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WAKE FROM CAMERA SHUTTER WHEN NOTEBOOK IS IN TABLET MODE

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Wake from Camera Shutter when Notebook is in Tablet Mode

Abstract:

For some detachable notebook which supports notebook mode and tablet mode, sometimes power button is designed in notebook C-cover (Keyboard side), to prevent user miss touch keyboard or any buttons/click pads when user is using tablet mode, the C-cover functions is disabled or hid in tablet mode depends on system design. When user enters sleep in tablet mode by OS timer setting or low battery, user cannot use click pad or keyboard to wake up system and requires to transfer the notebook to notebook mode to wake up system which is very inconvenience.



Figure 1. Example for x360 (C-cover function is disabled in tablet mode) or detachable NB type (C-cover is hide in tablet mode)

Problem Solved:

This disclosure tells a method to help user easily wake up system in tablet mode by controlling camera shutter as camera shutter is famous design and recent detachable Notebook power button is no functional in tablet mode by above reasons.

Prior Solutions:

Wake on touch screen can mitigate this issue however still easy to mis-trip the wake event.

Descriptions:

Camera Shutter is requires user to hand control based, for example there is a plat in order to hide the camera lens in fig 2, there is a metal unit (Shutter support) behind and connecting to plat or plat is a metal unit, this metal unit (Shutter support) is designed always contacting system ground, and there are joints to EE circuit which is isolated with system ground and the plat(Camera Shutter) can contact these joints when user is open/hide the camera lens

Reference system block diagram are shown as fig.3, by using this topology

1. If Shutter is not contacting leftist and rightest joint, EC sense pin is detecting high
2. If Shutter is contacting leftmost and rightmost joint, EC sense pin is detecting low

By detecting H-L transfer, EC can understand if user like to use camera shutter wake up their PC by designed glitch filter and timer.

For example,

If EC is detecting GPIO change from L-H-L, when system in sleep, EC will notice CPU to wake up system by GPIO, below example allows user to keep their default camera shutter location as they want (Camera Lens is default hide or on) when system is wake from sleep.

