

Apparatus and Methods of RFID Sensing System

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1. Abstract

An embodiment including a RFID (Radio Frequency Identification) system, transponder or tag, and the interface must be able to receive measuring signals from the analog measuring devices or sensor modules. The RFID device and the interface are integrated as a single die. This single die is configured to not only transmit typical RFID signals, but also the indicative value from the analog measuring device to the interrogator or reader, and then, becomes human readable value.

2. Introduction

Electronic identification devices, such as radio frequency identification devices (RFID transponders, or tags), are commonly applied in the current market. For example, these devices are typically used for inventory tracking, entry checking, animal tracking, etc. In the embodiment of the present study, the universal radio frequency identification sensing system has three different interface architectures.

2. System Architecture

A RFID sensing system comprising: an integrated circuit having a single die including a clock as a clock generator, an analog front end as a transceiver, a digital control unit coupled to said clock and said analog front end, a memory unit coupled to said digital control unit, and a power management configured to distribute power; and said single die further including a digital to analog converter with digital inputs coupled to the outputs of said digital control unit, and an analog output of said digital to analog converter coupled to a comparator first analog input; and said single die further including a comparator output coupled to the input of said digital control unit, and a comparator second analog input configured to receive an analog measuring device or sensor module output.

3. Result and Discussion

This study relates to systems and methods for performing wireless communication and monitoring parameters of sensor units/devices. This study also relates to the radio frequency identification devices, sensors, and communicated interfaces between radio frequency identification devices and sensors.

5. Conclusion

The single die as a universal radio frequency identification sensing system is comprised of a radio frequency identification device, which provides a signal to identify the device in response to an interrogation signal. In addition, the single die further comprises the interface is coupled to the outputs of analog measuring device or sensor module. The universal radio frequency identification sensing system is configured and embodied to transmit an indicative signal of an analog measuring device by using RFID communication method.

