

Method for Prevention of Accidental Overheating

As computers have evolved and become more portable, the use of laptops and netbooks has grown drastically. Commuters take their computers with them, typically in low power modes, more commonly known as Standby or Hibernation mode. In these modes, the computer saves power by turning off non-essential components of the system, which also reduces the generation of heat.

Unfortunately, for a variety of reasons, the system may not enter standby or hibernation mode. When this occurs, if the user stored the computer in an enclosed space, such as a bag, the machine quickly begins to overheat. Within a few minutes, the machine will reach a temperature where internal components can become damaged. Over time, these components will wear out, drastically reducing the lifespan of the machine. In some isolated cases, this has even led to the start of fires.

Currently, hardware sensors detect the core temperature of processors, and will cut power to the system after the temperature has reached a certain threshold. There is also software that will monitor the temperature of system components and fan speeds on PCs, and alert the user if set thresholds are exceeded. Neither of these solutions will properly deal with a machine that has been placed inside an enclosed space.

Detailed Description of Invention:

The conditions a machine experiences during peak use are different from the conditions experienced due to accidental overheating. The invention utilizes an algorithm that takes into account multiple variables to determine whether the system is in danger of accidental overheating. By tracking CPU usage when a temperature level threshold has been exceeded, it is determined whether the machine is experiencing prolonged heavy use, or whether it is idling. Since temperature within the chassis can significantly change if the machine is actively being used, the monitoring algorithm can track the use of the keyboard, mouse, speakers, and other input and output devices to profile the current user's interaction, and the current level of utilization of the system.

Figure 1.
Algorithm

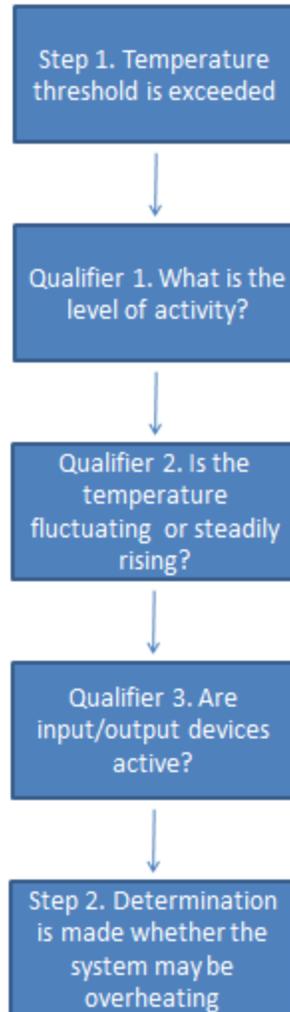


Figure 1 depicts a sample algorithm. In step 1, the system temperature has reached a specified threshold. The invention then utilizes multiple algorithms to analyze the likelihood that the system is experiencing accidental overheating. In this sample algorithm, three qualifiers determine whether the system is performing processor intensive tasks, whether the processor is being sporadically used or is performing lengthy operations, and whether the user is actively interacting with the system. Once this determination has been made, the invention takes appropriate action. If the temperature threshold is determined to have been reached due to normal use, no action is taken. If the invention has calculated that there is a significant likelihood that this is instead due to accidental overheating, the invention prompts the user to verify that they are still using the system, and initiates a countdown to a forced standby, hibernation, or shut down of the system to protect system integrity.

Example



CPU	3%
Temp	78°C
Mouse	10:05
Keyboard:	10:35
Display:	Off – Closed
Wireless:	Off