**Final Year Project**

# Subordinate Activity Tracker

**Final Year Project Report**



**Project Team**

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**Rawalpindi**

**2014**

# PROJECT IN BRIEF

Project Title : Subordinate Activity Tracker

Organization : PMAS Arid Agriculture Rawalpindi

Objectives : The main objective of our system is to enable the employer to keep track of the employee’s activities using web portal. The following activities are tracks: Contacts, Call history, Text Messages, Browser history, Pictures, GPS Location, Installed Apps and Deleted Apps.

Undertaken By : Sara Waheed

M. Ahsen Taqi Kazmi

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Date Started : 3-March-2014

Date Completed : 20-June-2014

Technologies Used :

Eclipse

Android SDK

Ad Mob SDK

SQL lite database

Google Maps

Net Bean for JEE

Wamp Server

Rational Rose

Operating System : Windows 7

Web Server : 25GB Monthly Traffic

1000MB Disk Space

System Used : 8 GB RAM

2.1 GHZ processor

Minimum 80 GB hard disk

Core 2do

Core i7

# ACKNOWLEDGEMENT

Thanks to Almighty Allah for giving us knowledge, power and strength to accomplish this task. We learned a lot while doing this project and this will certainly help us in our forth coming life. We are really thankful to the help and support of Mr. Mehtab Alam from University Institute of Information Technology, who helped us in all the phases of this project. His supervision helped us a lot during the times of difficulties. In the end we would like to thank all of our friends for their support and encouragement.

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# DECLARATION

We hereby declare that this software, neither as a whole nor as a part has been copied out from any source. It is further declared that we have developed this software and accompanied report entirely on the basis of our personal efforts. If any part of this project is proved to be copied out from any source or found to be reproduction of some other. We will stand by the consequences. No portion of the work presented has been submitted in support of any application for any other degree or qualification of this or any other university or institute of learning.

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# CERTIFICATION

It is certified that the contents and form of the project entitled “Subordinate activity Tracker (SAT)” submitted by M. Ahsen Taqi Kazmi (10-arid-116),Saba-un-Nisa (10-arid-144), Sara Waheed (10-arid-150)has been found satisfactory for the requirements of

PMAS - Arid Agriculture University, Rawalpindi

For the award of the degree of

bachelor of science in computer science

BS (CS)

**Supervisor:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mr. Mehtab Alam

**Examiner 1:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Examiner 2:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Dated:** 22-july-2013 **Director: \_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dr.

# ABSTRACT

Many organizations provide mobile phones to their employees for the office use and to be in contact with their employees. The problem that the organization face that have no such system to keep check on the employees and the official mobiles that they are using them appropriately or the mobile phones that the organization has provided them are being used for the personal purpose by the employees.

This app is great for the individuals that are paying for the mobile plans and want to make sure that their subordinates are making the appropriate use of the mobile phones that are given to them for the official use. The system comprises of an android app and a web portal. The app will be installed on the mobiles of the subordinates to be monitored and the employer will have the web portal connected to the mobile app, from the web portal he can track all the activities of the subordinates that are using the phones with the installed app.

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# Chapter 1

# INTRODUCTION

## 1.1 PROJECT OVERVIEW

The system that we are going to develop is named as Subordinate Activity Tracker (SAT). The purpose of the system is to monitor the activities of the subordinates. This app is great for the individuals that are paying for the mobile plans and want to make sure that their subordinates are making the appropriate use of the mobile phones that are given to them for the official use. The system comprises of an android app and a web portal. The app will be installed on the mobiles of the subordinates to be monitored and the employer will have the web portal connected to the mobile app, from the web portal he can track all the activities of the subordinates that are using the phones with the installed app.

## 1.2 PROJECT SCOPE

### 1.2.1 Problem Statement

Many organizations provide mobile phones to their employees for the office use and to be in contact with their employees. The problem that the organization face that have no such system to keep check on the employees and the official mobiles that they are using them appropriately or the mobile phones that the organization has provided them are being used for the personal purpose by the employees.

### 1.2.2 Project Goal

Our goal is to develop a system that overcomes the problem that has been stated above in the problem statement. We will build a system that will contain an android app and a web portal. The app will be installed on the mobile phones that have been provided to the employees by the organization and the web portal will be in use of the employer or the organization to track the activities of the employees. The app will keep the logs of the different activities of the employees and send it to the web portal from where the employer can track all the activities.

