Android Application: Call Proxy

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Abstract : **- Call Proxy is a mobile application developed on the Android platform that helps the users to manage their calls effectively, by blocking calls and SMS from Blacklisted numbers. Call Proxy also blocks calls based on time based profiles, which the user can configure according to their needs. The app will also support the backup and restoring of application data. This paper discusses the design and features of Call Proxy application and shows how it seamlessly and efficiently handles calls and messages. The overall goal behind our design strategy is to provide enhanced call managing services leading to improved acceptability by the users.**

General Terms
Mobile Application

Keywords
Call Proxy, Black list, White list, Service

I. Introduction

Android OS

Android is a Linux-based operating system for mobile devices such as smart phones and tablet computers. It is developed by the Open Handset Alliance led by Google.

Features :

- Application framework enabling reuse and replacement of components
- Dalvik virtual machine optimized for mobile devices
- Integrated browser based on the open source WebKit engine
- Optimized graphics powered by a custom 2D graphics library; 3D graphics based on the OpenGL ES 1.0 specification (hardware acceleration optional)
- SQLite for structured data storage
- Media support for common audio, video, and still image formats (MPEG4, H.264, MP3, AAC, AMR, JPG, PNG, GIF)
- GSM Telephony
- Bluetooth, EDGE, 3G, and WiFi
- Camera, GPS, compass, and accelerometer
- Rich development environment including a device emulator, tools for debugging, memory and performance profiling, and a plugin for the Eclipse IDE

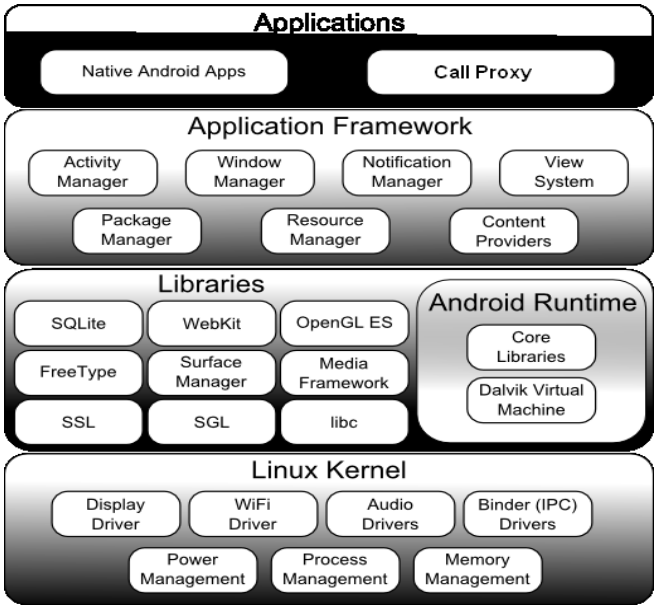

Fig 1: Android Architecture

The above figure shows the android architecture. Our application uses the components of Application Framework layer and resides on the Application layer. By providing an open development platform, Android offers developers the ability to build extremely rich and innovative applications. Developers are free to take advantage of the device

hardware, access location information, run background services, set alarms, add notifications to the status bar, and much, much more. Developers have full access to the same framework APIs used by the core applications.
The application architecture is designed to simplify the reuse of components; any application can publish its capabilities and any other application may then make use of those capabilities (subject to security constraints enforced by the framework). This same mechanism allows components to be replaced by the user.

II. Project Description

Call Proxy is an advanced call manager application for managing calls effectively through the busy schedule.
This app is helpful for the users to protect their confidential SMS and call logs from unwanted people spying through the phone. This app lets you create white list and black list and on selection, lets the user accept calls from white list and reject calls and SMS from black list. This app allows the user to store as many contacts in the black list/white list as they want, in contrast to the previously existing applications that allow only a limited contacts in the database.

Features

- Manage Black List/White List

  The user adds the required numbers in the black list/White list. If black list is enabled, the system filters every incoming message and call from these numbers by auto rejecting calls and moving these messages to a blocked messages folder within the application. If white list is enabled, the system will receive all incoming messages but calls only from numbers added in the white list.

  Steps In Creating Black List/White List :
  - Log in into the application.
  - Select Manage List.
  - Select Manage Blacklist/White List.
  - Press the option button to add contacts.
  - Add contacts either from contacts, call logs or input number.
  - To delete a number, long press on it and select delete.

- View Blocked Calls/Messages

  The app stores all the blocked calls and messages to a database, which are retrieved and displayed when required in the view blocked calls/messages folder. The user can delete the required entries.

