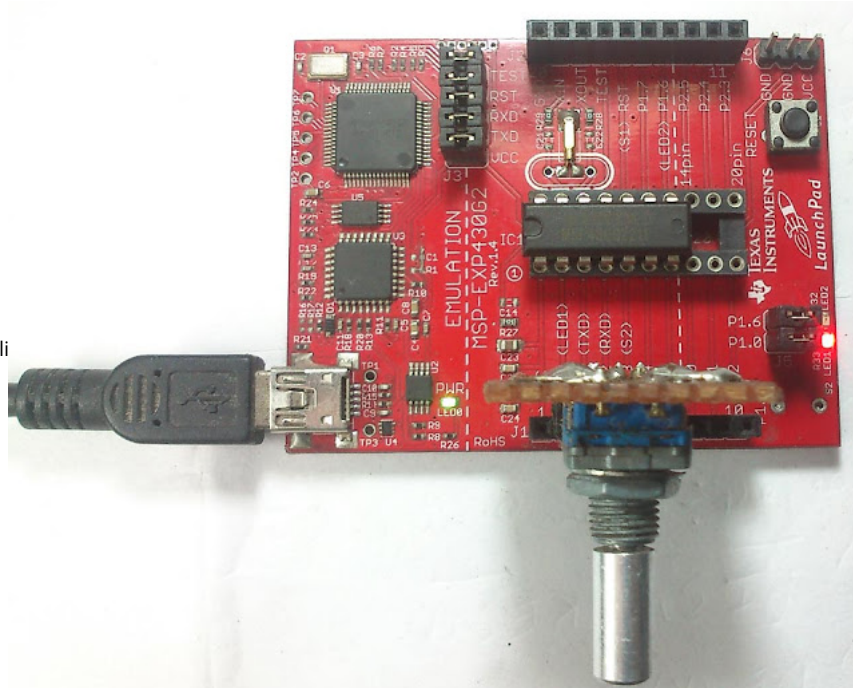


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Rotary Encoder Interfacing With MSP430 LaunchPad



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This is a follow up to the Rotary Encoder with PIC micro (<http://www.electronicsonline.com/pin/25058/>) in this demo we will use Texas Instrument MSP430G2211 with MSP430 LaunchPad

Incremental Rotary Encoder

First of all I would like to tell you, this type of rotary encoder is totally a digital component so you can't directly replace these with your conventional pots. So let's start with what are Incremental Rotary Encoders. Incremental rotary encoders, by the look of it, just like a general purpose pot looks like but the output is quite different. They provide a pair of digital signals that allow a microcontroller to determine the direction of a shaft's rotation. They can be used to monitor motors and mechanisms, or to provide a control-knob user interface.

For a quick look here is a typical incremental rotary encoder

and hear the output wave form

(<http://1.bp.blogspot.com/-6M2ZU0yInkM/UHT7c72WVMII/AAAAAAAAAnk/IDOk6ZH39AU/s1600/ROTARY-encoder-with-microcontroller-avr-arduino.png>)

Decoding with Microcontroller

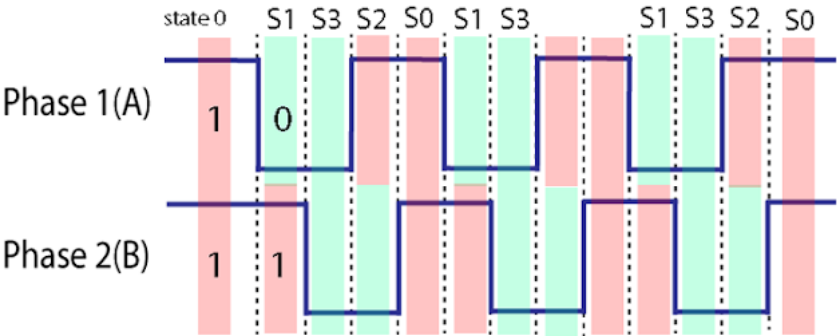
In this example we will be decoding the rotary encoder with the help of a state machine.



Incremental Rotary Encoder state machine

FBhle0uW8o/s1600/ROTARY-state.png)

