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Zhuang et al.

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(54) **ELECTRONIC DEVICE AND METHOD FOR DETERMINING A TOUCH INPUT APPLIED TO A CAPACITIVE TOUCH PANEL SYSTEM INCORPORATED THEREIN**

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(51) **Int. Cl.**
G06F 3/045 (2006.01)

(52) **U.S. Cl.**
USPC **345/173**

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

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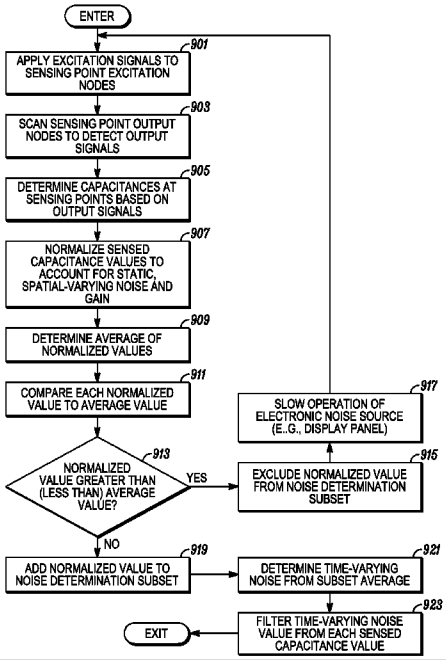
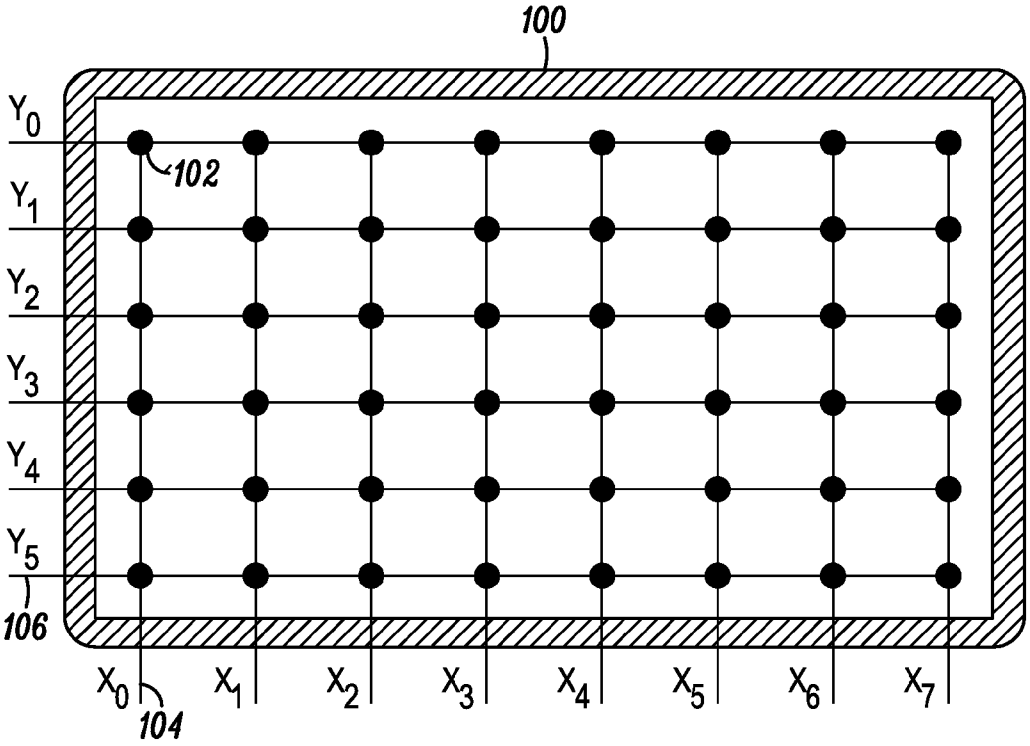
Assistant Examiner — Tony Davis

(57) **ABSTRACT**

An electronic device is operable to determine a touch input applied to a capacitive touch panel system thereof so as to account for time-varying noise affecting the touch panel system. The electronic device includes the touch panel system, an analog-to-digital conversion (ADC) unit, and a processing unit. The processing unit is operable to: receive digital signal values from the ADC unit representing capacitances detected by sensing points of the touch panel system; adjust at least one of the digital signal values based at least on a time-varying noise to produce at least one noise-adjusted value; and determine the touch input based on the at least one noise-adjusted value. In one embodiment, the electronic device determines the time-varying noise prior to adjusting the digital signal values. In another embodiment, the time-varying noise is produced by a display panel of a touchscreen display that also includes the touch panel system.

