CUSTOMISED POWER EFFICIENT ANDROID ROM

Feasibility Study and Model Selection

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January 8, 2012

FEASIBILITY STUDY

1 . INTRODUCTION

One of the biggest downsides of today's android device is the way they utilize power. The maximum battery drain that a stock android device provides is usually less than the optimum or potential battery drain that the device can provide and we have opted this as the theme of our project. We propose to build a customized version of the android system(similar to an operating system) that has a longer battery drain and utilizes memory more efficiently. In the process we also plan on adding support to the Malayalam Language for the android Device.

2 . CURRENT SITUATION

In today's Smart Phone market the issue of power consumption is not given its proper due. Manufactures fill the stock rom with many applications of which most are not required by the average user. These applications take up valuable power and memory resources even when they are not being used . Due to these reasons Most Smart phones provide a battery drain of one and a half days at the most.

3. PROPOSED SYSTEM

The proposed system aims to improve the power efficiency of the android device by building a customized android rom(similar to an operating system) which would make the installation of the stock applications optional. Power efficiency will also be improved by making changes to the kernel to bring about controlling the processor speeds to obtain maximum power efficiency.

In building the rom from the source code additional features like support for native languages like Malayalam can be brought about.

By implementing the project we hope to extend the battery drain to more than two days.

4 . SCOPE OF THE PROJECT

This project is useful to people who would like to have a better battery drain such as business people who travel a lot and find it difficult to frequently charge their phones. The support for native languages will also be attractive to people who are not proficient in using English.

5 . TECHNICAL FEASIBILITY

We have analyzed the technical feasibility of the project based on the following factors :

5.1 . HARDWARE FEASIBILTY

The minimum hardware requirements to develop an Android Rom from Source Code are :

- PC with minimum 4 GB RAM
- PC with minimum free Hard Disk space of 30 GB
- Android Device with minimum 384 MB RAM to test and implement the project.

5.2 . SOFTWARE FEASIBILTY

- Linux Operating System
- Python 2.5 -- 2.7
- GNU Make 3.81 -- 3.82
- JDK 6
- Emulator to test the Rom

6 . FINANCIAL FEASIBILITY

6.1 . DEVELOPMENT COST

Hence the development cost can be considered to be negligible as the hardware required for development are owned by the team.

6.2 . INSTALLATION COST

There is no cost for installation as it is a software .

6.3 . OPERATIONAL COST

Operational costs are negligible.

6.4 . MAINTANENCE COST

The only maintenance cost is for replacing the battery after its life time to get optimum battery performance

7 . OPERATIONAL FEASIBILTY

The customized power efficient android rom is easily portable. Once the rom is developed for an Android Device ,it can be ported to other devices by making some minor changes.

8 . CONCLUSION

By analyzing the various feasibility factors, the team realizes the scope as well as the different challenges of this project. The team realizes the amount of work that would be required to develop a Customized Power Efficient Android ROM.

MODEL SELECTION

1 . INTRODUCTION

After the analysis of various modelling methodologies like waterfall model, agile model, incremental model etc, we have chosen the agile model as it suits our project the best.The reasons are as follows :

2 . The Basic Working Model

The proposed system aims to improve the power efficiency of the android device by building a customized android rom which would make the installation of the stock applications optional. Power efficiency will also be improved by making changes to the kernel to bring about controlling the processor speeds to obtain maximum power efficiency. The process involves removing bloat ware or making their installation optional, incorporating inverted Google applications and other tweaks in the Android kernel.In building the rom from the source code additional features like support for native languages like Malayalam can be brought about.

3 . Why Agile Model?

What we are planning to develop is a customised rom for an android device thereby extending its battery life and efficiency. With every new device we find a new feature. The system has to adapt itself to every new feature that that the device supports and would therefore require a modelling method that enables constant updation of the requirements. The agile model, unlike other traditional modelling methods, can be applied in a more flexible manner and is therefore considered to be an Adaptive method.

4 . CONCLUSION

Taking into considerations the above stated facts, we have opted the Agile modelling methodology in building this ROM. We have envisioned a high level structure of the building process and have prioritized the requirements correspondingly.