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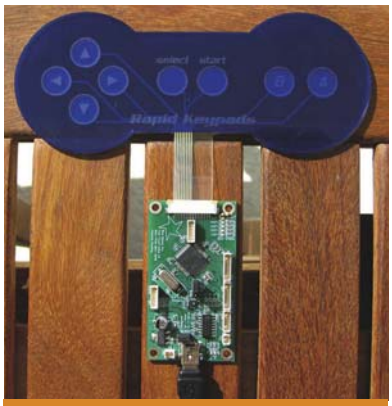
Rapid Prototype Capacitive Touch Keypad Service Uses Digitally Printed Electronics

CAPE CORAL, Fla.—Blue Sparq, Inc., a company dedicated to high-speed product development, has introduced what it calls "a unique capacitive touch interface prototyping service for design engineers." The company has created RapidKeypads.com to supply high-quality rapid prototype capacitive touch switch keypads, along with driver electronics, in as little as five days. According to Blue Sparq, the service is particularly valuable to "designers who want a futuristic 'look and feel' for their new or existing products in record-breaking time."



Capacitive touch USB joystick. Engineers using the Rapid Keypads configuration utility can map custom capacitive touch buttons to any key on their computer keyboard, numeric keypad, or computer joystick. Image courtesy of RapidKeypads.com.

"As a high-speed product developer, I simply couldn't wait the industry standard 4-7 weeks for a capacitive touch keypad," said Jameel Ahed, president of Blue Sparq, Inc., in a statement. "Since there are rapid prototyping services capable of making parts for every other aspect of a product's design, the gap was clear, so we created RapidKeypads.com. In order to offer such a service, there were two challenges: the first was replacing the silver ink conductive layer that is traditionally printed using a silk screen process, with a high-speed digital printing method; the second was to make a universal capacitive touch driver IC that could be easily configured by a design engineer having no previous capacitive touch design experience."

RapidKeypads.com supplies the engineer with a complete capacitive touch interface that includes a custom capacitive touch keypad, along with the necessary touch switch driver electronics. The company's patent-pending Fast Touch™ electronics system reportedly eliminates the need for an engineer to write a single line of code. Its capacitive touch technology uses sub-surface sensing to detect a button press through any non-conductive material, such as glass, acrylic, and other plastics. According to the company, the ability to sense through any non-conductive material allows designers to place buttons anywhere, even behind curved surfaces.

Fore Light™ USB numeric keypad. Patent-pending Fore Light™ technology enables uniform illumination of the keypad while maintaining a very thin profile. Image courtesy of RapidKeypads.com.

The Fast Touch 16 Evaluation Kit is easily configurable, the company says, and provides various communications options (RS232, I2C, SPI, and USB), tactile feedback, audio feedback, and state-of-the-art lighting. Videos demonstrating the technology can be found on the company's YouTube channel.

Blue Sparq, Inc. (http://www.BlueSparq.com) was founded in 2008 with the aim of providing prototype design and manufacturing services for individuals and businesses wishing to design new—or revamp pre-existing—product lines. The company engineers and designs advanced human interfaces used in medical devices, industrial applications, and consumer products.

Ingenium Completes Process Engineering Project for Aerospace Component Manufacturer

Company also achieves milestone of 250th Finite Element Analysis on a helicopter part

ROCKFORD, Ill.—Ingenium Technologies, a fast growing, privately held company headquartered in Rockford, Illinois, recently completed an eight-week process re-engineering effort at an aerospace electro-mechanical component manufacturer. Faced with high fallout rates and inconsistent production output, the component manufacturer's senior management decided they needed an outside perspective and sought Ingenium's support. A team of Ingenium manufacturing engineering, quality, and project management professionals was formed and turned loose on the project.

"Our first step was to document the existing process sequence," said Jim Hoyt, senior operations consultant at Ingenium. "We needed to compare the existing process instructions to what was actually happening. As we suspected, we found numerous cases of undocumented process steps—some major, some more subtle. The technical support staff was unaware of the 'black magic' tweaking that the technicians performed."

As Ingenium delved further into the problem, it became clear that the assembly and test technicians were attempting, on their own, to improve the performance of the units. "Each technician had their own way of doing things," said John Hahn, principal operations consultant. "The variability of process, coupled with some design challenges, created an unpredictable production situation."

Ingenium performed a Process Failure Modes and Effects Analysis (PFMEA) on the product. Using the PFMEA data, the Ingenium team prioritized and implemented both design and process standardization activities. "We needed to knock down the highest risk items first," said Hahn. "Depending on the failure mode, we put changes in place that either reduced the frequency, increased the detectability, or reduced the severity of potential defects. Our primary focus was to control the processes and eliminate the causes of variation."

Ingenium then designed and implemented an assembly and test cell dedicated to the product. Over 20 custom tools and fixtures were introduced that minimized the possibility of assembly variation. "Each workstation was designed for the task at hand," said Ingenium Technologist Brian Thoren. "The assembly tech-