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BLE113 - Measuring a Pulse Width

Answered



nathan murray
asked this on Mar 31, 16:03

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Hi Forgive me if this has already been asked but I can't find the answer in the forum anywhere. I am using an ultrasonic range sensor with the BLE113 and need to measure the width of a pulse roughly from a few ms up to 25ms using BGscript and was wondering about what the best method of doing so might be. The TI documentation SWRU191F Rev F section 9.7 details an Input capture mode but looking at Bluegiga documentation it doesn't look supported. Is there an easy way of doing this?

I was thinking I could create a PWM signal and AND it with the pulse I want to measure and count the PWM pulses or something similar but it's quite a messy way to do it. Thanks Nathan

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Comments



Jeff Rowberg
Bluegiga
Technologies

Hello Nathan,

At this time, there is no way to use hardware timer functionality for measuring incoming signals like this at a hardware level. There are no API methods that provide access to incoming counter data based on input capture mode signals. The only way "kludge" workaround would be to use an I/O interrupt, but due to the execution overhead of BGAPI/BGScript, the maximum resolution you could get with this is on the order of many milliseconds between each pulse.

Doing this would require the BLE C SDK (full IAR 8051 license required) for direct hardware register access, or an external microcontroller.

March 31, 2015, 22:17

Answer



nathan murray

Hi Jeff thanks for your response. In that case as I need as low cost solution as possible I think I will implement an RC circuit to convert the pulsed signal to a variable voltage, do something clever with the analog_comparator_status event and perform an ADC read, it's only a single pulse I need to measure not a succession of pulses, it might need some careful calculations and trialing but hopefully it will work.

April 1, 2015, 10:50



nathan murray

It works really well if anyone wants to do something similar, on the positive pulse I start charging a capacitor through a resistor, on the negative pulse I perform an ADC read via an IRQ, you have to make sure your RC time constant is much longer than the maximum pulse width to ensure the capacitor charging is always quite linear when doing the ADC read on the negative edge.

April 2, 2015, 01:05

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