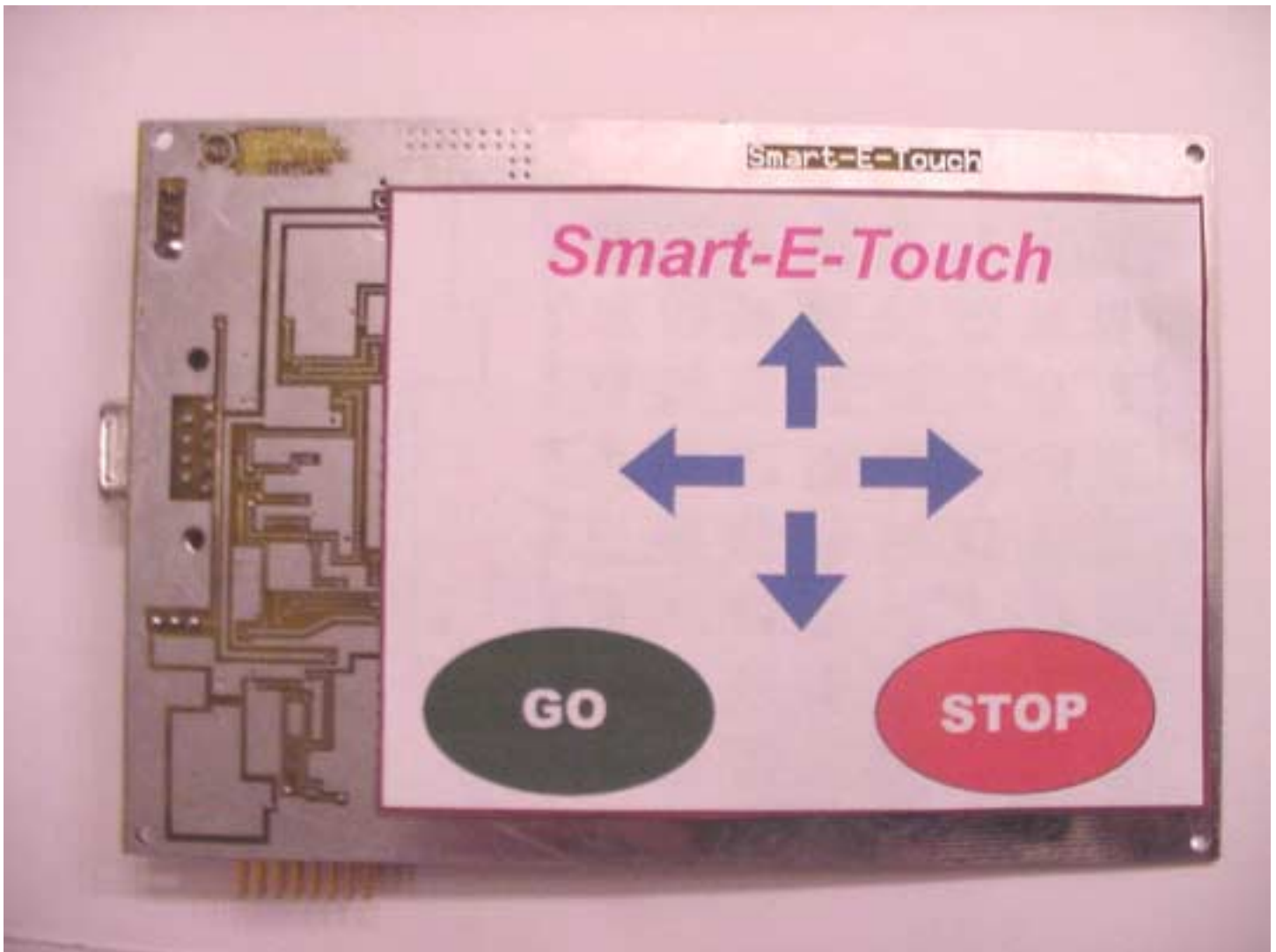


Smart-E-Touch



A Circuit Cellar/Motorola
Flash Innovation 2003 Contest Project

Project Name:

Smart-E-Touch

Project Number:

F194

Date:

26Jun03

Design Objective:

To design a Motorola Nitron based embedded system for the Circuit Cellar "Flash Innovation 2003" design contest.

