

Sensor Interface

Motivation

A typical wireless body area network (WBAN) node includes one or more biomedical sensors, a sensor interface, and a wireless transceiver. The sensor interface usually contains a low noise amplifier, an analog-to-digital converter, and a signal processing unit. In order to process signals from different types of biosensors, the sensor interface needs to be programmable. This project aims to develop a low power reconfigurable mixed signal processing platform to interface with different types biomedical sensors. (75 words)

Objective

To develop a low power reconfigurable mixed signal processing chip for biosensors in the wireless body area network. (18 words)

Scope

One of the goals in the development of wearable devices is to reduce the power dissipation. For a signal processing unit that deals with different types of biosensors, reconfiguration is an efficient way to lower the power consumption. Ideally, the unit should be able to reconfigure its circuit blocks depending on the input signal in order to save power. The mechanism for reconfiguring analog and digital circuit blocks is the main focus of this project. (75 words)

Innovative Ideas

By introducing reconfigurable feature into sensor interface unit, the input signal will be processed according to an associated cost. This cost decides how much processing is done in analog domain and leaves the rest to the microprocessor/DSP. (38 words)

Demonstrable Activities

We aim to develop a prototype of low power reconfigurable mixed signal processing chip for biosensor applications. (17 words)

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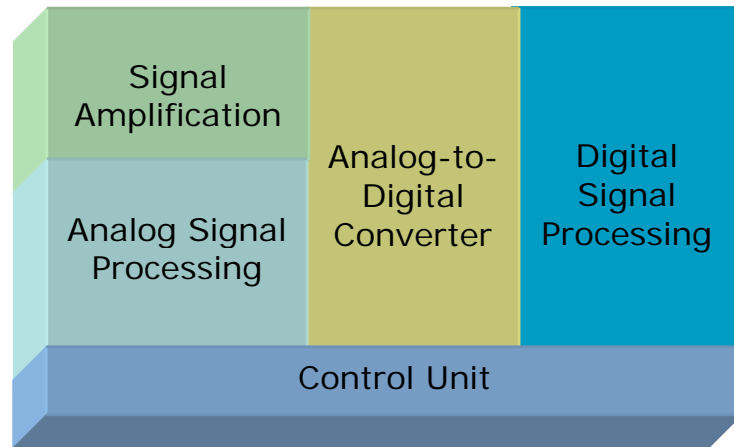


Fig. 1 Block diagram of the reconfigurable signal processing unit