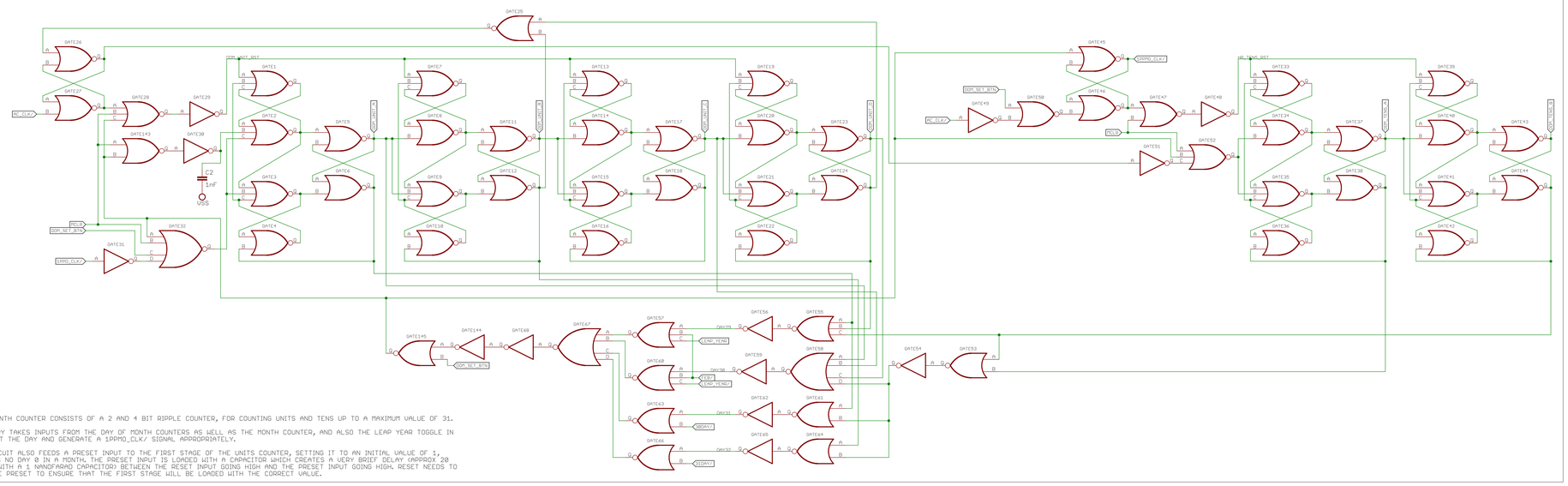
DAY OF MONTH COUNTER AND 1PPMO CLOCK GENERATOR



THE DAY OF MONTH COUNTER CONSISTS OF A 2 AND 4 BIT RIPPLE COUNTER, FOR COUNTING UNITS AND TENS UP TO A MAXIMUM VALUE OF 31.

RESET CIRCUITRY TAKES INPUTS FROM THE DAY OF MONTH COUNTERS AS WELL AS THE MONTH COUNTER, AND ALSO THE LEAP YEAR TOGGLE IN ORDER TO RESET THE DAY AND GENERATE A 1PPMO_CLK/ SIGNAL APPROPRIATELY.

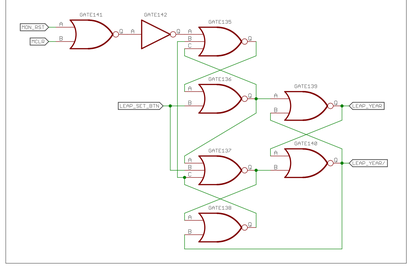
THE RESET CIRCUIT ALSO FEEDS A PRESET INPUT TO THE FIRST STAGE OF THE UNITS COUNTER, SETTING IT TO AN INITIAL VALUE OF 1, SINCE THERE IS NO DAY 0 IN A MONTH. THE PRESET INPUT IS LOADED WITH A CAPACITOR WHICH CREATES A VERY BRIEF DELAY (APPROX 20 MICROSECONDS WITH A 1 NANOFARAD CAPACITOR) BETWEEN THE RESET INPUT GOING HIGH AND THE PRESET INPUT GOING HIGH. RESET NEEDS TO GO HIGH BEFORE PRESET TO ENSURE THAT THE FIRST STAGE WILL BE LOADED WITH THE CORRECT VALUE.

