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## UTILIZING THE VIBRATION AND GYRO SENSORS TO ALERT USER THE BATTERY INFORMATION WHILE NB IS IN SLEEP MODES

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### Utilizing the vibration and gyro sensors to alert user the battery information while NB is in sleep modes

When users want to visit other place, they would normally just close the NB lid and leave, the system will go to MSC, S4 or S5 then. During the transportation, they won't know the battery capacity because the battery capacity information only shows while the NB is ON. If users don't save the data before they close the lid, the data might be lost after a while due to system is out of battery.

When the users arrive the place, they might want to use the NB to work or do the presentation, however, the NB might run out of battery.

This disclosure will allow user to do the quick check of the battery capacity even when the NB is in the Sleep mode – lid closed.

The concept is to build a Gyro-sensor and vibrator into the NB system and while user picking-up the NB by hand, the Gyro sensor will measure the vector/moving and then inform EC to wake the CPU to S2 state to detect the battery capacity. Then the EC will control the vibrator to vibrate.

Vibrate 1: battery low, still able to use

Vibrate 2: battery pretty low, suggest plug-in adaptor immediately

Vibrate 3: Battery almost empty, plug-in adaptor right away.

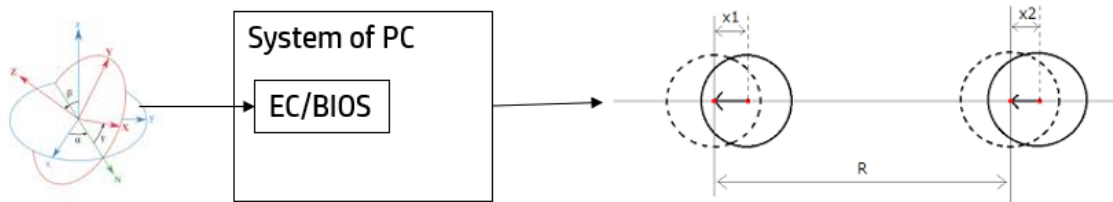


Figure 1: Showing how this concept works.

- (1) While user carry/pick-up the NB, the Gyro sensor would get the gravity by 3-axis direction and then the sensor will send the data to sensor-hub of EC / BIOS
- (2) By thronging algorithm, the DSP could identify what kind of activity user is doing now, for example, if lid close (screen-off) and user just pick-up NB quickly means user is going to carry the NB to another place, then the DSP would inform user battery status now by sending the control signal to Vibrator
- (3) If user pick-up the NB slightly and put NB onto the table, the vibrator won't do anything
- (4) Following (2), PC will also get the information from battery gage per PMIC to understand how much battery capacity now, then to control the vibrator to vibrate 1, 2 or 3 time to alert user what kind of action they need to do now.

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