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MULTI ACTIVE PEN SUPPORT WITH UNIDIRECTIONAL PROTOCOL

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Multi Active Pen Support with Unidirectional Protocol

Abstract: Adding a Bluetooth module to a computing platform allows multiple active pens having only unidirectional protocol to be supported on the platform.

This disclosure relates to the field of computer input devices.

A technique is disclosed that enables multiple active pens with unidirectional protocol to operate simultaneously on one platform.

Active pens are computer input devices that include electronic components. The user of a computing device which has an active pen can write with the active pen directly on the surface of a display of the computing device, and in that manner provide user input to the computing device. As such, an active pen can be employed in the operation of a laptop or notebook computer, a tablet, or even a smartphone.

There are two kinds of pen protocols for active pen. One is unidirectional, such as AES 1.0 and MPP1.51/2.0. Unidirectional protocol provides only downlink capability. The other protocol is bidirectional, such as AES 2.0 and USI, which provides both downlink and uplink capability. It is easier to support multiple pens using bidirectional protocol than unidirectional protocol, because each pen can be assigned a different working frequency by communication. These frequencies are typically assigned by a touch controller. However, no uplink communication can assign a frequency to active pens with unidirectional protocol, so there are no prior solutions for multiple active pen support which operate with unidirectional protocol.

According to the present disclosure, and as understood with reference to the Figure, a Bluetooth module 10 is added to the platform. A software application 20, which controls the Bluetooth module 10 and a touch controller 30, provides the uplink communication needed to support multiple active pens on the same platform

There are two methods to support multi-pen capability. In the first method, the software 20 assigns a pen ID to a pen 40 via the Bluetooth module 20. In the second method, the software 20 assigns the beacon working frequency to a pen 40 via the Bluetooth module 20. The software 20 also informs the touch controller 30 as to how many pens are paired. Assigning the beacon working frequency typically provides better pen performance than assigning the pen ID.

The disclosed technique advantageously allows multiple active pens with unidirectional protocol to operate on a single platform via the Bluetooth module and software application.

Disclosed by Marty Chen and Shih-Jen Chang, HP Inc.

