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[54] **SERIAL COMMUNICATION INTERFACE SYSTEM HAVING PROGRAMMABLE MICROCONTROLLER FOR USE IN A BATTERY PACK**

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[58] **Field of Search** 395/750.4, 800, 395/430, 881, 500, 427; 320/21, 39, 43

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[57] **ABSTRACT**

A microcontroller for use in battery charging and monitoring applications is disclosed. The microcontroller includes a microprocessor and various front-end analog circuitry such as a slope A/D converter and a multiplexer for allowing a plurality of analog input signals to be converted to corresponding digital counts indicative of signal level. The microcontroller also includes an I^2C interface for supporting a bi-directional two wire bus and data transmission protocol that is useful for serially communicating with other peripheral or microcontroller devices. By making use of the I^2C interface, the microcontroller can be programmed while in the end application circuit. Such a feature allows customers to manufacture boards with unprogrammed devices and then program the microcontroller just before shipping the product. This allows the most recent firmware or a custom firmware to be programmed.

7 Claims, 18 Drawing Sheets

