

A CONFIGURABLE AND LOW-POWER MIXED SIGNAL SOC FOR PORTABLE ECG MONITORING APPLICATIONS

ABSTRACT

The word embedded means it is built into the system. it is a permanent part in a bigger system. For example, a controller is embedded in an elevator and tells the motor to move the elevator to different floors based on buttons that are pushed. a decoder is embedded in a satellite television set-top box to read a signal from the dish and send something that a TV understands. Often this type of system must do its work in a specific amount of time. This is called real-time computing. if a set-top box got interrupted to do another task, you would see a bad picture on the tv, for example. a general purpose computer will quite often have short pauses while it does something else, it is not real-time.

Because many embedded systems are built to only perform a few very specific tasks they often do not need a full operating system. Some embedded systems use specially-built small and simple operating systems that start very quickly, others do not need one at all. Embedded systems are not adapted as easily, but they are built to perform their tasks much more reliably. Because the hardware is simpler, it is also often cheaper to build and runs faster.

This paper describes a mixed-signal ECG system-on-chip (soc) that is capable of implementing configurable functionality with low-power consumption for portable ECG monitoring applications. a low-voltage and high performance analog front-end extracts 3-channel ECG signals and single channel electrode-tissue-impedance (ETI) measurement with high signal quality.

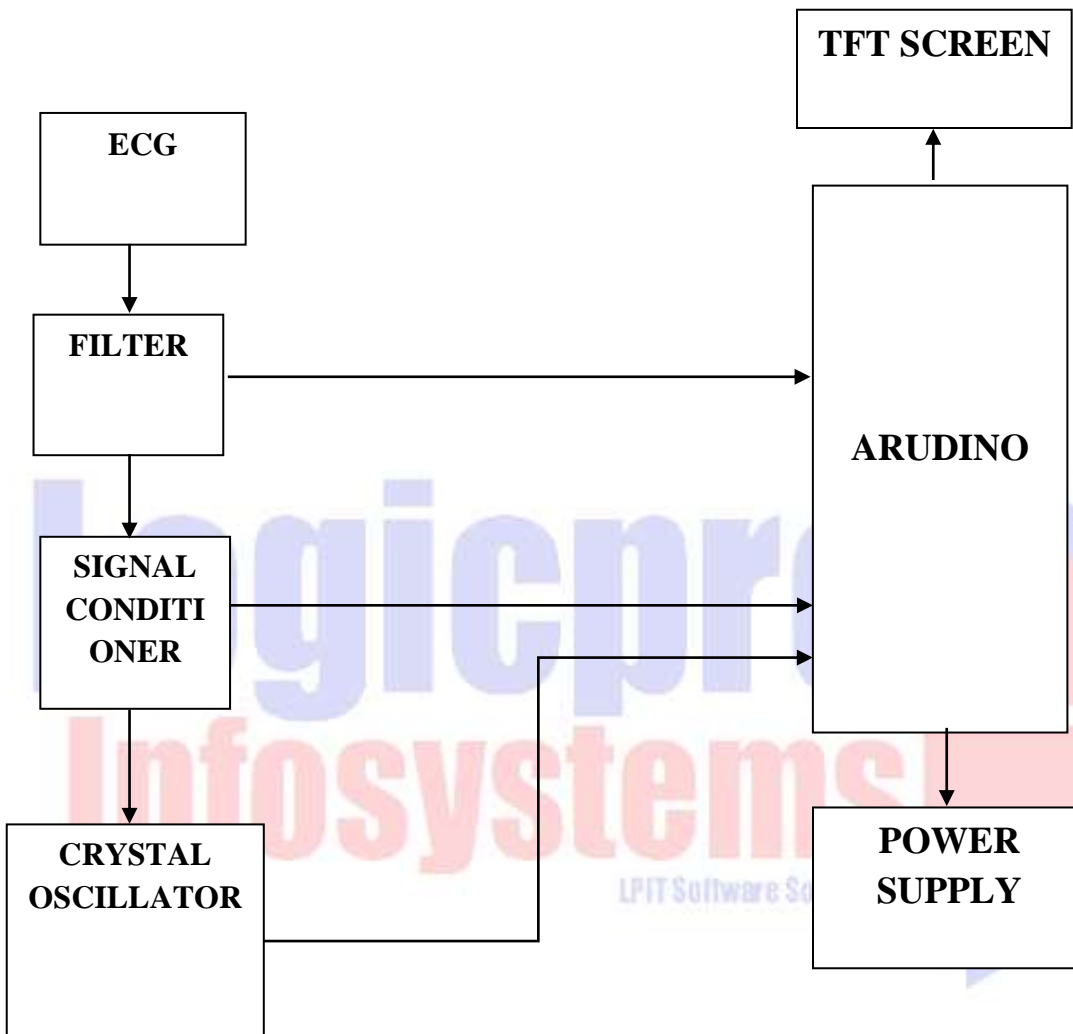
This can be used to evaluate the quality of the ECG measurement and to filter motion artifacts. a custom digital signal processor consisting of 4-way SIMD processor provides the configurability and advanced functionality like motion artifact removal and r peak detection.

A built-in 12-bit analog-to-digital converter (ADC) is capable of adaptive sampling achieving a compression ratio of up to 7, and loop buffer integration reduces the power consumption for on-chip memory access. the soc is implemented in 0.18 μm CMOS process and consumes 32 μW from a 1.2 v while heart beat detection application is running, and integrated in a wireless ECG monitoring system with Bluetooth protocol. Thanks to the ECG soc, the overall system power consumption can be reduced significantly.

PROPOSED SYSTEM

in this system, we proposed ECG sensor for monitoring the electrical human activity of the heart and the sensor parameter values of human being is monitored using thin film transistor liquid crystal display(TFT).by implementing this we can able to identify the electrical activity of the human being and also we can see and monitored using TFT.

BLOCK DIAGRAM:



HARDWARE REQUIREMENTS

- ARUDINO
- ECG SENSOR
- FILTER
- ADC
- TFT SCREEN

SOFTWARE REQUIREMENTS

- ARUDINO COMPILER
- PROTEUS SOFTWARE

