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Xiao et al.

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(54) **MULTI-TOUCH DISAMBIGUATION**

(56) **References Cited**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 313 days.

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Related U.S. Application Data

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

(52) **U.S. Cl.**
USPC **345/174; 345/156; 345/173**

(58) **Field of Classification Search**
USPC 345/156, 173-174
See application file for complete search history.

U.S. PATENT DOCUMENTS

5,495,077	A *	2/1996	Miller et al.	178/18.06
5,872,561	A *	2/1999	Figie et al.	345/168
7,428,191	B1 *	9/2008	Klein	368/82
7,982,723	B2 *	7/2011	Ningrat	345/174
2008/0150906	A1 *	6/2008	Grivna	345/173
2009/0096757	A1 *	4/2009	Hotelling et al.	345/173
2009/0128516	A1 *	5/2009	Rimon et al.	345/174
2009/0160787	A1 *	6/2009	Westerman et al.	345/173
2010/0007631	A1 *	1/2010	Chang	345/174
2010/0039405	A1 *	2/2010	Chen et al.	345/174
2010/0073301	A1 *	3/2010	Yousefpor et al.	345/173
2010/0097328	A1 *	4/2010	Simmons et al.	345/173

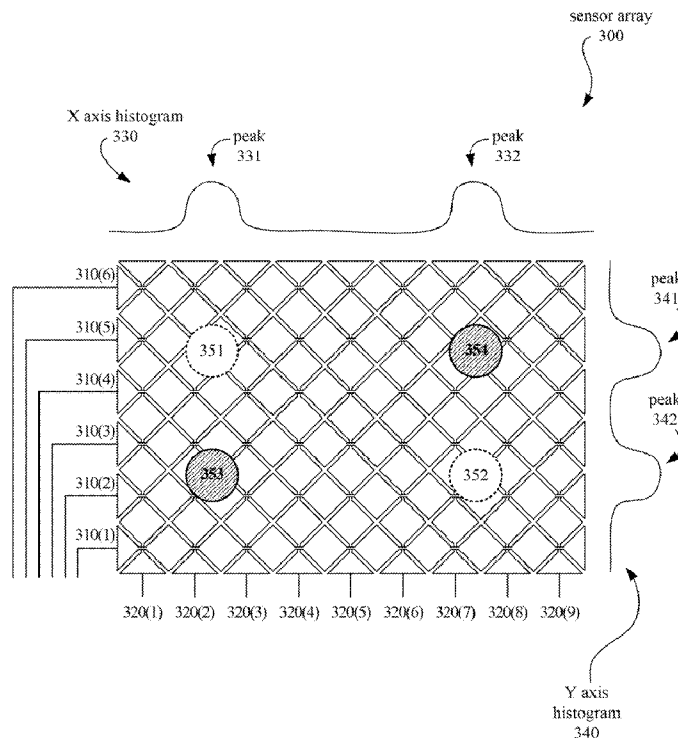
* cited by examiner

Primary Examiner — Christopher E Leiby

(57) **ABSTRACT**

Identification of at least one of a plurality of possible touch locations as an actual touch location may include detecting a plurality of possible touch locations at a touch sensing surface, wherein detecting the plurality of possible touch locations comprises performing a resolve scan of at least a first sensor element at the touch sensing surface, where the first sensor element corresponds to at least a first coordinate of the plurality of coordinates.

