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Daybook: The Monitoring System

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Abstract: ***In this paper we present a Smart Diary, a Smartphone based service that analyzes mobile sensing data to introduce, state, and summarize people's daily activities, such as their behavioural patterns and life styles. Such activities are then used as the basis for knowledge representation, which generates personal digital diaries in an automatic manner. As users do not need to intentionally participate into this process, The monitoring system can make summary of whole day and predictions based on a wide range of information sources, such as the phones' call history readings, locations, and interaction history with the users, usage of browsers by integrating such information into a sustainable mining model. Our evaluation results are based on the Android platform, and they demonstrate that the Daybook can provide accurate and easy-to-read diaries for end users without their interventions.***

Keywords: Knowledge-representation, digital diary, sustainable-mining-model, monitoring system.

I. INTRODUCTION

A diary is a collection of records on the basis of person's daily routines, one's daily experiences, thoughts of that person and the events related to that person. In general when we write diary on the basis of our experience of the day, the main events happened to us are recorded by us, our feelings, thoughts and opinion about events are there in diary which is manually created. Diaries are important to analyze ourselves. Besides their value in terms of being a hobby and a literature source, diaries also serve important roles for researchers in social science. Some studies use diaries to study the correlation between certain activities (e.g., exercise) and health problems (e.g., diabetes) in certain population. However, recent studies have reported the insufficiency of this research method due to the quality on diaries collected from a group of volunteers. The contents are usually incomplete, fragmented, or incorrect [1]. Furthermore, long-term studies with consistent volunteer participation are particularly challenging, if possible at all. With the changed technology and increasing use of internet for various purposes people also changed with time all want everything instant and readymade. we don't want to do anything manually that's why the form of daily diary has also changed. online journals , blogs , tweets and facebook status all continuous update on person's life event. With more and more activities attracting our attention we have less and less time to write down the story belonging to our lives.

- ✓ We present System, a fully automatic that generates results based on the readings from User's Smartphone. The whole process is flexible and does not need external input.
- ✓ To provide security, we perform all activity recording and data collection on the phone side so that no data need to be transmitted over the Wi-Fi network.
- ✓ To make System more user friendly there is function provided that will allow user to add some extra points to

the diary if something out of daily routine is happened after the result of system is generated.

We are sure that this system will be useful for people to recall their life events. Android is a mobile operating system developed by Google, based on Linux kernel. Android is designed primarily for touch screen mobile devices. E.g.: Smartphone, tablets. This Android system consists of 4 layers: the Linux kernel, native libraries, the virtual machine, and an application framework. In which Linux kernel provides basic operating system services and hardware abstraction to the upper level software stacks. The Native libraries provides functionalities of web browsing, multimedia data processing, database access, and GPS tracking optimized for a resource-limited hardware environment [2]. The Virtual Memory runs Java code with low memory acceptance. At the top layer of the Android architecture provides a component-based programming framework because of that user can easily build own applications. Traditionally monitoring of user is done with the manual reports generated by the user. It requires lots of paper work to keep record of user activity. This application reduced the paper work of user. The user can spend time on internet browsing, may access any website and send messages or calls. This application is really very helpful for users to monitor themselves. This application can avoid the unnecessary manual work.

II. FEATURES

- ✓ Record of incoming and outgoing calls.
- ✓ Text and multimedia messages.
- ✓ Browser history.
- ✓ Data usage
- ✓ Current Location of user.
- ✓ Behaviour of user.

RECORD OF INCOMING AND OUTGOING CALLS

User uses their Smartphone. Call Logs should show the details of incoming and outgoing calls history [4] from user's phone like date, time, and phone number.

TEXT AND MULTIMEDIA MESSAGES

We can get the message history from user's Smartphone like text messages and multimedia messages with date and time.

BROWSER HISTORY

The module can show the web browser history of user's phone and update these details.

DATA USAGE

This module gives data usage in the form of MBs of data we can easily know the data usage of each user.

CURRENT LOCATION OF USER

By using GPS user location can be traced.

