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(54) **Method and device for calibrating a magnetic sensor**

(57) According to the method for calibrating a magnetic sensor, measurements (M_i) are acquired from a magnetic sensor (11) during a non-pre-ordered movement, and a plurality of sets of solutions ($SSET_K$) are determined for respective expected values (H_K) of intensity of the Earth's magnetic field. The solutions (S_K) are defined by a plurality of parameters, amongst which a gain value (GM_X , GM_Y , GM_Z) for each detection axis (X' , Y' , Z') of the magnetic sensor (11). For each solution (S_K)

a figure of merit ($E(S_K)$) is then determined, correlated to a calibration error, and a partial solution (S_{KB}) is selected in each set of solutions ($SSET_K$), on the basis of the figure of merit ($E(S_K)$). Once a gain confidence interval (I_G) has been defined, a calibration solution (S_{CAL}) is selected on the basis of the figure of merit ($E(S_K)$), from among the partial solutions (S_{KB}) having respective gain values (GM_X , GM_Y , GM_Z) all falling within the gain confidence interval (I_G).

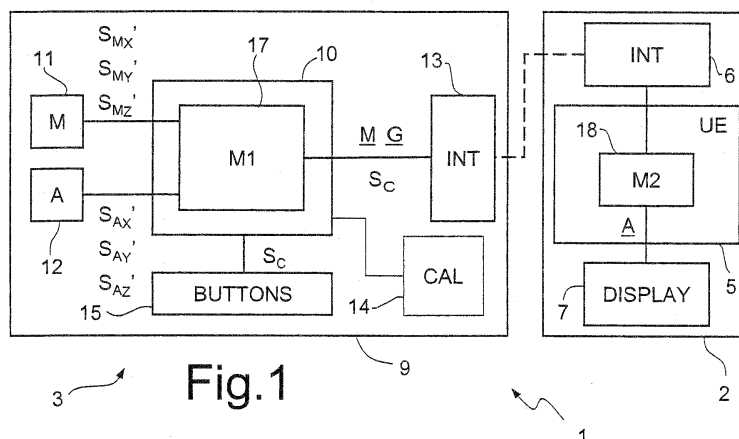


Fig.1