18 Claims, 16 Drawing Sheets



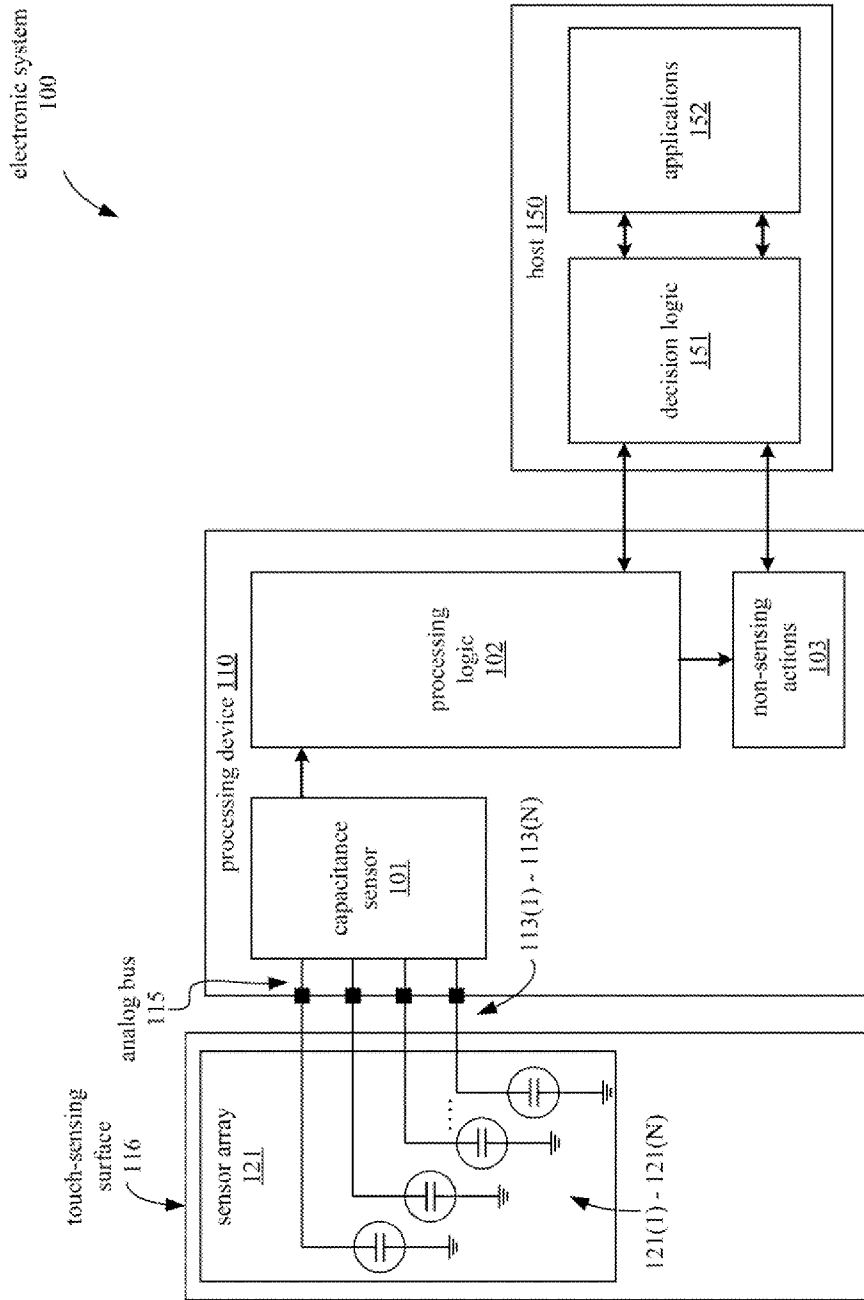


FIGURE 1