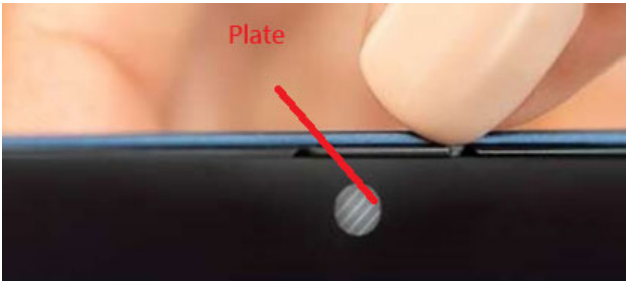


Figure 2. Mechanical based Camera Shuttle

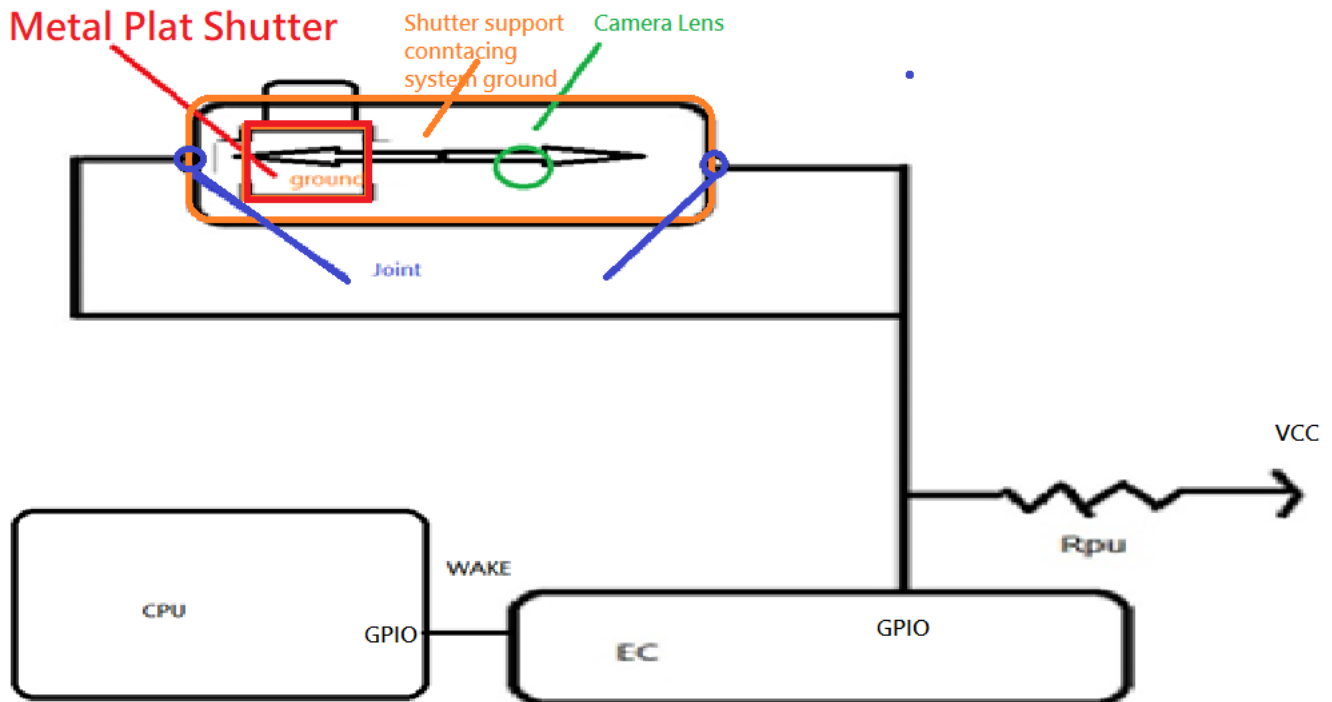


Figure 3. Example topology to support camera shuttle wakeup system.

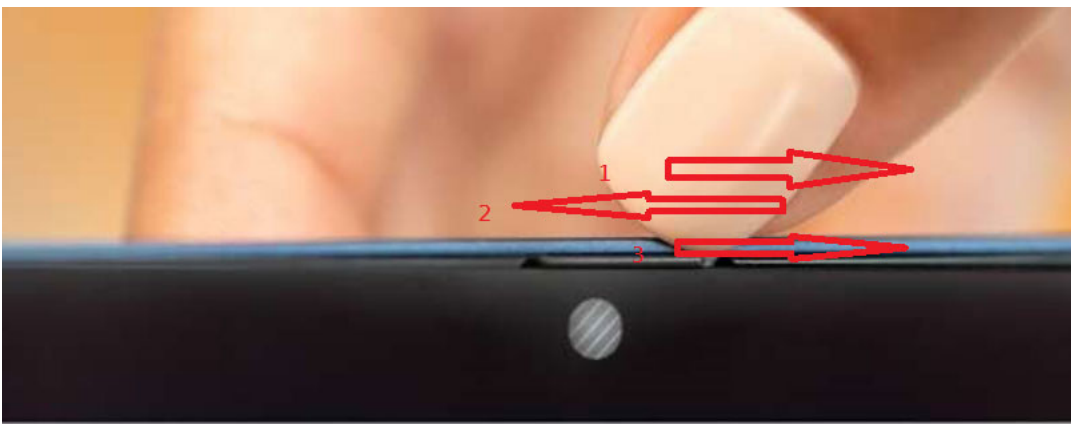


Figure 4. Example for a user to control camera shuttle to wake up system

Advantages:

This disclosure tells the topology to help to let user easily to wake up system for detachable NB when notebook is in tablet mode, without impacting current famous industry design (Power button on C-cover).

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