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(54) Title: ACCELEROMETER BASED REMOVAL AND INVERSION TAMPER DETECTION AND TAP SWITCH FEATURE

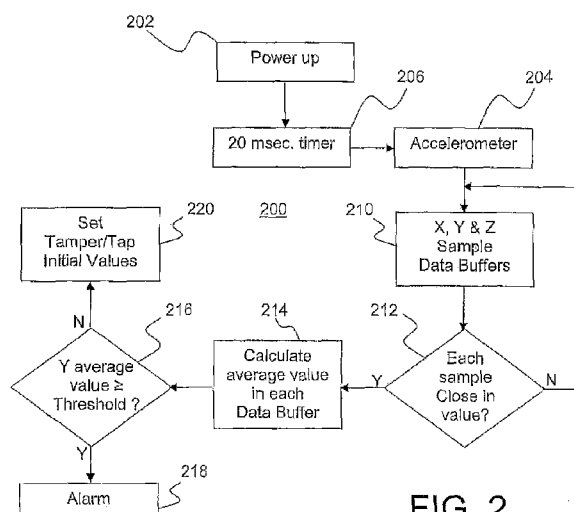


FIG. 2

(57) Abstract: Disclosed are apparatus and methodologies for detecting inversion tamper, removal tamper, and taps using a three-axes accelerometer sensor in a utility meter environment. Inversion tamper is detected upon power up if the acceleration value along Y axis is greater than or equal to some small positive threshold. Removal tamper is detected if the average acceleration change of both Y and Z axes is greater than or equal to the removal threshold. A tap is detected if the average acceleration change along the X axis is greater than or equal to the tap threshold. The initial acceleration values are set upon power up. Removal tamper detection and tap detection are distinguished using a moving average filter. Tap detection uses timing constraints to avoid false tap detections.