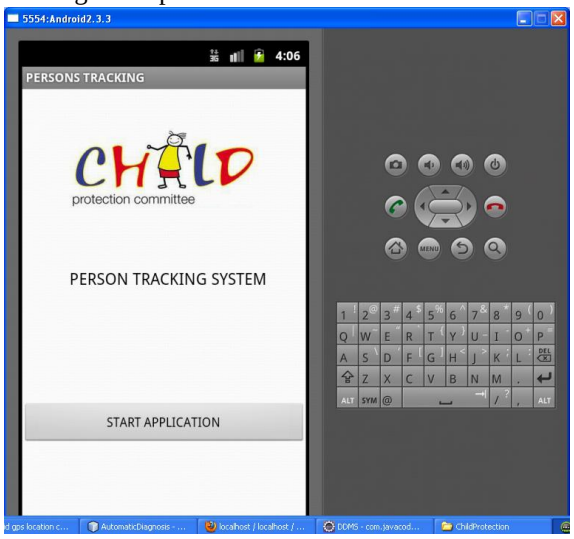
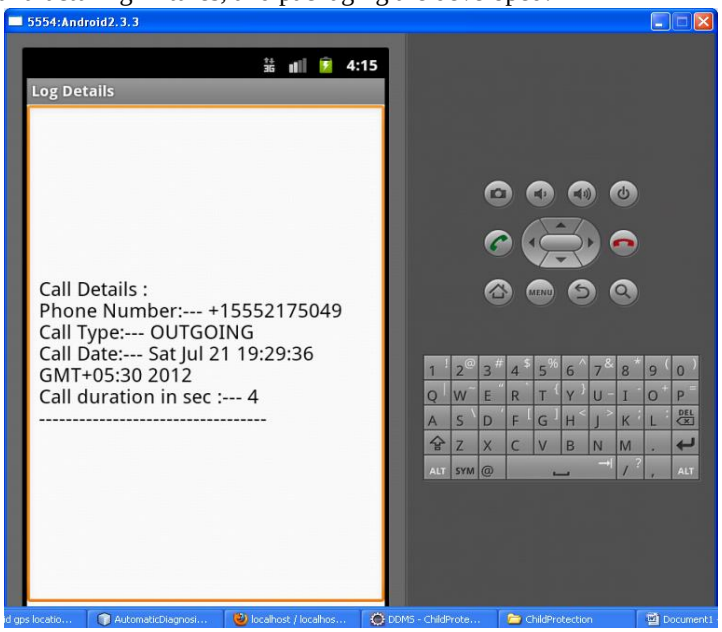


Figure 5.

Improved window buffer allocation results in a faster image buffer allocation for your apps, reducing the time taken to start rendering when you create a window.

3) General: Design Engineering deals with the various UML [Unified Modeling language diagrams for the implementation of project. Design is a meaningful engineering representation of a thing that is to be built. Software design is a process through which the requirements are translated into representation of the software. Design is the place where quality is rendered in software engineering. Design is the means to accurately translate customer requirements into finished product.

The next responsibility of many design engineers is prototyping. A model of the product is created and reviewed. Prototypes are either functional or non-functional. Functional "alpha" prototypes are used for testing and the non-functional are used for form and fit checking. Virtual prototyping software like Ansys or Comsol may also be used. This stage is where design flaws are found and corrected, and tooling, manufacturing fixtures, and packaging are developed.



VI. DESCRIPTION

1) Mobile Application Module

The mobile application runs as a background process in the children's mobile phone and it will monitor for Incoming and outgoing SMS, calls and listens for Geo-location change. It has the following functionalities. There are three sub modules in mobile application.

- Monitoring and alerting about SMS – It will track and send the SMS to the parent.
- Monitoring and alerting about calls – It will track and send the call information to the corresponding parent.
- Monitoring and alerting about Geo-Location – It will track the location changes and send the children's current location to the corresponding parent.

2) Modules Description

A. Monitoring and alerting about SMS

This application registers for SMS and MMS events like incoming and outgoing SMS and MMS in order to monitor the children. When the children mobile send or receive any SMS or MMS, that same content and mobile number will be send to the parent's mobile with the date and time details. At the same time it will send the HTTP request to the web application's Monitoring servlet (Non-UI).

B. Monitoring and alerting about calls

The background application listens for the phone state change between idle, incoming and off-hook. It will very useful to monitor the call information's like source or destination mobile number, time of call, call duration and missed calls. These details will be send to the parent mobile in SMS format. Also it will send the HTTP request to the web application's Monitoring servlet (Non-UI).