  Steps In Viewing Blocked Calls/SMS:
  - Log in into the application.
  - Select View Blocked Calls/SMS module.
  - Select Call log/SMS log.
  - Select on particular entry to view details.

- Private Space

  This feature allows the user to add personal contacts to the private list. The system stores the incoming call logs as well as messages to this space without letting the message go to the inbox.

  Steps In Adding Contacts to PricateSpace :
  - Log in into the application.
  - Select Private Space.
  - Select ‘Add private contacts’.
  - Add profile name, set start and end time, insert contacts, select days.
  - Press the option button to add contacts.
  - Add contacts either from contacts, call logs or input number.
  - To delete a number, long press on it and select delete.
  - To view private messages, click on ‘View Private Messages’.
  - To view private call logs, click on ‘View Private Call Logs’.
  - To delete particular log, long press on it and select delete.
  - To reply to a particular message, select the message, click on ‘Reply’, type the message and send.

- Privacy Eraser

  All the phone call logs are retrieved allowing the user to delete call logs and/or messages from selected numbers.

  Steps In Deleting Logs :
  - Log in into the application.
  - Select Privacy Eraser.

- Long press on the required number.
- Select the required option to delete.

- Time Based Profiles

The app allows the user to create a profile with a start time and end time, with the option of adding required contacts and selecting days for which the user wants to enable the profile. As per the start time, the profile is activated for the selected days. While a profile is activated, calls only from the numbers added in the profile will be received. All others will be auto rejected. However the user can still receive messages from all the numbers.

Steps In Time Based Profiles :

- Log in into the application.
- Select Time Based Profiles.
- Click on the image button‘ + ‘to create a new profile.
- Add profile name, set start and end time, insert contacts, select days.
- Save the profile.
- To view the profile details click on the ‘ ‘ button and select the required profile.
- To delete a profile, long press on it and select delete.

- Backup/Restore

All the data(logs, messages, contacts) stored in the application’s database can be backed up to the required location on the SD Card. Whenever required, the data can be restored. This allows the application content to be portable. The user can simply restore the data to another phone by just inserting the SD card into it. The data can be restored even if the application is reinstalled on the same/different phone.

Steps In Taking Backup :

- Log in into the application.
- Click on Backup/Restore.
- Click on Backup Data.

Steps In Restoring Data :

- Log in into the application.
- Click on Backup/Restore.
- Click on Restore Data.

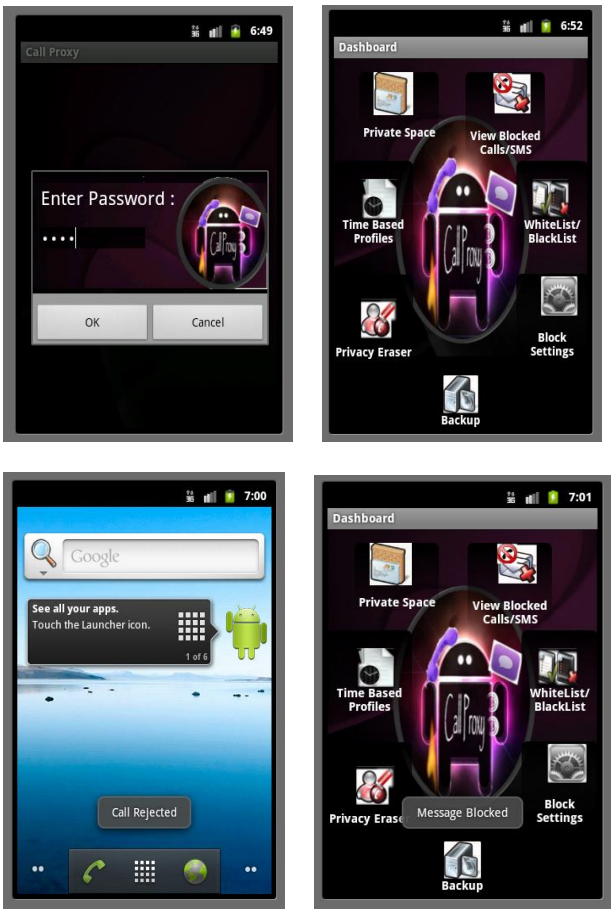

Fig 2: Screenshots: Login, Dashboard, Call rejected, SMS blocked

III. Methodology

In order to filter incoming calls, the system needs to be notified on the reception of every call and message. This can be done by extending Android’s BroadcastReceiver . The receiver is enabled for 10 seconds on every incoming event(call/message). Within these 10 seconds, it performs the task assigned to it. Here, we can check the incoming number against the contacts stored in the application’s database and decide whether to receive or block the incoming event. This thus makes the application memory efficiently as the application need not be running in the foreground.