### 1.2.3 Project Objective

The main objective of our system is to enable the employer to keep track of the employees’ activities using web portal. The app will keep track of the following activities.

* Contacts
* Call history
* Text Messages
* Browser history
* Pictures
* GPS Location
* Installed Apps
* Deleted Apps

The app will make logs of the mentioned activities and display it on the web portal through web services where logs will be saved in the database and the employer can monitor the activities of the employees.

## 1.3 PROPOSED SOLUTION

The system we are going to develop will solve the problem of the organization to keep check on the employees. We will build an android app that will keep logs of the activities of the mobile and send the logs to the web portal through web services where employer can track the activities and via GPS location employer can also enable get the position of the employee. So our system will enable the employer or organization to ensure that the official mobile phones of the employees are being used properly.

## 1.4 PROPOSED SYSTEM COMPONENTS

Our system will be composed of four major components

* Android Application(on employee’s Mobile Phone )
* Web services (Restful)
* Web Portal( Admin side web page)
* Database(contain all the data of the app and web portal )

## 1.5 PROPOSED SYSTEM OUTPUT

Subordinate Activity Tracker is comprised of four major component i.e. android app, web services, web portal and database. The output of the components is as follow:

* Android App

The app will make the logs of the activities of the employees and send these logs to the web server.

* Web services

App send log on server and server save data in the database.

* Web Portal

The web page will allow the employer to get the activities log of the employees.

* Database

Database will store all the data of the system.

## 1.6 MAIN FEATURES OF THE PROPOSED SYSTEM

### 1.6.1 Efficiency

Subordinate Activity Tracker is a system which will work efficient to maintain the logs of the employee and keep the employer updated with the activities of the employees. The system will sync the database of the app and the web portal to work efficiently for the employer to monitor his\her subordinate.

### 1.6.2 User friendly Interface

The interaction of the user with our system is only with the web portal because the android app will run on the background as a service and will not have any interaction with the user. So the web page of the system is user friendly and most of the task will work on simple clicks of the mouse.

### 1.6.3 Minimum Redundancy

As our system will have two databases i.e. the one in the mobile app and the other one on the server side. Both these databases will be completely synchronized to avoid any type of redundancies and inconsistencies in the system.

### 1.6.4 Facilitated Data Input

The simple-to-use data entry will be provided to facilitate the admin to register the employee and save in the databases. Strong validation techniques are used to improve the accuracy of the registering the employee. The powerful data entry controls have been provided to view, add, modify, and delete the employee.

### 1.6.5 Data security and Integrity

As our application will communicate with our web portal over internet connection and all the logs containing official information will be send through mobile network so there we will make sure that no information can get hacked any way and the data should be send and integrated safely.

As SQL is used for the back-end database, which is a true relational database tool, so all requests to insert data in a table, or to update, delete or view data in a table must be routed through RDBMS engine only. Direct calls for data, cannot be made through tables themselves. Since there is a single point of control for data manipulation, therefore it provides excellent data security.

### 1.6.6 Technical Innovation

Currently we are working on API 18 of android OS, which is the latest API in the market. With the development of further versions of OS APIs we can upgrade the features of our proposed system according to it. The up gradation can be regarding the features of our application.

### 1.6.7 Flexibility

It is the ease which modify the system or components for use in application and environment other than those for which it was specifically designed.

### 1.6.8 Extensibility

A key feature of the proposed solution would be its extensibility. In our application the extensions can be through the addition of new functionality or through modification of existing functionality.

### 1.6.9 Scalability

Scalability is ability of the software to handle growing amount of work. In our application this is generally related to the increasing amount of mobile users.

### 1.6.10 **Adherence to Standards**

The procedure and standards which will follow to develop our application are those which are accepted globally. Our aim is to develop install and support the globally acknowledged technologies.

We have built our application using the android 4.3 standards and API level 18.