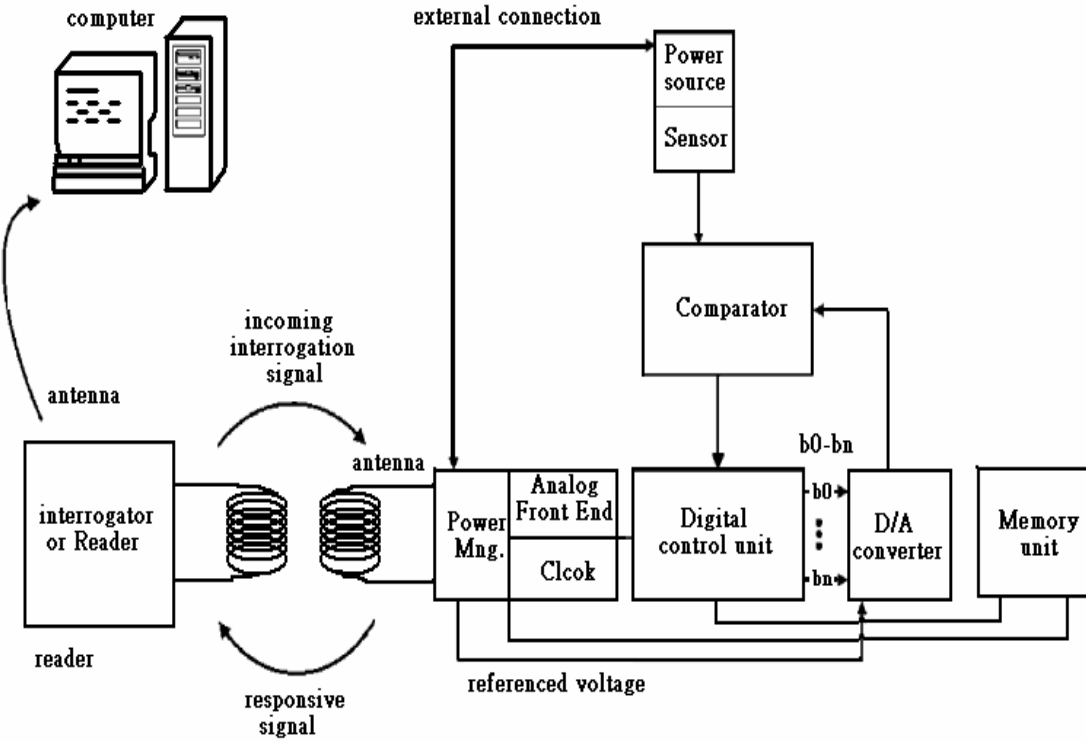


FIG.1

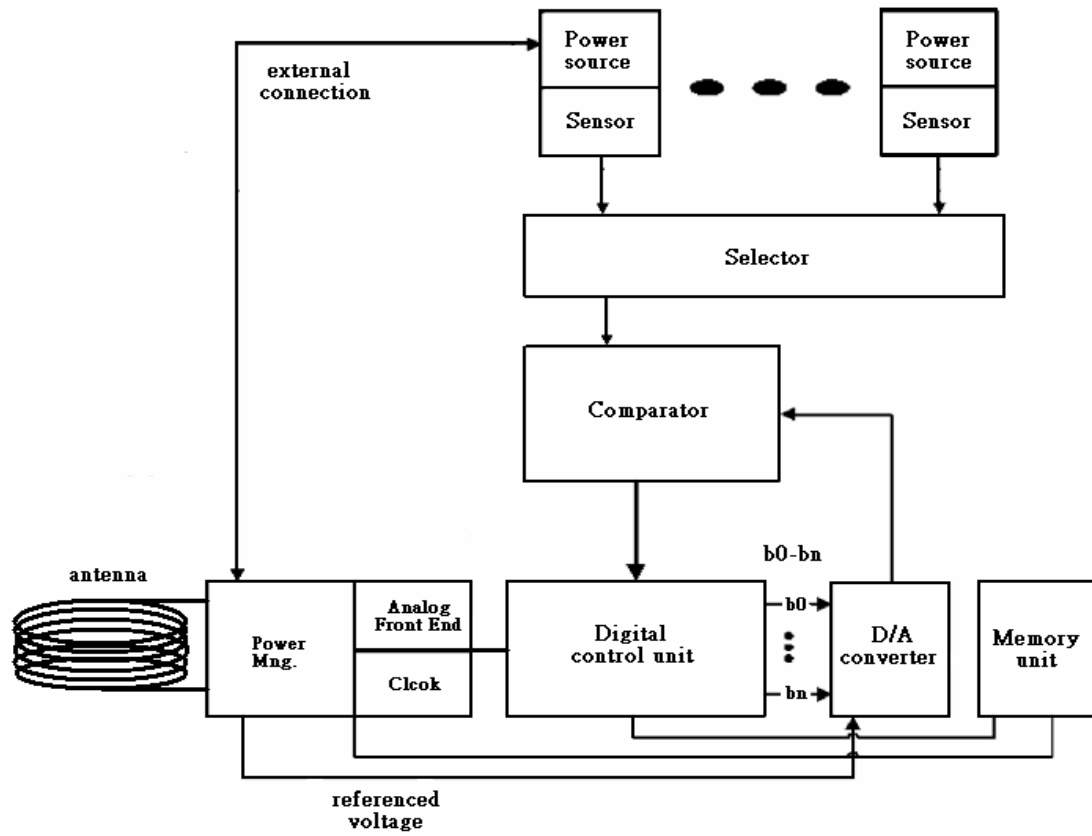


FIG.2

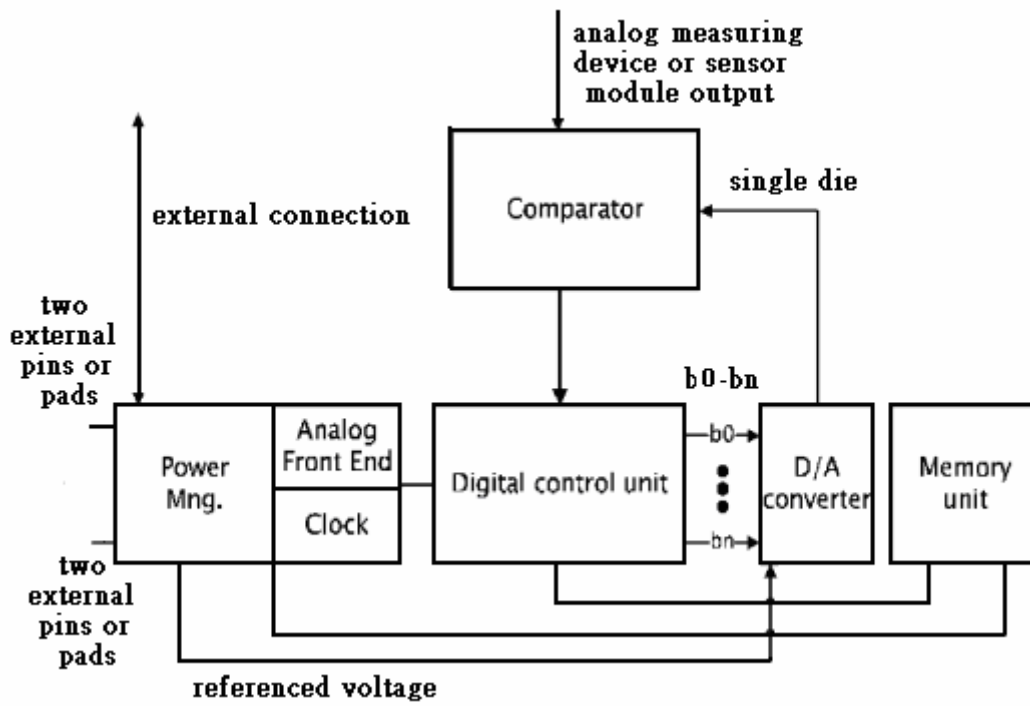