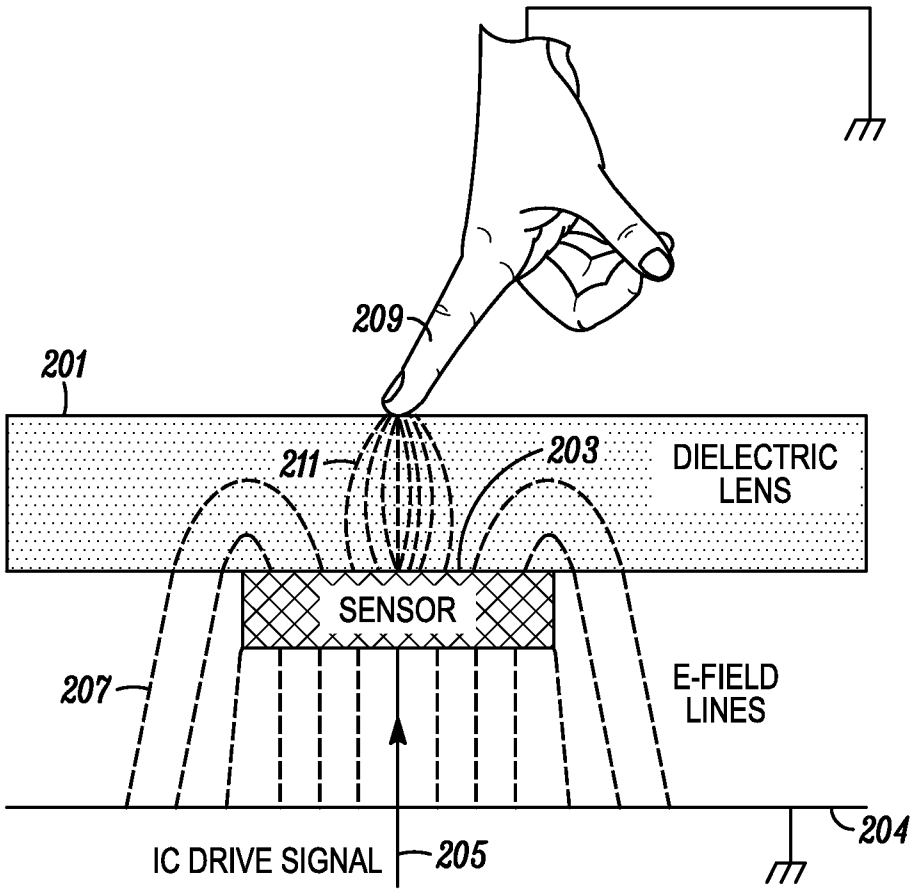
41 Claims, 11 Drawing Sheets





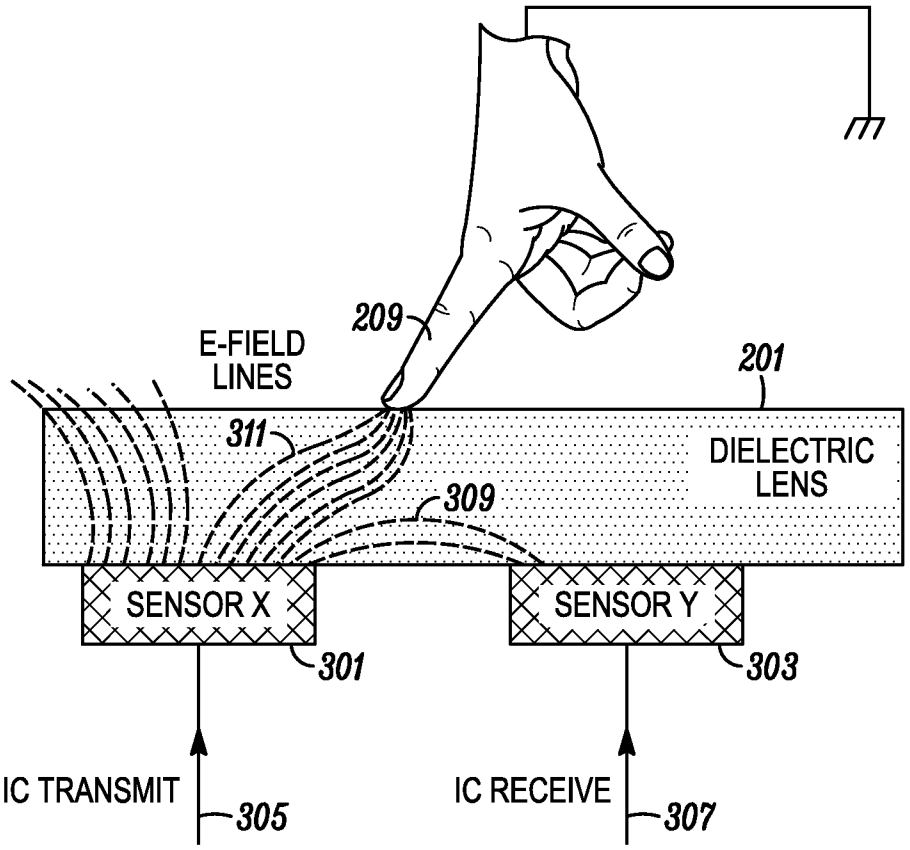
(PRIOR ART)

