CUSTOMIZED POWER EFFICIENT ANDROID ROM

Document Showing Templates of Functions

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Purpose

This document outlines the various templates of the functions used in our Power Efficient Android Rom. The description of the functions are given under each module.

Coding

Our system comprises of four modules, each of which consists of a number of functions.
Our modules are:

1. Brightness control

The Brightness control module aims at enhancing power efficiency by optimising the brightn level of the device. Reduced brightness levels reduces battery drain considerably.

The functions included in the module are:

- public void onClick()

  This function is responsible for updating the class variable that holds our logical value, and calling the private function that will apply the logical value to the physical hardware.

- private void setBrightness()

  The set brightness function in turn is responsible for translating the brightness value from our familiar 0 to 100 scale into the internal 0 to 1 scale used by Android, applying the setting to the current window, and invoking the method that keeps our label current.

- private void updateTextLabel()

  The update text label method will display the brightness value to the world as an easy to read integer.

2. Voltage Control

This module changes the type of governor used and sets the maximum and minimum frequencies in which it is clocked.

The following script was added to init.d .

```
echo [governor] > /sys/devices/system/cpu/[cpu ID]/cpufreq/scaling_governor
echo xxx000 > /sys/devices/system/cpu/cpu0/cpufreq/scaling_min_freq
echo xxx000 > /sys/devices/system/cpu/cpu0/cpufreq/scaling_max_freq
```

3. Bloatware Removal

This module removes the unwanted bloatware that run in the background causing unnecessary battery drain and therefore, results in increased power efficiency.
To implement bloatware removal we have deleted the concerned APKs like stocks.apk, maps.apk, reader.apk and so on.

4. Kernel Optimisation

 This module changes the hardware settings for better performance, power management etc. These changes are made to the file build.prop . Some of these are:

Allows the phone to sleep better
ro.ril.disable.power.collapse=1

Saves power when phone is in sleep mode
pm.sleep_mode=1

Allows your wifi to scan less frequently, saving more battery
wifi.supplicant_scan_interval=150 or 180

Helps Scrolling Response
windowsmgr.max_events_per_sec=150

mot.proximity.delay = 150
Lower to fix black screen after calls issue