Project Goals and Requirements:

1. Implement a simple user interface design using the Motorola Nitron microcontroller as the interface controller.
2. Design the user interface with cost, reliability, adaptability and manufacturability in mind.
3. The user interface design must be unique and provide a new novel concept in user interface design.
4. Utilize the capabilities of the new Motorola E-field sensor.

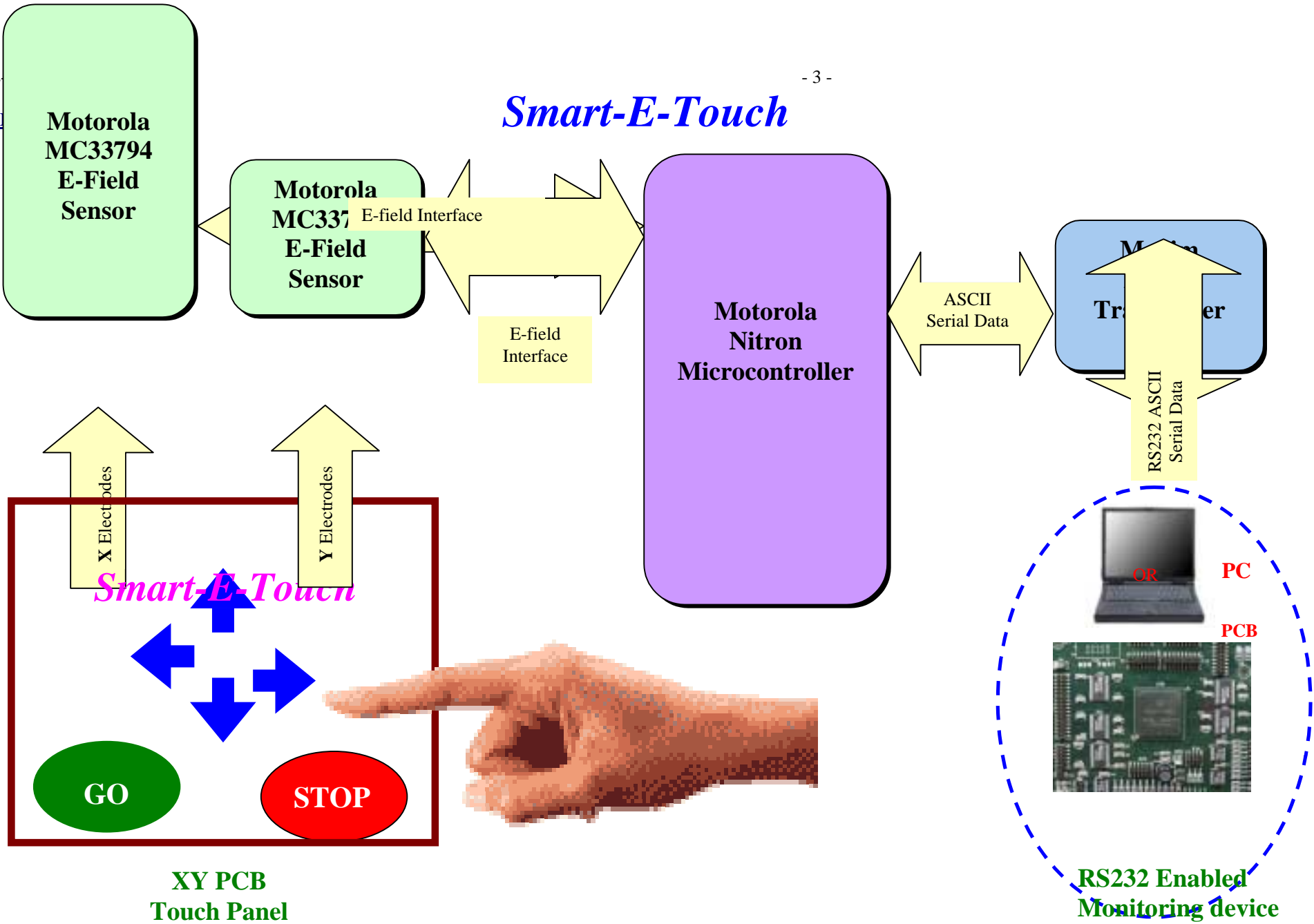
Resulting project:

