

corresponding motor centre (M) requires promotion or inhibition.

5. The system according to claim 4, wherein the values of the respective weights (w_i^+ , w_i^-) are calculated according to the following equation:

$$\Delta w_i(t) = g \sum_{j=1}^{\tau} c_j | w_i(t-j) | [\Delta x_i(t-j)]^+$$

where $[\Delta x_i(t-j)]^+ = \max(\Delta x_i(t-j), 0)$, $\Delta w_i(t)$ represents the change made at time t to the weight applied to the signal (x_i) output by the sensor (S_i), that is, the change in the value of the weight applied for the time interval t and that applied for the time interval t+1, $\Delta x_i(t-j)$ represents the change observed at time interval (t-j) in the value of the signal (x_i) output by the sensor (S_i), that is, the change in the value of the signal x_i between that observed during time interval t-j-1 and that observed during time interval t-j, τ is a positive constant indicative of a time period over which the system holds data for determination of $w_i(t)$ and $\Delta x_i(t)$, c_j is an empirically-determined learning-rate constant that is proportional to the effectiveness of the conditioning when the inter-stimulus interval is j, and g is 1 when the weights are being updated and 0 when the weights are not being updated.

6. The system according to any previous claim, wherein the plurality of sensors include at least one sensor responding to internal conditions in the system.
7. The system according to any previous claim, wherein the at least one actuator includes an actuator regulating an internal condition in the system.
8. The system according to any previous claim, wherein said at least one second sensor (S_B) is adapted to detect activity by a user indicative of whether or not the generation of said output signal (O_3) for activating the actuator is appropriate at that time.
9. The system according to any previous claim, incorporated into an alarm generation device.
10. The system according to any previous claim, incorporated into a device providing situated personal assistance, wherein said at least one second sensor (S_B) is adapted to detect activity by a user indicative of whether or not the generation of said output signal (O_3) for activating the actuator is appropriate at that time.