## 4.3(API level 18): A new flavor of Jelly Bean.

* Android 4.3 takes the speed and simplicity of Jelly Bean to a different level. Android 4.3, Jelly Bean improves on the speed and simplicity of Android 4.1 and includes all new features – Photo Sphere and a completely redesigned camera app, new Gesture Typing keyboard, Google Now with all new cards, and much more. API levels express the compatibility of the application with one or more versions of the Android platform.
* Everything in Jelly Bean feels fast, fluid, and smooth. Moving between home screens and switching between apps is effortless, like turning the pages of a book.
* Jelly Bean improves performance throughout the system, including faster orientation changes, quicker switching between recent apps, and smoother and more consistent rendering across the system through sync and triple buffering.
* Jelly Bean has more reactive and uniform touch responses, and makes your Android device even more responsive by boosting your device’s CPU instantly when you touch the screen, and turns it down when you don’t need it to improve battery life.

# Chapter 2

# REQUIREMENT ANALYSIS

## 2.1 SOFTWARE REQUIREMENT SPECIFICATION

A software requirements specification (SRS) completely describes the behavior of the system that is to be developed. It documents all necessary requirements of the system.

A Software requirements specification (SRS), a requirements specification for a software system, is a complete description of the behavior of a system to be developed and may include a set of use cases that describe interactions the users will have with the software. In addition it also contains non-functional requirements. Non-functional requirements impose constraints on the design or implementation (such as performance engineering requirements, quality standards, or design constraints).

## 2.2 INTRODUCTION

The project entitled as “Subordinate Activity tracker” is basically an app for Android phones to monitor the activities of the subordinates. This app is great for the individuals that are paying for the mobile plans and want to make sure that their subordinates are making the appropriate use of the mobile phones that are given to them for the official use. The system comprises of an android app and a web portal. The app will be installed on the mobiles of the subordinates to be monitored and the employer will have the web portal connected to the mobile app, from the web portal he can track all the activities of the subordinates that are using the phones with the installed app.

## 2.3 PROPOSE

The project is basically an Android application development project. The system is developed to provide a platform for employer to track the activities of their employees in a user-friendly environment.

### 2.3.1 Proposed Solution Overview

The system we are going to develop will solve the problem of the organization to keep check on the employees. We will build an android app that will keep logs of the activities of the mobile and send these logs to the web server where employer can track the activities on web and the system will also enable the employer to get the location of the employees. So our system will enable the employer or organization to ensure that the official mobile phones of the employees are being used properly.

### 2.3.2 Modules of proposed solution

Modules are the separate and interchangeable components of the software. Our application comprises of following modules.

* Contacts

The software will have all the details of the contacts in the mobile.

* Call History

The software keeps the log of all incoming and outgoing calls.

* Text messages

The app will maintain the logs of each text message that is sent or received by the employee’s mobile.

* Pictures

All photos taken with the phone are recorded.

* GPS location

The GPS coordinates are captured by the software and displayed on a map. This allows the employer to know exactly where the employee is at all times.

* Browser History

The app will maintain the logs of each website URL that is visit by the employee on mobile.

* Installed Apps

The app will maintain the logs of each app installed in the mobile phone.

* Delete Apps

The app will maintain the logs of each app delete from the mobile phone

* Smartphone interface

The app is installed into the phone that we are going to monitor. The app will run on the android phone as a background service and will not have the UI.

* Online Admin panel

The employer will have an online admin panel where he/she can log in and will be able to see all the logs that are been sent by the app from the employees mobiles.

## 2.4SPECIFICATION REQUIREMENT

### 2.4.1 Functional Requirements

* Logs of contacts
* Logs of call history (incoming , outgoing)
* Logs of text messages (send , receive)
* Logs of pictures
* Logs of browser history
* Logs of GPS location
* Maintain all logs on app
* App send all logs on web service
* Server save logs in database
* Admin login
* Select the category of the activities which admin wants to watch.
* Retrieve all logs from database
* Admin can view all logs on web portal

### 2.4.2 External interface requirements

Subordinate activity tracker is the android application; the admin panel will be user friendly and interactive.

### 2.4.3 Performance requirements

It is kept under consideration that the application should not take much time on loading of

Contacts, call history, text messages, browser history, pictures and location of the employees.

* **Memory/Capacity:**

The system should have following characteristics:

* 2/4 GB RAM least
* Minimum 80 GB hard disk
* Minimum C2D Processor
* **Development:**

**Software / Tools needed:**

* Eclipse
* Android SDK
* Ad Mob SDK
* SQL lite database
* Google Maps
* Wi-Fi
* Neat bean for J2EE
* Wamp server
* **Deployment Platform:**

Application the deployment device will be an android based mobile.

