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## ACTIVE STYLUS WIRELESS CHARGING DESIGN

HP INC

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## Active Stylus Wireless Charging Design

### Abstract:

This publication disclosed an active stylus wireless charging method on notebook PCs or tablet PC systems. The design target to improve active stylus charging design when compared with traditional micro USB or USB type-C charging method. The new design will take advantage of magnet attraction force to attract flexible mounted pogo pins to charge active stylus automatically. When active stylus is magnetically attached to notebook PC or tablet PC, the correspond magnet inside notebook PC or tablet PC will be attracted and pull out the pogo pins outward to charge active stylus. When the active pen is removed from notebook PC or tablet PC, the pogo pins will retract to default parking position inside the systems. The new design enabled active stylus charging without additional USB cable and provide better user experience on active stylus.

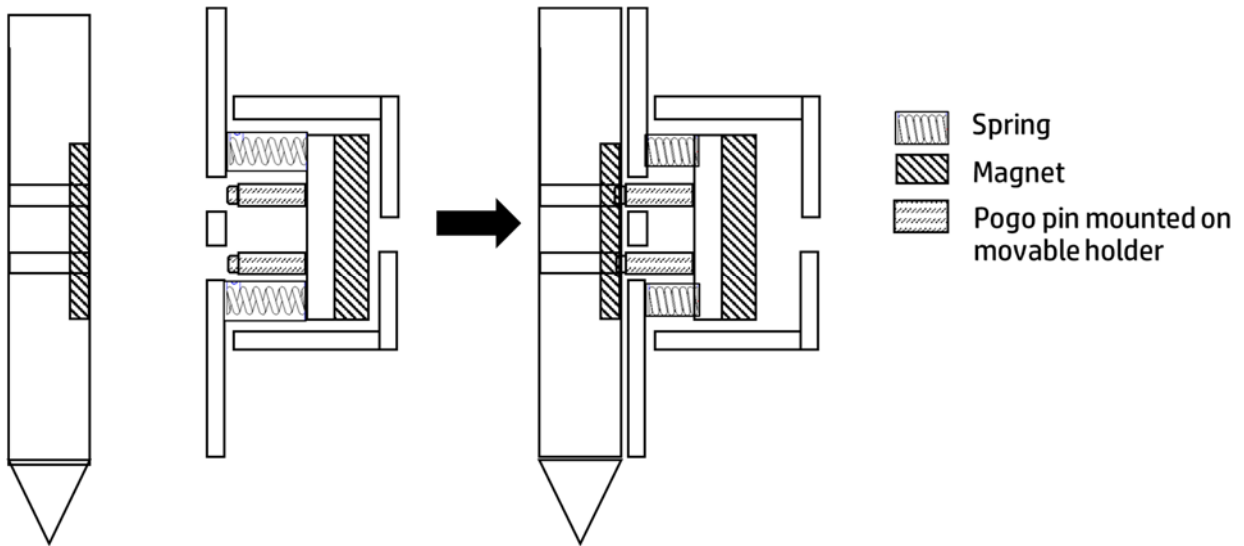
### Design Construction:

The wireless charging design consisted of two opposite polar magnet implementations on active stylus side and on notebook PC side. The different polar magnet design can increase the magnet attraction force for pen to attach on the notebook PC or tablet PC systems. The magnet on the system side is mounted on a pogo pin holder which has movable mechanical stage design. When the active stylus is attached on the notebook PC or tablet PC, the system side magnet will be attracted and make the pogo pin holder shifting to active pen direction. By shifting the pogo pin holder location outward, pogo pin will contact the charging pad on the active stylus and start charging the active stylus. In this design, there are two spring mechanism inserted between the system side wall and pogo pin holders. The purpose of two mechanical spring can push the pogo pin holder to the original holder location and prevent keeping pogo pins outside the system and cause pogo pin damages. When users remove the active stylus from system, the magnetic attraction force disappeared, and spring will push pogo pin holders to default location.

### Software Application:

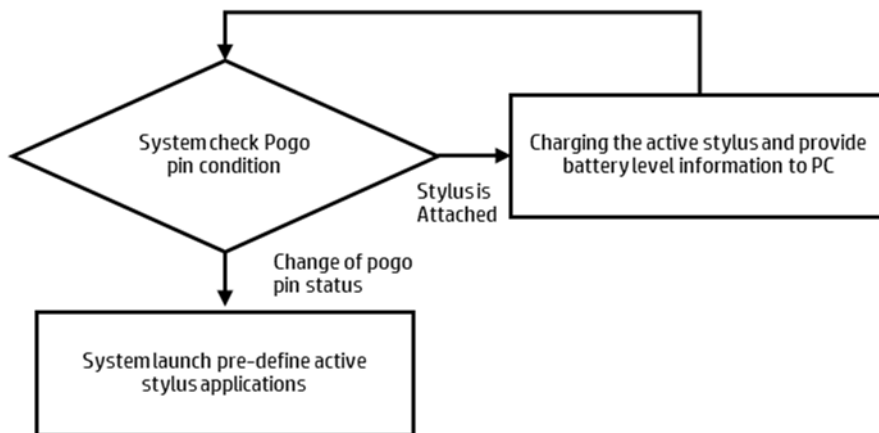
The pogo pins in the system side can also be used to detect whether pen is attached on the system or not and act as communication interface with host systems. For example, when systems detect the pen is magnetically attached on the system and pogo pin contacted the active stylus, the battery level of active stylus can be detected. Another example is when users remove the active stylus from the host systems, host systems can response to the action and pop up active stylus application accordingly.

<Drawing>



**Software Application:**

<Flow Chart>



**Disclosed by Tai-Hsiang Chen, Wisdom Huang and James Pan, HP Inc.**