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XiaoPing

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(54) **APPARATUS AND METHODS FOR DETECTING A CONDUCTIVE OBJECT AT A LOCATION**

(75) Inventor: **Jiang XiaoPing**, Shanghai (CN)

(73) Assignee: **Cypress Semiconductor Corporation**, San Jose, CA (US)

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This patent is subject to a terminal disclaimer.

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USPC **345/173**; 345/174; 345/179; 178/18.01; 178/18.06

(58) **Field of Classification Search**
USPC 345/173, 174
See application file for complete search history.

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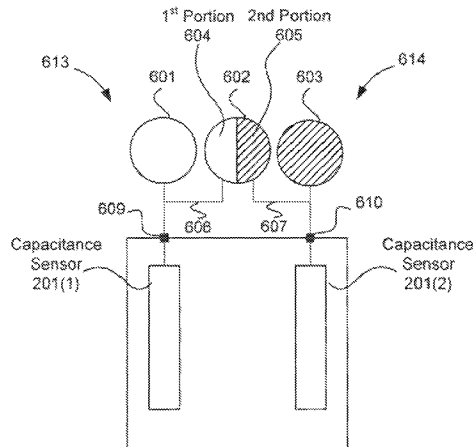
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Primary Examiner — Bipin Shalwala
Assistant Examiner — Benyam Ketema

(57) **ABSTRACT**

A method and apparatus to determine capacitance variations of a first number of two or more sense elements of a touch screen device. A processing device is configured to detect a presence of a conductive object on any one of a second number of three or more button areas of the touch screen device. The first number of sense elements is less than the second number of button areas. The processing device is further configured to recognize an activation of one of the three or more button areas using the determined capacitance variations of the first number of two or more sense elements.

20 Claims, 10 Drawing Sheets



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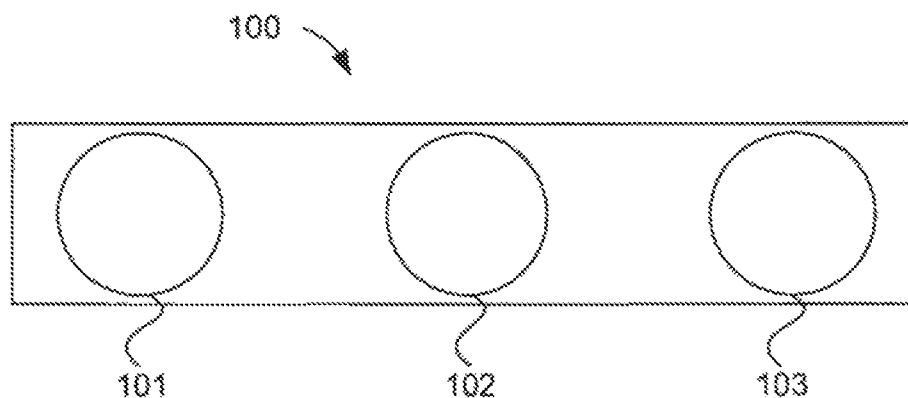


FIG. 1A

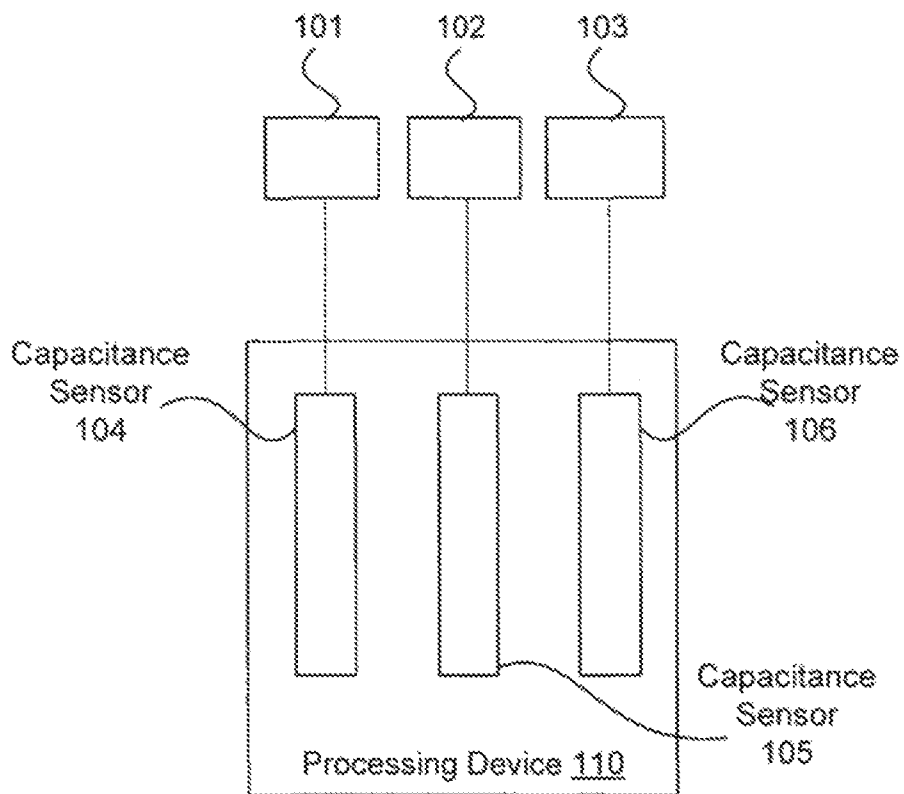


FIG. 1B

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