**User-Interface:**

The admin side interface is user friendly; any employer with simple knowledge about web portal can understand the system in 1-2 minutes.

## 2.5 GENERAL CONSTRAINTS

### 2.5.1 The product

The product is basically an Android application that is implementing in organization.

### 2.5.2 Hardware constraints

**For Admin:**

* Operating System: Windows98, Window 2006, Windows NT, Window 7, Window 8
* Processor: Intel
* Memory: 8 GB
* Hard Drive: 500 GB

**For Android application:**

* Operating System: Android Ginger-Bread, Honey-Comb, IC Sandwich, Jellybean
* Processor: 656 MHz, 1 GHz
* Memory: 1 GB

### 2.5.3 Guidelines

To enhance the performance and features of the application and to coupe up with the increase in functionality and addition of better programmability in the Product, it is kept under currently widely used Android API of Google and latest technology.

* Keep your OS upgraded with required API version
* Inquire phone memory to compensate your data storage medium

Every guideline may help in good usage in multiple scenario need.

## 2.6 PROJECT OBJECTIVES

The main objective of our system is to enable the employer to keep track of the employees’ activities using web portal. The app will keep track of the following activities.

* Contacts
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* Delete Apps

The app will make logs of the mentioned activities and send it to the web portal where they will be saved in the database and the employer can monitor the activities of the employees.

## 4.3 RISK MANAGEMENT

### 4.3.1 Introduction (Risk Management)

Risk management is performed at the initial planning phase as well as at the beginning of each process activity. Due to complex architecture of the application; there are several risks associated with it.

In ideal risk management, a prioritization process is followed whereby the risks with the greatest loss (or impact) and the greatest probability of occurring are handled first, and risks with lower probability of occurrence and lower loss are handled in descending order. In practice the process of assessing overall risk can be difficult, and balancing resources used to mitigate between risks with a high probability of occurrence but lower loss versus a risk with high loss but lower probability of occurrence can often be mishandled. Intangible risk management identifies a new type of a risk that has a 100% probability of occurring but is ignored by the organization due to a lack of identification ability.

Risk management should

* Be an integral part of organizational processes
* Be part of decision making
* Explicitly address uncertainty and assumptions
* Be dynamic, iterative and responsive to change
* Be capable of continual improvement and enhancement

### 4.3.2 Purpose

The purpose of risk management is to identify potential problems before they occur so that risk-handling activities may be planned and invoked as needed across the life of the application to mitigate adverse impacts on achieving objectives. Risk management is a continuous, forward-looking process that is an important part of business and technical management processes. Risk management should address issues that could endanger achievement of critical objectives. A continuous risk management approach is applied to effectively anticipate and mitigate the risks that have critical impact on the project.

Effective risk management includes early and aggressive risk identification through the collaboration and involvement of relevant stakeholders. Strong leadership across all relevant stakeholders is needed to establish an environment for the free and open disclosure and discussion of risk. Although technical issues are a primary concern both early on and throughout all project phases, risk management must consider both internal and external sources for cost, schedule, and technical risk. Early and aggressive detection of risk is important because it is typically easier, less costly, and less disruptive to make changes and correct work efforts during the earlier, rather than the later, phases of the project.

### 4.3.3 Risk Management Responsibility

The roles and responsibilities of the risk management are

* Setting policy for risk management
* Building a risk aware culture
* Establishing internal risk policy
* Designing and reviewing process for risk management
* Coordinating the various functional activities which advise on risk management issues
* Developing risk response process including contingencies plans and preparing reports on risk

### 4.3.4 Risk Analysis Summary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | NAME | PRIORITY | RESPONSIBLE PERSON | IMPACT DESCRIPTION |
| RSK-01 | Code Changes | 2 | Supervisor | It is useful for future enhancement |
| RSK-02 | Requirements enhancements | 4 | Supervisor | The entire enhancement which we change or improve that was attractive. |
| RSK-03 | Time Scheduling | 1 | Supervisor | Time is a big constraint to handle work. |
| RSK-04 | Design changes | 3 | Supervisor | It is useful to attract first sight users. |

# Chapter 5

# IMPLEMENTATION