FIG.3

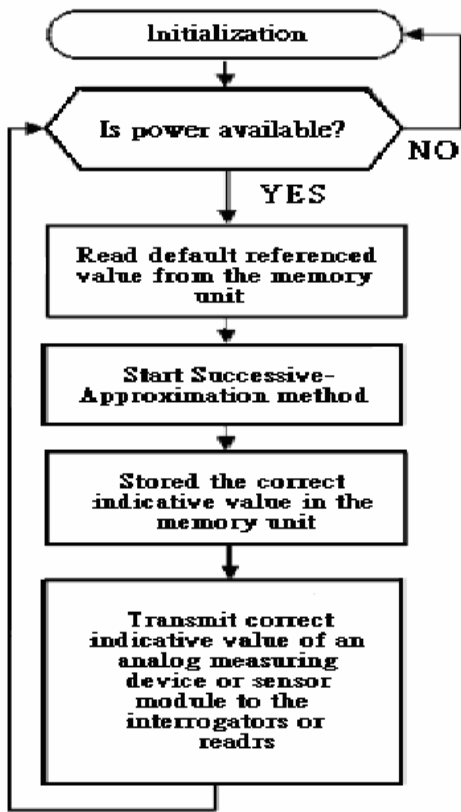


FIG.4

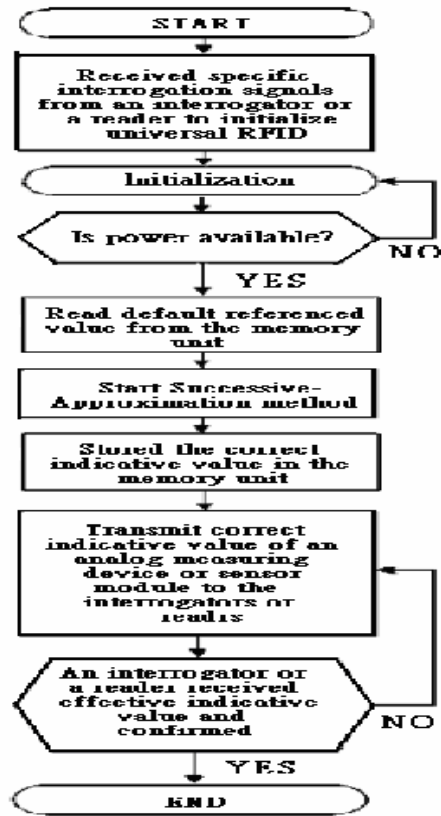


FIG.5

