

GG Recoder for 16Mhz DigiSpark ATTiny85 and DRV8838

Some of us love the DigiSpark board – its so cute!

This is a cheap but fully functional recoder for Galloping Ghost actuators. It works in exactly the same way as the PIC recoder, but replaces the PIC with the 16Mhz DigiSpark PCB. The rudder & elevator channels from the receiver control the mark-space and rate respectively as the Tiny pulses the DRV8838 bridge to and fro. As with the PIC there is no specific GG throttle function, that is left to your conventional ESC or throttle servo for IC. Just like the PIC, there is no facility to adjust anything within the recoder itself, the intention is that any adjustments are made using throw variations (ATV or whatever) on a programmable transmitter.

The sketch can be tweaked of course if preferred, but in use it has no adjustment, that has to be done via transmitter programming.

DigiSpark port connections are:

P0: rudder channel input from the rx

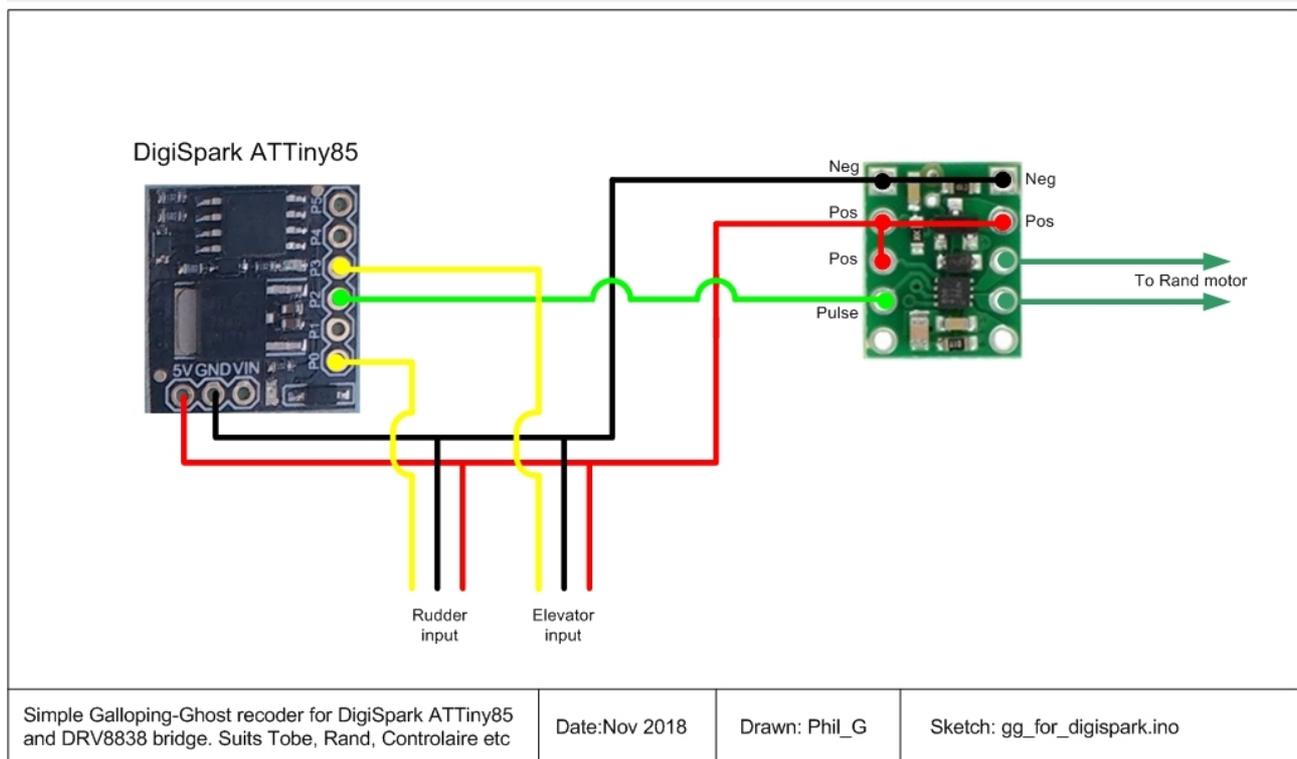
P1: is the digispark's on-board LED used to indicate pulsing

