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design with

Product Performed to Expectations **** Specifications were sufficient to

Demo Software was of good quality **** Product was easy to use ****

Support materials were available **** The price to performance ratio was

good

Review - Details

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RoadTest: TI Haptics Enabled Gaming Controller BoosterPack Author: alexev

Evaluation Type: Independent Products

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Detailed Review: TABLE OF CONTENTS

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3. **SPECS and FEATURES**

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The HapTouch BoosterPack (BOOSTXL-HAPTOUCH) integrates capacitive touch functionality with haptics technology in a PRESENTATION single TI BoosterPack. Designers and Hobbyists alike now have the ability to develop applications using two of the hottest technologies available on the market today. The HapTouch BoosterPack includes allows users to evaluate and begin designing with the included Immersion Technologies

Power Indicator Haptics Driver LED Indicator LED Capacitive

> Capacitive Touch Pushbuttons (SELECT, START, B, A)

FRONT

software and onboard ERM and LRA motor/ actuators on the board. This BoosterPack features MSP430TCH5E haptics controller and DRV2603

ERM/LRA Audio AUDIO/BTN Function Select LRA Actuator Actuator Select Jack LaunchPad/ MSP430TCH5E LaunchPad/ ERM Actuator BoosterPack Interface BoosterPack Interface REVERSE The delivery of the boosterpack only took few days and once i got it, i anxiously opened it before i filmed it 😬. The box was of good quality with key features written about the addon. Inside the box, i found the Haptouch Boosterpack and a quick guide with the setup for haptics buttons, haptics audio and haptics games. ? SPECS and FEATURES:

1. Experience tactile feedback with haptic (vibrational) technology.

4. Effect sequencing for cool machine gun, heart beat and dice sequences

7. Full programmability with JTAG emulation and software development kit

8. Can be used as a game controller with Texas Instruments LaunchPad

10. Full pogrammability with JTAG emulation and software development kit.

6. Evaluate with a motor-based (ERM) or spring-based (LRA) actuator

3. 122 haptic effects featuring industry leading haptic technology from Immersion – Royalty free

But after reading furthermore in the documentation, i found out that there's more than meets the eye.

- Effects and sequences (default demo haptics examples or diy ones - configure each button to play a sequence or an effect).

Another thing to mention is the setup of the Launchpad jumpers before programming it with the batch file (mentioned above).

I've run 3 main tests for the BoosterPack as they are found in the haptics GUI.

and that was indeed some fun stuff to do. There is also a list of effects in the "Effect Finder" section, which i did use.

- Game profile (edit your gaming buttons to vibrate the controller in a certain way or choose a preset for a game from VirtualNES.com).

2. Play PC games with Capacitive Touch and gaming controller

5. Feel the music with Audio2HapticsTM technology

• SOFTWARE:

and Winamp.

vibrate more strongly).

• HARDWARE:

• TESTS:

The HapTouch GUI contains 3 sections:

anywhere, but eventually, i managed to pull that one off.

Here's the lightshow, the whole assembly connected.

THE EFFECTS AND SEQUENCES

■ THE GAMING CONTROLLER

THE AUDIO HAPTICS

the vid.

and GND.

Hope you enjoyed my quick little project .

Programming software CCS not really cheap

sometimes complicated to reach)

• CONCLUSIONS:

Pluses

Versatility

Free GUI

Low cost

Top Comments

element14 is the first online

actuators.

actuators.

bodgy over 11 years ago +1

bodgy over 11 years ago

Configurability

Easy interface

The audio haptics response worked pretty well.

9. Out-of-the box capacitive touch and haptics experience

11. Highlights functionality of the MSP430TCH5E microcontroller.

Got Energia to program the Launchpad to blink a led, just to see it how it works. Had some real trouble understanding that the GUI just cannot communicate with the boosterpack/launchpad until i programm the launchpad first, by launching "ProgramTheLaunchPad.bat" executable. Before launching the setup batch file, i was getting this UART communication error no mater what command i would send to the boosterpack.

Windows 7x64 OS, Energia, HapTouch GUI, Touch2Key, Jnes (nintendo games emulation program), CodeComposer (didn't used it)

Also the JTAG pin-header is located under the right plastic holder for those who wants to dig deeper into the rig.