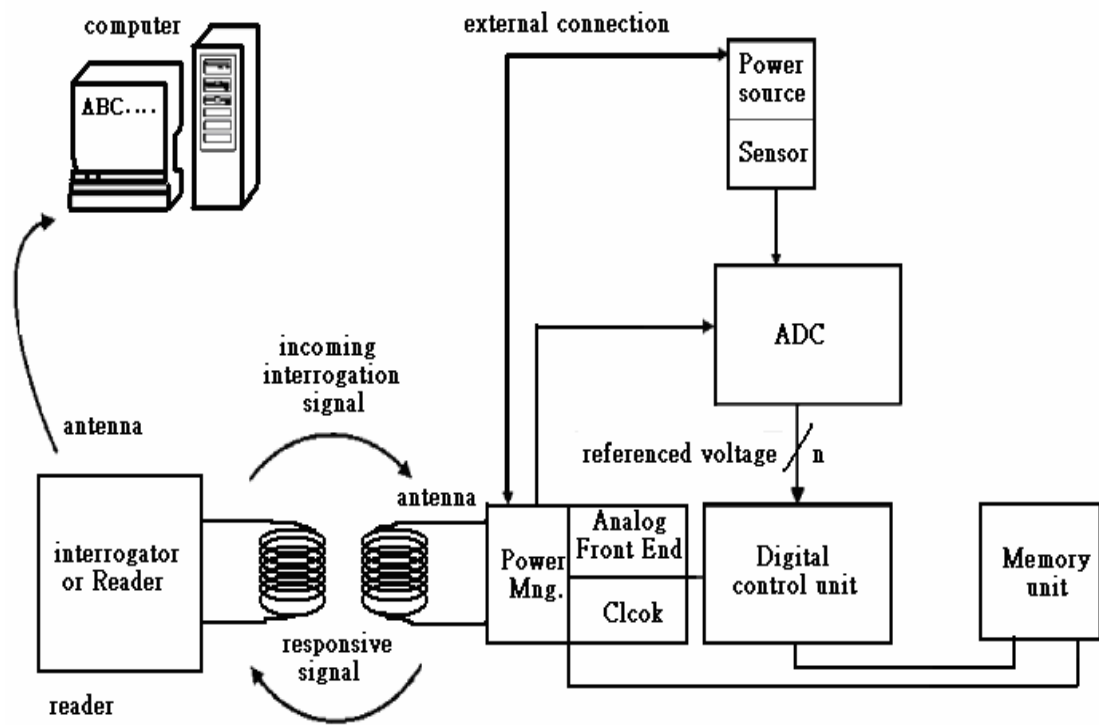


FIG.6

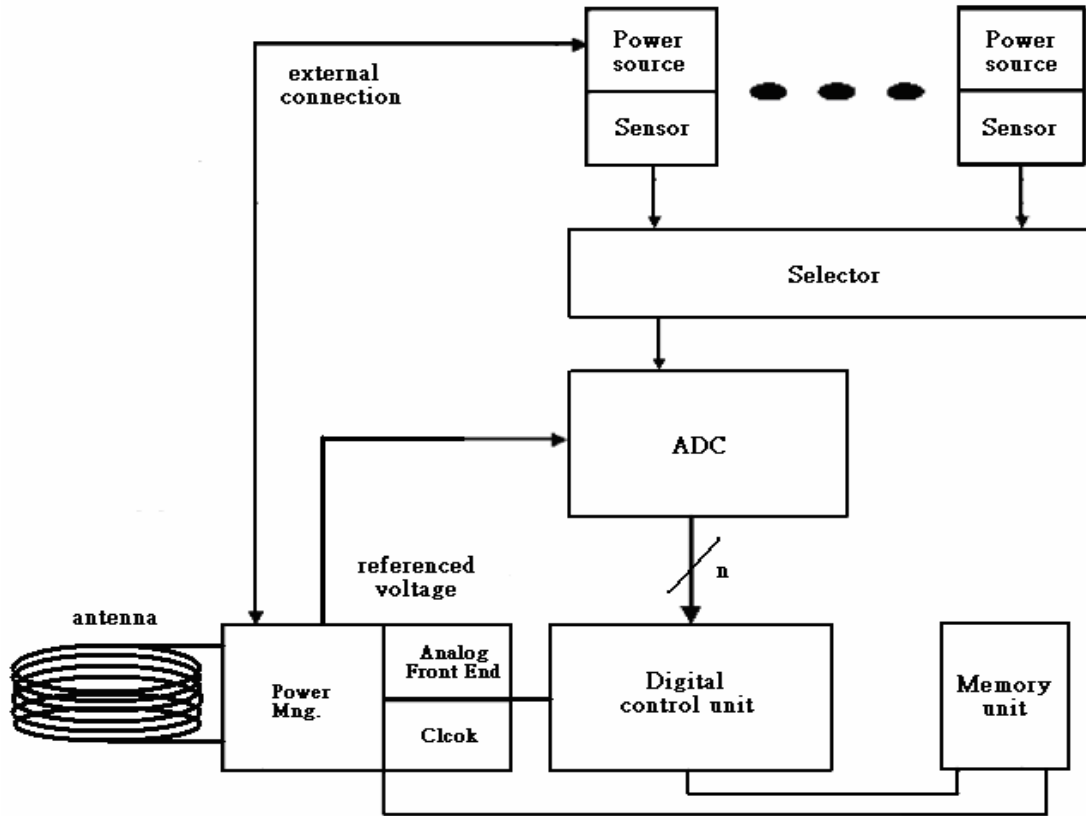


FIG.6A

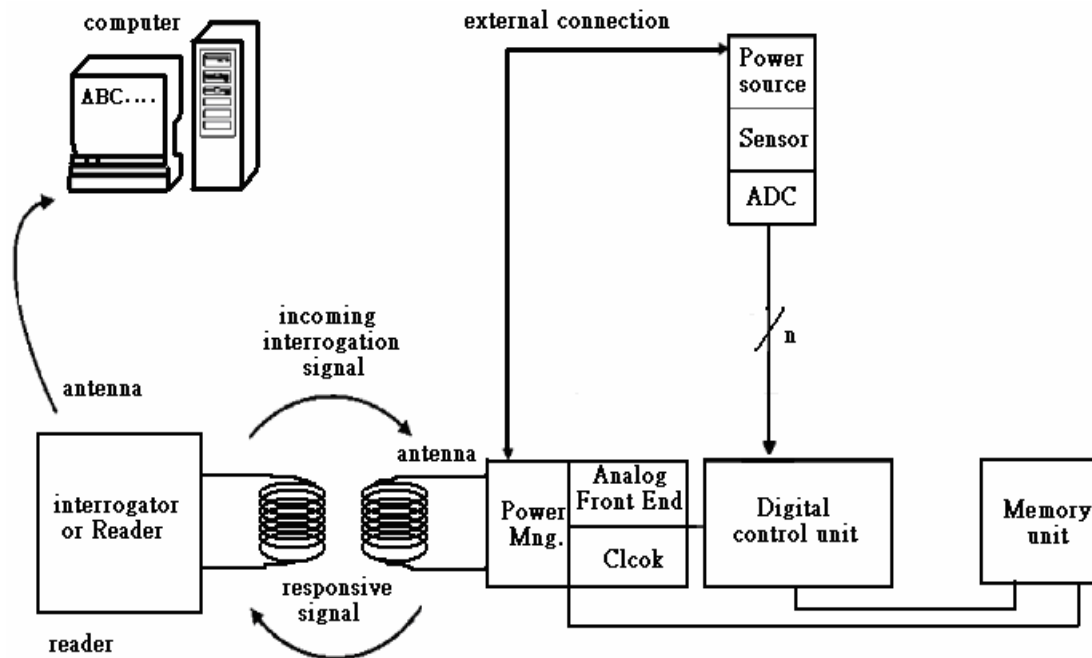