FIG. 1



(PRIOR ART)

FIG. 2



(PRIOR ART)

FIG. 3

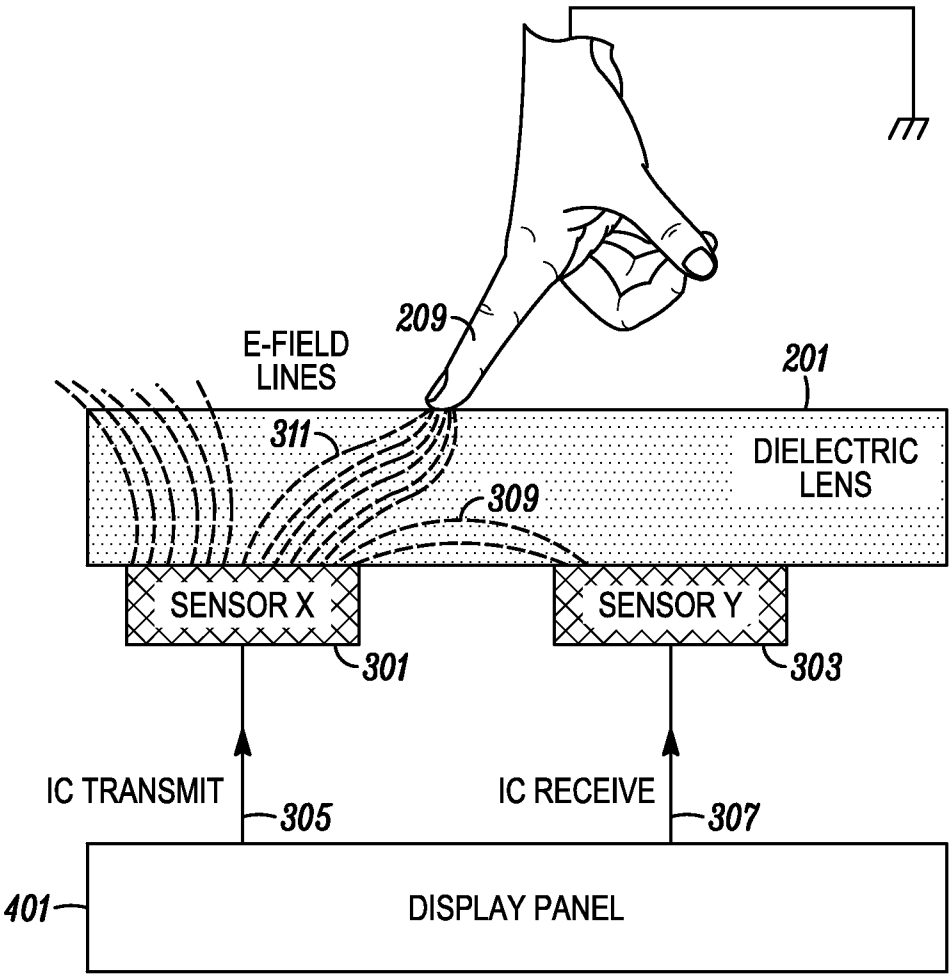


FIG. 4

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