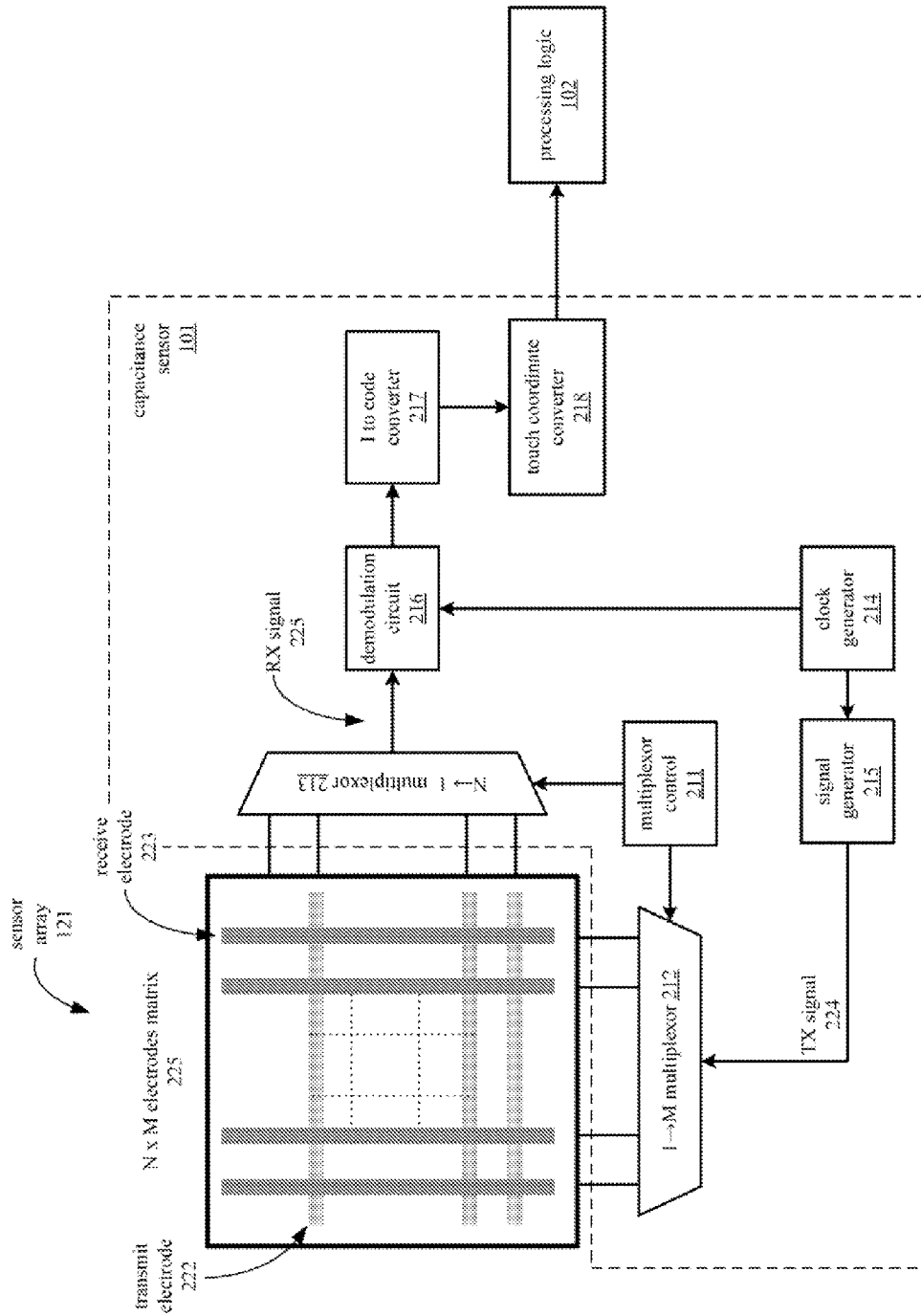


FIGURE 2A

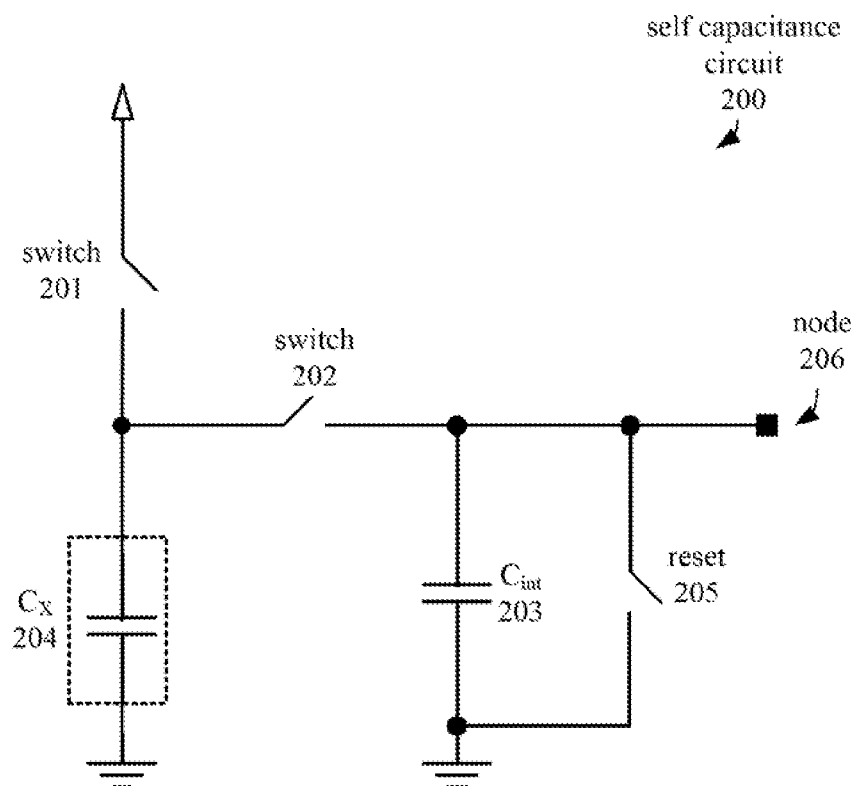


FIGURE 2B