So i started to edit my own sequences like "strong heartbeat" and "explosion". Actually i've programmed each button with it's own vibration signature

- Configure audio input signal characteristics to make the HapTouch vibrate at the music's rhythm or beats (louder volume made the boosterpack

Well, the main drawback of this package was the lack of the Launchpad, which for me was a big issue not being able to find one

Setting up the platform to play a game was more intuitive information rather than read and learn. I've found this little application called "Touch2Key" in the TI msp 430 folder that emulated the haptic buttons ASCII code to alphanumeric keys used for windows and thus the nes game. Knowing that i was in my youth, a huge fan/player of the japanese street fighter (nekketsu kakutou densetsu) game and goal3 aswell (same characters), i

remembered i already had this nes game on my computer. I also had the emulation software called "Jnes" for the game, to make it work under windows.

profile to the controller, launched the Touch2key emulator and then launched the Jnes games emulator to open the game. This is what came off:

Without wasting time in my anticipation, i quickly configured the haptic buttons to have a set of sequence to execute at each press, assigned the game

just speaks for itself, don't need to add more comments on that . All in all, In the gaming section, if i would have to choose between an classic analog controller (push buttons) and the haptics one, i would definitely go with the classic, it's just way more responsive and has a bonus of two more buttons, Turbo A and Turbo B, which in some games prove to be essential. Fun experience though.

Aaaa, finally, audio haptics. Just plugged in an old aux audio cable, switched the boosterpack to audio and configured from the TI GUI the strenght and

amplitude. These settings actually didn't help me too much, as the haptics acted on the signal after minimum 50% audio master volume from my pc. The

"wakeup treshold" feature, for example, was prety much useless in my application. Good concept though. After the GUI audio configurations, i moved on

to the next point where i've tested the actual audio signal either by lowering/maximising the volume to see the response treshold or by stopping playback.

The only minor problem that i had, in the gaming section, was the arrows pad that executed double command on a touch (guess that was because of

I also had to configure the joystick keys from the emulation program in order to play the game. That was such fun, aaa memories ... I think the vid/pic

the capacitive technology not being able to read the signal right - i couldn't find a solution here $\stackrel{ ext{to}}{=}$).

*More music? Sure, here's the Youtube audio stream and some final adjustments i made to the audio config. from the GUI, which worked out preety

nice. See how the haptics are dependent of the audio volume? The larger the volume the more powerful the vibrations and signal to the LED. Just watch

For music playback i've used Winamp online streaming from Digitally Imported website.

• APPLICATION: So as i promised earlier, i have developed a simple diy application that extends the haptouch boosterpack's capabilities to a new

level. Initially i wanted to do something more complicated with this addon, like a precision stepper controller or piezoelectric microscopic arm...the

problem was that i wanted to have forward controll on A button and backward controll on B button for a stepper, so i needed two different channels,

So here i go, i've removed the LRA motor from the board, then i soldered a two pin header (used only one of them "+") and a small connector with two

I quickly assigned some effects to the new sequences i had created in the TI GUI and uploaded them in the haptics controller. Notice in the video how i

assigned different sequences to each button (A btn. - linear ramping speed, B btn. - pulsed ramping speed, Start/Select - one pulse). Many kinds of

wires from an old motherboard. The + pin from the haptouch got connected to the input pin of the laser printer BLDC controller.

interesting controll projects could be done with this joypad, so this was just a simple example of one of them.

which in this case i only had one to work with, hence this BLDC application which required only one pulsed channel. The other two pins are +12V DC

Good materials Energia is fantastic Minuses Lack of Launchpad

In conclusion: sure it has it's pluses and minuses, sure it's either cheap and free or buggy and edgy, but hey, that's what i had in mind, to do my own transparent research about this product and find as many strengths and weaknesses as i could. From my personal point of view, the Haptouch Boosterpack it's a good and unique piece of equipment with more potential to exploit giving the programmability capabilities that makes it so versatile for other precision applications and robotics. My best regards to element14 community!

Documentation is everywhere on the TI site, but you never find what you really need (too scattered and unorganised, too many links and

Leave a comment..

I liked your BLDC demonstration, I can see many uses for this idea combined with one of the haptic

I liked your BLDC demonstration, I can see many uses for this idea combined with one of the haptic

Newest

Special thanks to Mr. Christian DeFeo, Element14 team, and Texas Instruments!

The TI Haptics GUI has some bugs or minuses and workarounds remain pure individual research

Edgy and raw design of the controller and the lack of two more buttons (turbo A B)

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Creation date: 14 Apr 2014 Did you receive all parts the manufacturer stated would be included in the package?: True What other parts do you consider comparable to this product?: Unique piece of equipment. What were the biggest problems encountered?: Figuring out how it works? The GUI wasn't too optimised, yet it did the job, finally, and the documentation does not provide too many details, leaving the user to confront (sometimes guess) with all software, drivers, programming related issues.

TI Haptics Enabled Gaming Controller BoosterPack - Review

Technologies •

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