An intelligent, low cost E-field touch-screen design based upon the Motorola Nitron QY4 microcontroller.

System Abstract: (See System Block Diagram)

The Smart-E-Touch is an intelligent, touch-screen based user interface design. This unique design uses the Nitron microcontroller to control and monitor a pair of Motorola E-field sensors. The E-field sensors in turn monitor an XY grid on the PCB for the actual capacitive sensing of the touch-screen. Once the Nitron has translated a "touch" from the E-field sensor data, the Nitron then outputs an XY coordinate to its RS232 serial port. A main system controller, PC or equivalent, then receives this XY coordinate and can act upon it. The unique thing about this touch-screen is that it's built right into the actual circuit board where the controller circuitry is. So rather than integrating a separate touch-screen assembly into a design, the touch-screen can now be part of the system controller board. This makes for a more cost effective, reliable and adaptable user interface design. There are no touch-screen designs on the market today similar to the Smart-E-Touch, this truly makes the Nitron controlled, Smart-E-Touch a very unique design.

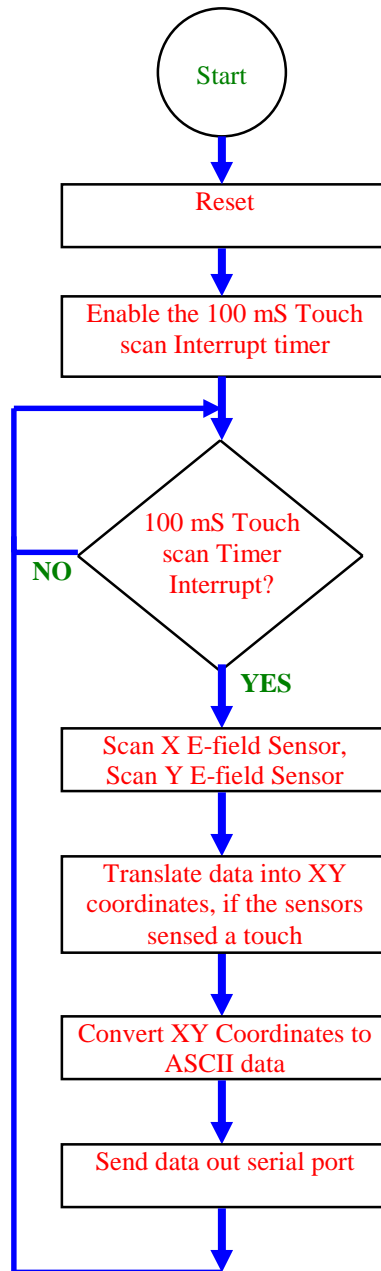
Smart-E-Touch



Firmware Description:

The firmware needs to:

1. Control the E-field sensors.
2. Translate E-field sensor data into XY coordinates.
3. Send ASCII XY data out RS232 serial port.

Firmware Flow Diagram:

Conclusion:

The Smart-E-Touch is an intelligent, touch-screen based user interface design. It provides users with an alternative to current user interface technology offerings. Its major benefits are reliability, low cost, ease of use for hardware and software developers and overall flexibility. There are no touch-screen designs on the market today similar to the Smart-E-Touch, this truly makes the Nitron controlled, Smart-E-Touch a very unique design.

Elegant, affordable, easy to use and best of all, real data in a simple format, that's the Smart-E-Touch user interface design.