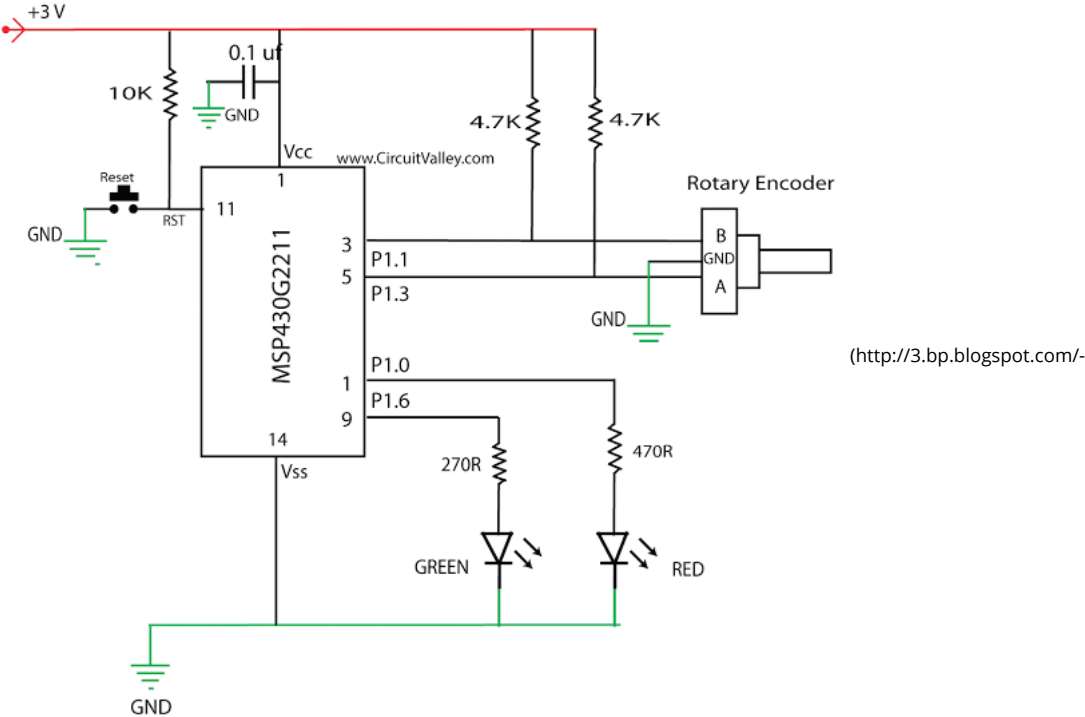
view of state machine in the wave form



Incremental Rotary Encoder Wave Form

(http://2.bp.blogspot.com/-1YG_sgQxYSY/UHUNxN5vtsI/AAAAAAAAAos/ckls-2_7V1Y/s1600/ROTARY-WAVE.png)

Schematic with MSP430G2211

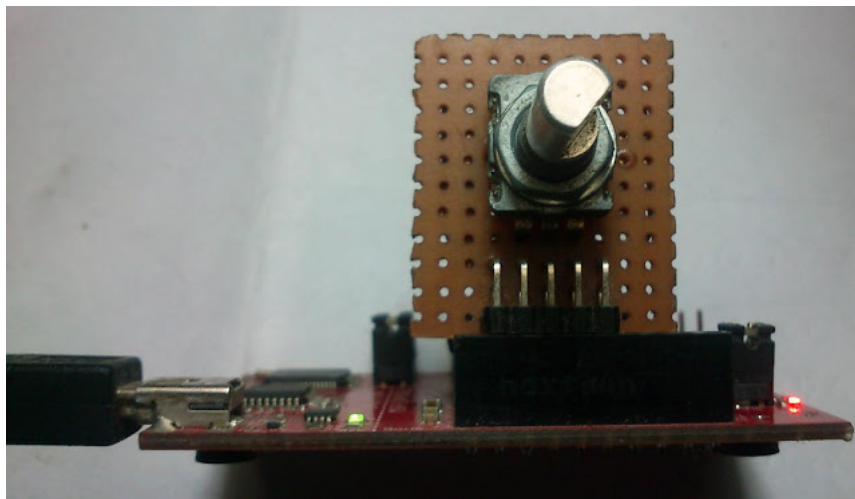


JThFoREA6W0/UiR5ZK2rgPI/AAAAAAAAAtM/gGNNjvc4bAY/s1600/rotary-encoder-MSP430-Launch-pad-MSP430-microcontroller-MSP430G2211-arduino-avr-atmega-incremental-encoder-digital-pot-breadboard.gif)



([http://1.bp.blogspot.com/-FfagUxijcGk/UiRpl61YqjI/AAAAAAAAAsw/_OVnOSkg-Xw/s1600/rotary_encoder-microcontroller-](http://1.bp.blogspot.com/-FfagUxijcGk/UiRpl61YqjI/AAAAAAAAAsw/_OVnOSkg-Xw/s1600/rotary_encoder-microcontroller-arduino-pinout.jpg)

arduino-pinout.jpg)



([http://1.bp.blogspot.com/-F0V-](http://1.bp.blogspot.com/-F0V-_fDa5OE/UiR9v2uO70I/AAAAAAAAAtY/t8fDhDiN0b0/s1600/rotary-encoder-MSP430-Launch-pad-MSP430-microcontroller-MSP430G2211-arduino-avr-atmega-incremental-encoder-digital-pot-breadboard.jpg)

[_fDa5OE/UiR9v2uO70I/AAAAAAAAAtY/t8fDhDiN0b0/s1600/rotary-encoder-MSP430-Launch-pad-MSP430-microcontroller-MSP430G2211-arduino-avr-atmega-incremental-encoder-digital-pot-breadboard.jpg](http://1.bp.blogspot.com/-F0V-_fDa5OE/UiR9v2uO70I/AAAAAAAAAtY/t8fDhDiN0b0/s1600/rotary-encoder-MSP430-Launch-pad-MSP430-microcontroller-MSP430G2211-arduino-avr-atmega-incremental-encoder-digital-pot-breadboard.jpg))

Source code and firmware

CLIK Here To download Source Code and Firmware. (<https://sites.google.com/site/microembeddedfiles/home/september-2013/Rotary%20Encoder%20MSP430G2211.zip?attredirects=0&d=1>).

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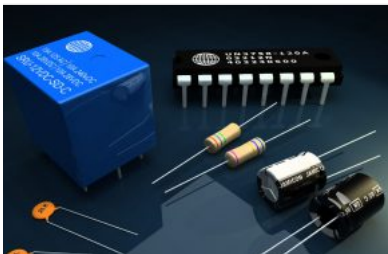


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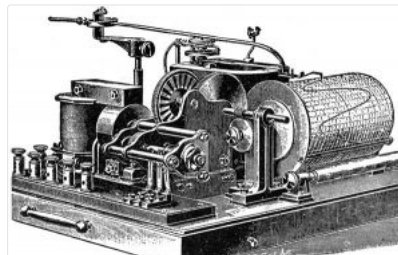


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