FIG.7

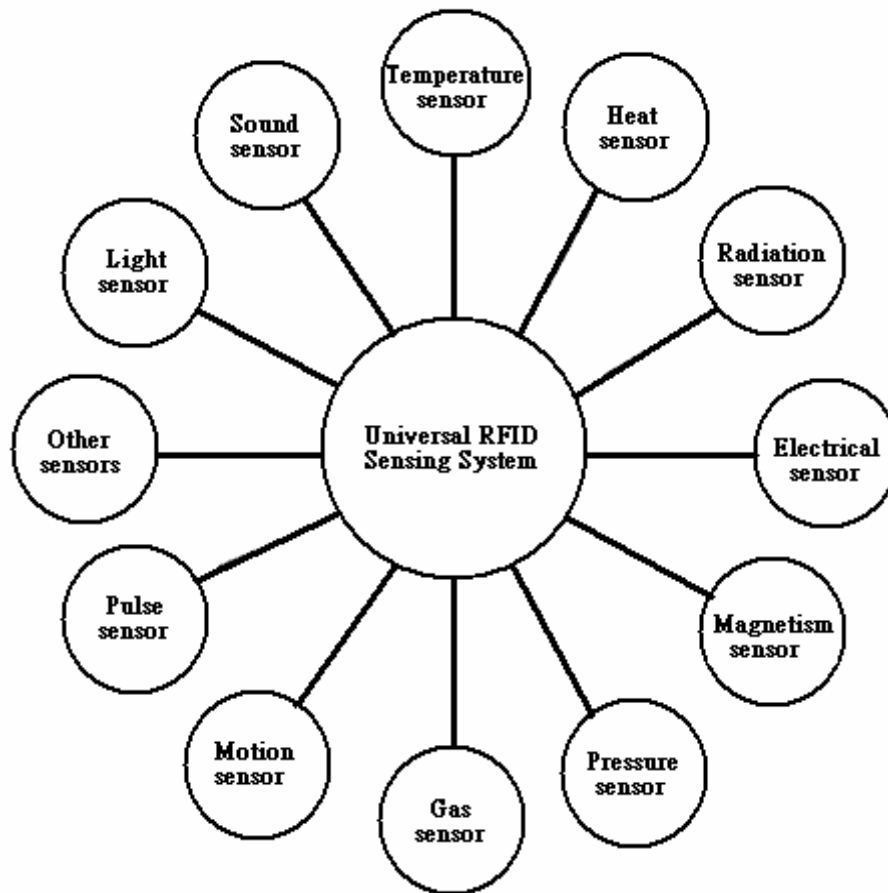


FIG.8

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