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| (60) Parent Application or Grant<br>(63) Related by Continuation<br><b>US 08/492,655 (CIP) 20 June 1995 (20.06.95)</b>                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                       |
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(54) Title: **CAPACITIVELY COUPLED MULTIPLE AXIS DATA INPUT APPARATUS AND METHOD**

## (57) Abstract

A capacitively coupled, six axis joystick (320) employs a sensor electrode (310) having a perpendicular pair of slots (312, 314) and a fixed electrode assembly (300) having capacitor electrodes ( $C_a$ ) formed on three mutually orthogonal surfaces of planar circuit boards (302, 304, 306) that are complementarily nested within the slots of the sensor electrode. When nested together, the capacitor electrodes are separated from faces of the sensor electrode by spacings that depend on the rotational and translational movements of the sensor electrode relative to the electrode assembly. A signal generator (352) and address decoder (354) sequentially apply an alternating signal to the capacitor electrodes. The alternating signal is coupled to the closest associated faces of the sensor electrode to a degree dependent on the rotation- and translation-induced spacings. A controller (350) detects and processes each coupled signal voltage to determine a degree of deflection of the sensor electrode in the X-, Y-, Z-, roll-, pitch-, and yaw-axis directions.