For time based profiles, there is a light-weight service running in the background which monitors the system time continuously to check for the activation of profiles created previously. The service runs in the background and thus the application is memory efficient.

The application uses SQLite Database to store application data. SQLite is a light weight database integrated with Android.

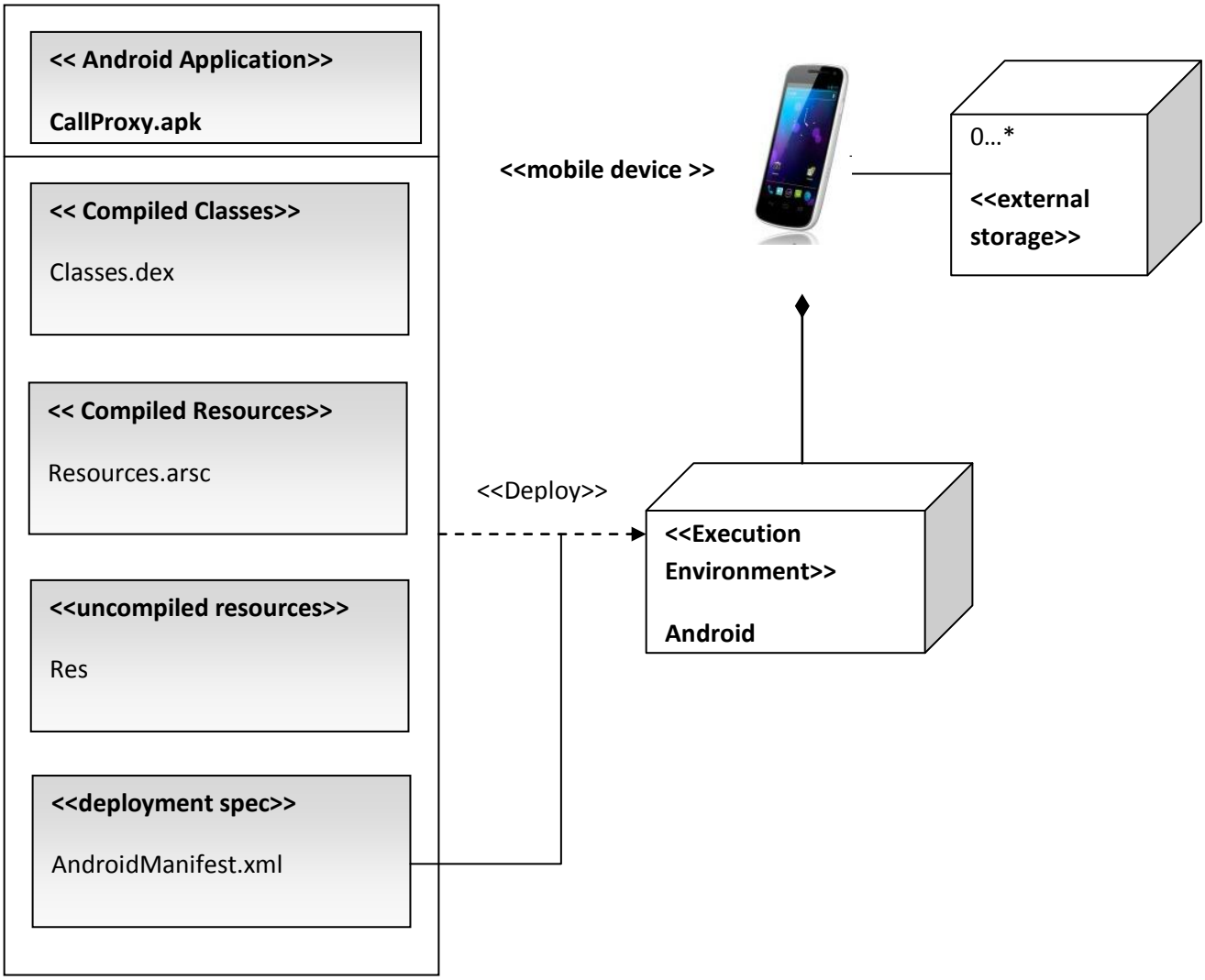

Fig 3: System Deployment

Conclusion

The application Call Proxy is thus a memory and power efficient application. It can effectively manage your calls and messages and has an added advantage of unlimited contacts being added to the database unlike other applications which restrict the user to a specific number of contacts that they can add.

This application will be uploaded on the Android Market and will be available to the users free of cost unlike other applications this application does not showcase adds. It's thus a extremely user friendly and a bug free application.

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