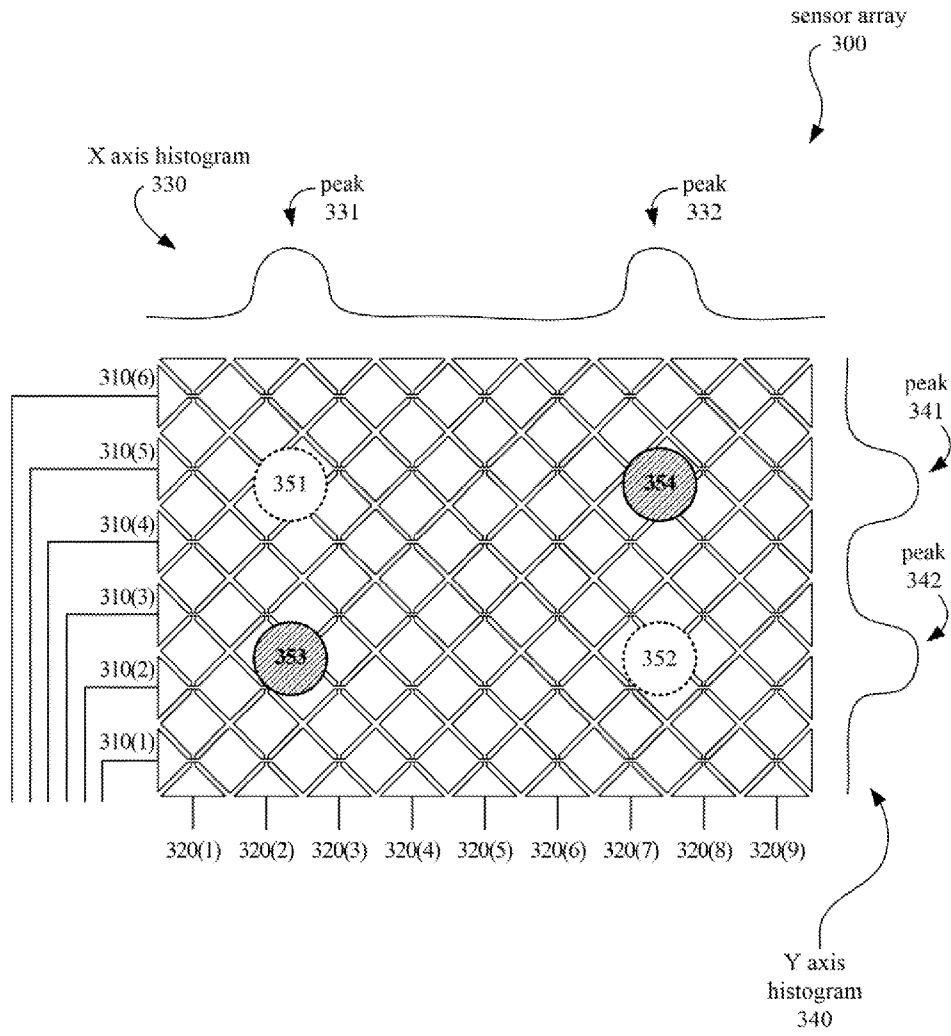


FIGURE 3

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