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Kalendra et al.

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[54]	AUTOMATIC CALIBRATION OF A CAPACITIVE TOUCH SCREEN USED WITH A FIXED ELEMENT FLAT SCREEN DISPLAY PANEL		
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[21]	Appl. No.:	94/	,088	
		_		

[22]	Filed:	Sep.	21.	1992
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[51]	Int. Cl.5	 	G 0	9G 5	/00
[52]	U.S. Cl.	 345/	168;	345/	156

1281	Field o	i Search	 340//	ס, ו	12;	1/0/	10,
			178/19				

References Cited [56]

U.S. PATENT DOCUMENTS

4,305,135	12/1981	Dahl et al	341/33
4,476,463	10/1984	Ng et al	340/712
		Gifft	
4,680,429	7/1987	Murdock et al	178/19
4,707,845	11/1987	Krein et al	178/19
4,710,758	12/1987	Mussler et al	340/712
4,710,759	12/1987	Fitzgibbon	340/712

4.737.773	4/1988	Kobayashi 340/707
4,745,565	5/1988	Garwin et al 364/571
		Meadows et al 178/19
4,903,012	2/1990	Ohuchi 340/709
4.929.935	5/1990	Rysavy et al 340/712
5,008,657	4/1991	Hanson et al 340/766

OTHER PUBLICATIONS

IBM Technical Disclosure Bulletin, "Self-Calibration and Coordinate Conversion for a Touchpad or Touch Screen Computer Input Device", vol. 30, No. 4, Sep. 1987, pp. 1663-1666.

Primary Examiner-Alvin E. Oberley Assistant Examiner-V. Chang

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ABSTRACT

A touch screen display is automatically calibrated during periods of active use or extended periods of non-use. Calibration contacts are cemented or embedded to the surface of a touch sensitive panel, and electrically connected to a reference during calibration. The reference is either electrical ground or a resistive, capacitive, or inductive load.

19 Claims, 5 Drawing Sheets

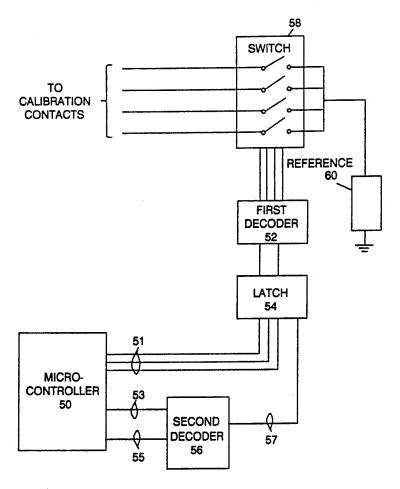




FIG. 1

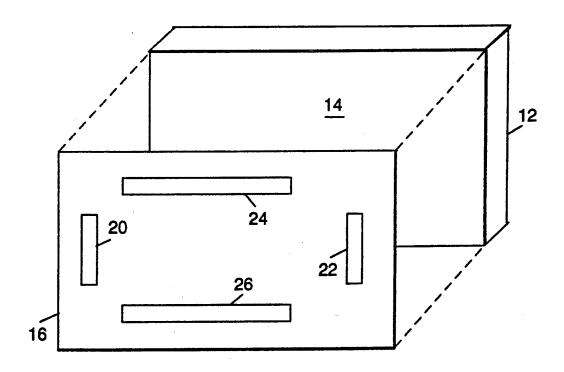


FIG. 2

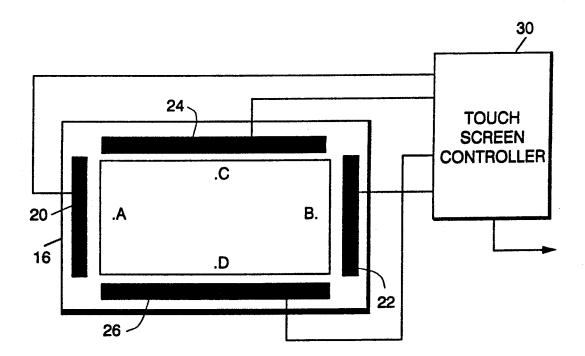


FIG. 3

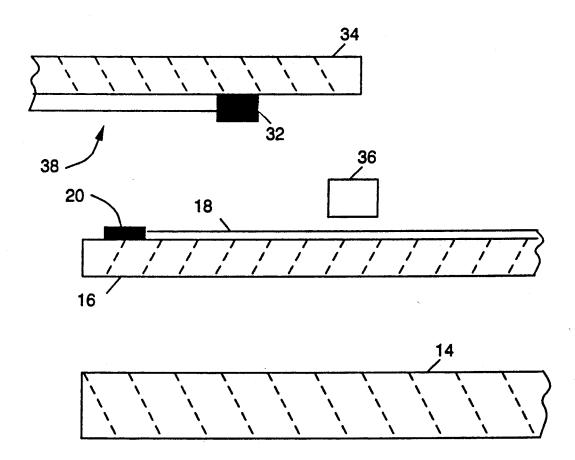
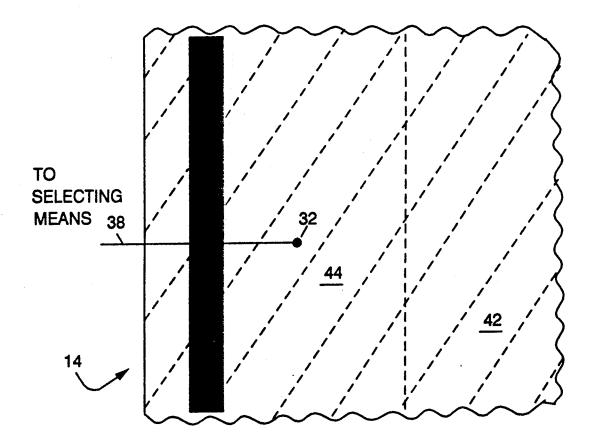


FIG. 4



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