Apple patent proposes battery use monitoring system

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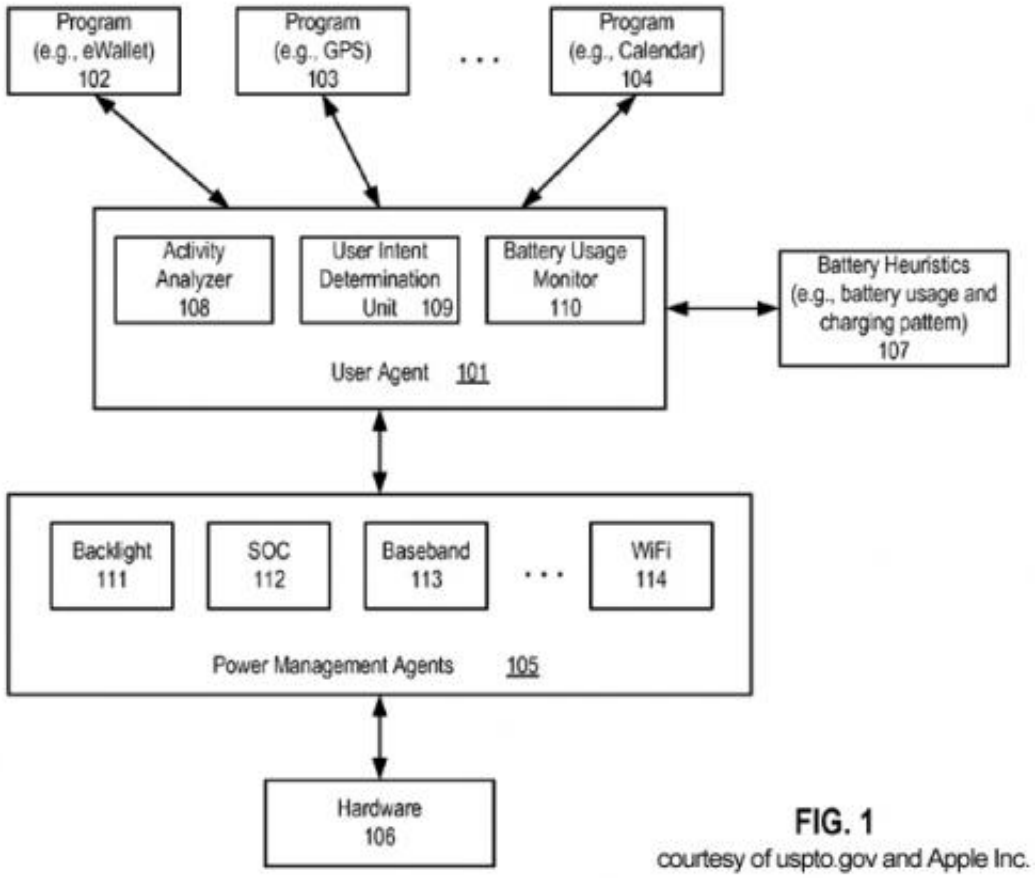

Credit: USPTO

(Phys.org) —Smartphone users are aware by now of the fact that beyond the richest phone, text, location and imaging feature sets, waning battery performance can play a significant role in dampening customer

satisfaction.

As *Geek.com* brought out, smartphones are essentially tiny laptops that have lots more going on inside them than ordinary phones. As game and media playing users can attest, they simply draw more juice. Apple, for one, is exploring a power management system, according to its patent application revealed on Thursday, titled "Inferring User Intent From Battery Usage Level and Charging Trends." *Apple Insider* discovered the patent filing, where an Apple device would track user trends to boost battery life of a mobile device, meaning consumers could look forward to going longer between changes in the future. The patent said, "As devices become more complicated and their capabilities more varied, it becomes increasingly difficult to make the best power management decisions from deep within the system. While designers have been successful making decisions about the hardware state within a central power management driver, they are not able to account for blocks outside the hardware."

The application, first filed in September 20, 2012, goes into detail about how this may work and describes various clues in user behavior toward the device that could help the system preserve battery life. "Embodiments of the present invention relate generally to power management of a portable device," according to the patent. "More particularly, embodiments of the invention relate to inferring user intent from battery level and charging trends of a portable device."

As *Apple Insider* explained, basically Apple is talking about a system that could monitor the battery's charge and discharge cycles and based on that information would predict what the user will do at any given time. The device could then alter parameters, adjusting certain settings, such as the screen brightness or the CPU clock speed. Also, said *Apple Insider*, "Apple imagines taking into account ambient data from the device's gyroscope, light sensor, geographic location, and wireless

networking stack. These would be used to build an even more detailed profile."

A sample scenario is presented in the patent of a user beginning to watch a movie using a media player of the portable device. "The system can determine whether the battery can last for the duration of the movie based on the metadata of the movie. If the remaining power capacity of the battery cannot last that long, certain power management actions may be performed." Actions may include reducing other applications' performance, assuming the user is not likely to use those applications while watching the movie. The system may alternatively reduce the frame rate to reduce power consumption. If the system detects a relatively dark environment, as would occur in playing video games, the system may reduces the backlight of the display "to further reduce power consumption of a general-purpose processor such as a central processing unit (CPU) and/or to increase performance of a special-purpose processor such as a graphical processing unit (GPU)."

The basic goal is to dynamically configure operations in terms of a balance of performance and power consumption, to enhance the user experience of a portable device. Inventors are listed as Joshua De Cesare and Gaurav Kapoor.