C. Monitoring and alerting about Geo-Location

The background application listens for the location change and sends the Geo-Location details like Latitude, Longitude, speed and time to the parent mobile as SMS formatted and also to the centralized server at the configured interval of time and distance. Date/time, speed and the address details are also shown in the Google map with the address and routes plotted in the map and the route paths are in the different colors according the speed of that data.

VII. CONCLUSION

The Child Protection System was developed by J2EE as Front-End and MySQL 5.1 as Back-End. Child Protection System is developed for tracking the status of the children mobiles by sending the SMS messages to the Parent Mobiles from the CPS software running on the children mobiles. This System also sends the information such as SMS, Call Histories and GPS from UI application on web server for later use of the parent. Since, from this system the parent can protect the children from unwanted usage of the mobile phones.

VIII. FUTURE ENHANCEMENT

The proposed system is used for parents to track their children day to day activities of mobile phone, which is using under android operating system. The clients are requested for track children's day to day activities of mobile phones which is used under any other operating system. Presently the performance of the system is satisfactory to the users. Changes may have to be done when the Organization insists on other ideas to be implemented on the system.

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[2] C. Emmanouilidis, R.-A. Koutsiamanis, and A. Tasidou. Mobile guides: taxonomy of architectures, context awareness, technologies and applications. Journal of Network and Computer Applications, 2012.

[3] J. An, X. Gui, W. Zhang, J. Jiang, and J. Yang. Research on social relations cognitive model of mobile nodes in internet of things. Journal of Network and Computer Applications, 36(2):799–810, 2013.

[4] E. Miluzzo, N. D. Lane, S. B. Eisenman, and A. T. Campbell. Cenceme-injecting sensing presence into social networking applications. In Proc. of EuroSSC, pages 1–28, October 2007.

[5] H. Shin, Y. Chon, K. Park, and H. Cha. Findingmimo: tracing a missing mobile phone using daily observations. In Proc. of MobiSys, pages 29–42, 2011.

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Nowadays, numerous journals and conferences have published articles related to context-aware systems, indicating many researchers' interest. Therefore, the goal of this paper is to review the works that were published in journals, suggest a new classification framework of context-aware systems, and explore each feature of classification framework. This paper is based on a literature review of context-aware systems from 2000 to 2007 using a keyword index and article title search. The classification framework is developed based on the architecture of context-aware systems, which consists of the following five layers: concept and research layer, network layer, middleware layer, application layer and user infrastructure layer. The articles are categorized based on the classification framework. This paper allows researchers to extract several lessons learned that are important for the implementation of contextaware systems

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We present the design, prototype implementation, and evaluation of CenceMe, a personal sensing system that enables members of social networks to share their *sensing presence* with their buddies in a secure manner. Sensing presence captures a user's status in terms of his activity (e.g., sitting, walking, meeting friends), disposition (e.g., happy, sad, doing OK), habits (e.g., at the gym, coffee shop today, at work) and surroundings (e.g., noisy, hot, bright, high ozone). CenceMe injects sensing presence into popular social networking applications such as Facebook, MySpace, and IM (Skype, Pidgin) allowing for new levels of "connection" and implicit communication (albeit non-verbal) between friends in social networks. The CenceMe system is implemented, in part, as a thin-client on a number of standard and sensor-enabled cell phones and offers a number of services, which can be activated on a per-buddy basis to expose different degrees of a user's sensing presence; these services include, life patterns, my presence, friend feeds, social interaction, significant places, buddy search, buddy beacon, and "above average?"

5) H. Shin, Y. Chon, K. Park, and H. Cha. Findingmimo: tracing a missing mobile phone using daily observations. In Proc. of MobiSys, pages 29– 42, 2011.

With the widespread use of smartphones, the loss of a device is critical, both in disrupting daily communications, and in losing valuable property. When a mobile device is missing, localization techniques may assist in finding the device. Current techniques, however, hardly provide a complete solution because of inaccurate position estimation, especially in indoor environments. In this paper, we describe a software architecture called FindingMiMo, which tracks and locates a missing mobile device in indoor environments. The system consists of a missing mobile which logs diverse environmental features on a daily basis, and a chaser which traces the trail of the device using the observation log. During daily operation, the mobile device does not perform location estimation; it only observes the ambient features such as radio signals to minimize its operation cost. Instead, the chaser determines where the missing device measured the observations. This research implemented the scheme on Android-based smartphones. Real experiments with carefully designed, missing-and-tracking scenarios show that the participants successfully approached their lost phones within four meters distance, on average.