P2: output to the DRV8838 bridge

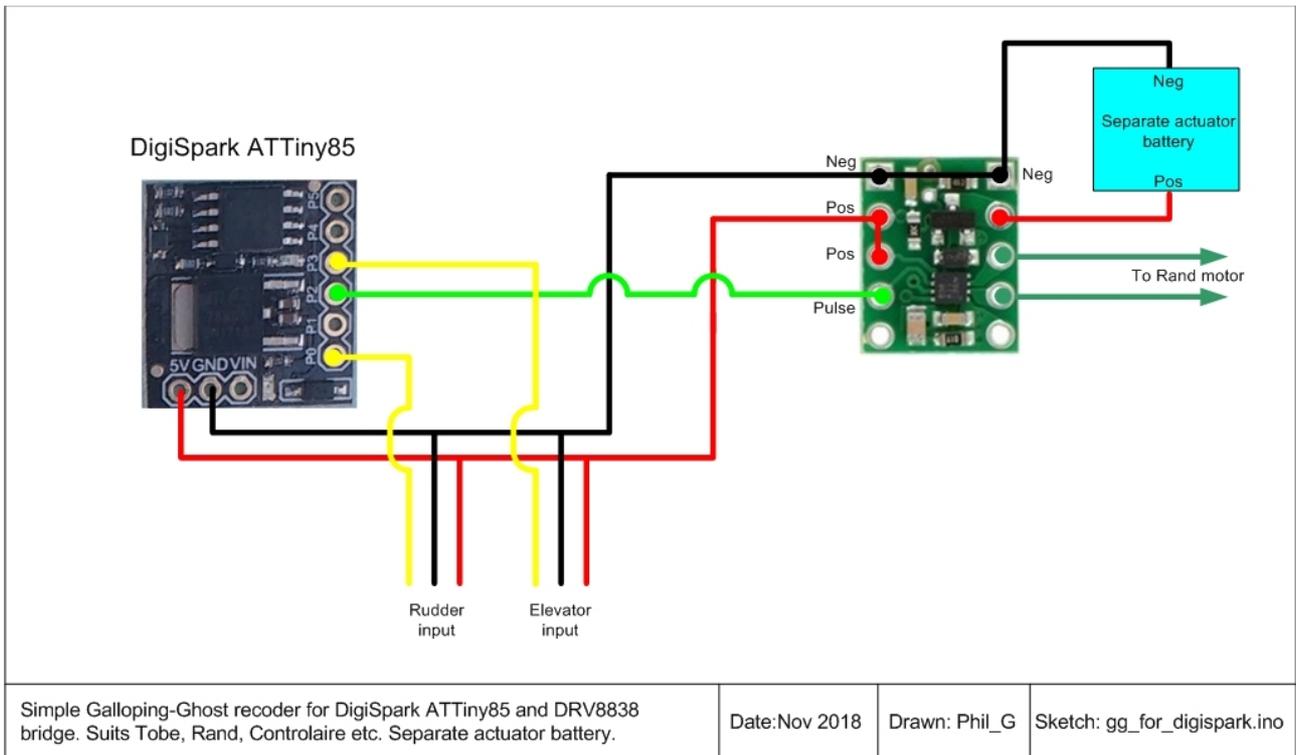
P3: elevator channel input from the rx

P4: unused

P5: unused



This way the actuator is powered from the receiver supply, but as with the PIC recoder, the actuator can optionally have a separate battery if required by chopping the receiver positive supply to pin 9, and providing a new pos from the separate battery. The negatives are common:



The original PIC and the Digispark recoders use completely different methods of producing GG so I suppose its inevitable that there can be slight timing differences. To try to maintain some accurate benchmark 'standards' I connected two of the old PIC recoders and two Digispark recoders to a common rudder & elevator signal source and compared the timings with a lab-quality precision counter, and I've tweaked the timings of the sketch so that they match the original PIC recoders exactly. This means that in theory you could unplug one of the original PIC recoders and replace it with a Digispark and not notice any difference at all !

I dont know if thats an advantage but as the PIC/Tobe combo is well established it seems logical to use that as a timing benchmark. The sketch is easily modified to suit any GG actuator but as published has "PIC equivalent" timings and suits the 'Tobe' actuator perfectly.

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