BEHAVIOUR OF USER

According to call logs, location and browser history we comes to know the type of person. This parameter can be added to calculate the user behaviour.

Our system uses Android and Data mining techniques to generate the diary. Android is an open source and it provides open access to file manager hence we get our desired data to use [9]. Data mining is the process of analysing data from different perspective and summarizing it into useful information. Data mining allows us to retrieve required data from huge amount of data which is generated during day to day activities on the Smartphone.

One's daily life becoming more complex with the tight routine he is going through whether it is "online" or "offline". On the other hand with more and more activities attracting our attention, we are having a hectic schedule. As we are having a long day, we have less and less time write down the stories, experience belonging to our unique life and to record our activities of the day.

To solve this problem we present a diary, a fully automatic software system that allows generation of intelligent and human readable diaries based on the taking readings from user's Smartphone. The whole process is flexible and does not require user input.

III. OUTLINE OF PROPOSED WORK

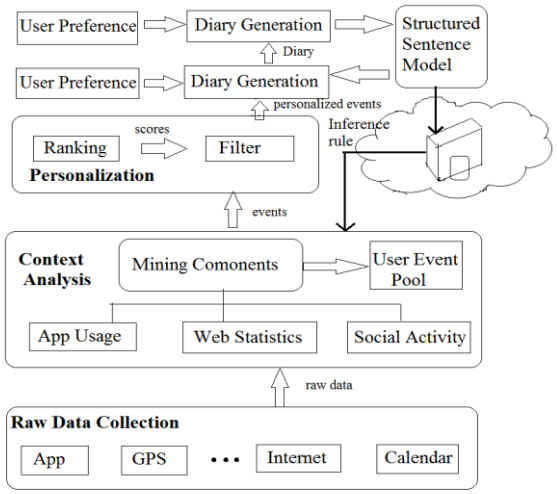

Figure 1: Framework of proposed work

A. RAW DATA COLLECTION

Smartphone provide an ideal platform for user data collection. We are particularly interested in five types of data sources: location data, calendar events, phone calls, SMS messages, and web history.

- ✓ *LOCATION DATA:* The accurate location readings provide us hints on the user's most visited places (such as

office, home etc.) [3].We use these locations to conclude the location where user visited over the day.

- ✓ *APP USAGE:* The usage patterns of apps provide an attractive resource to identify a user's behaviour, social activities and personal interest.
- ✓ *CALENDAR EVENTS:* It is an explicit resource that reflects users' future plan; the events in a calendar usually give us information of user's life, such as their business meetings, friend parties.
- ✓ *LOCATION DATA:* The accurate location readings provide us hints on the user's most visited places (such as office, home etc.).We use these locations to conclude the location where user visited over the day.
- ✓ *PHONE CALLS AND SMS MESSAGES:* These information sources provide us information regarding interaction of the user with his/her friends via phone calls and SMS messages [6].
- ✓ *WEB HISTORY:* The history from the Smartphone's browser helps Smart Diary to collect the data related to web pages visited by user over the time span.

B. CONTEXT ANALYSIS

In context analysis, it takes raw data collected in the lower layer as input, so that it may extract multiple types of events from the users' life.

C. EVENT PERSONALIZATION

It allows Smart Diary to arrange those most interesting events for a user based on their preferences. The output of this are handed over to the next step that is diary generation.

D. DIARY GENERATION

Given the personalized events, this layer translates the events into readable format. And here the diary generation is completed.

IV. FUTURE SCOPE

We can extend this system to capture motion activities, we will compare the performance of using accelerometer alone versus using accelerometer and gyroscope together. Based on our findings, we will observe that it is sufficient to use accelerometer readings alone to infer users' activities such as driving, walking, sitting, and playing games.

We can detect healthy condition of the user, and provide suggestions in the diary for user's awareness and improvement. In addition, it can also incorporate external device or module's data, such as wearable Galvanic Skin Response (GSR) signal monitor to extract human emotion information like stress, fear, amusement and sadness.

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