Computer application using low cost smart sensor

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Abstract

Sensors with local processing power react to local conditions without referring back to the central controller. The size and cost of smart sensor circuit have been reduced. This reduction is obtained by the use of microcontroller (pic16c715) with an 8-bit ADC (analogue to digital converter) in one chip. The reduction in size allows the primary sensor to incorporate with signal processing circuit in one unit, and the lookup table should be modified accordingly. The program mobility of smart sensor enables the system to perform self-calibration routine by applying a known input voltage signal, where its corresponding expected value is stored in the self-calibration code. The smart sensor performs the self-calibration routine for every new measurement value to adapt for any changes in the system environments such as temperature drift.

Keywords

smart sensor, microcontroller, programmability, signal processing, calibration routine

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