LEAP YEAR TOGGLE

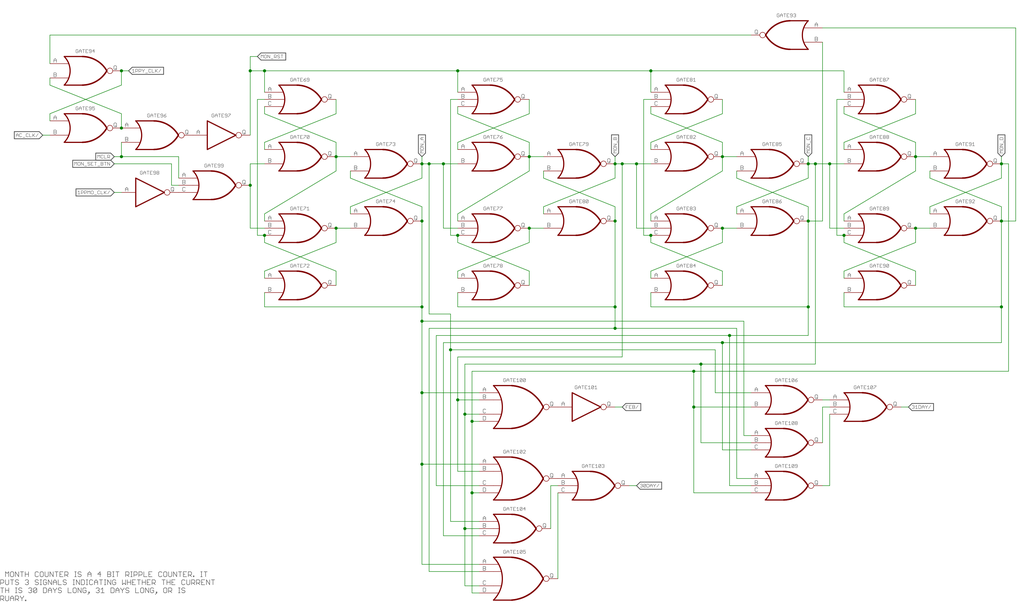
THE USER CAN PRESS A BUTTON TO TOGGLE THE CLOCK IN/OUT OF LEAP YEAR MODE.

IF THE CLOCK IS SET TO LEAP YEAR MODE, IT CAUSES THE MONTH TO INCREMENT AFTER FEB 29 INSTEAD OF FEB 28.

UPON THE CLOCK RESETTING AT THE END OF DECEMBER, THE LEAP YEAR TOGGLE IS RESET SO THAT THE FOLLOWING YEAR ADVANCES AS A NON LEAP YEAR.

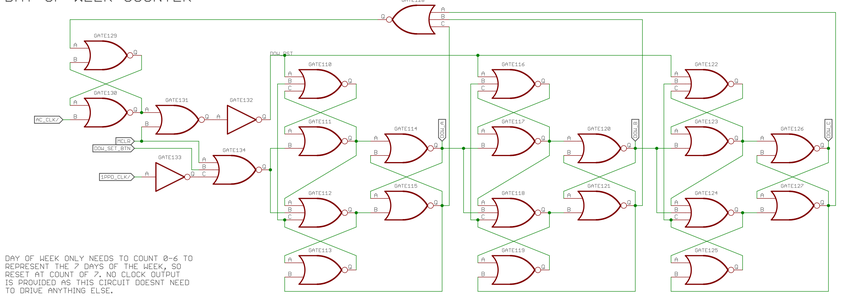


MONTH COUNTER



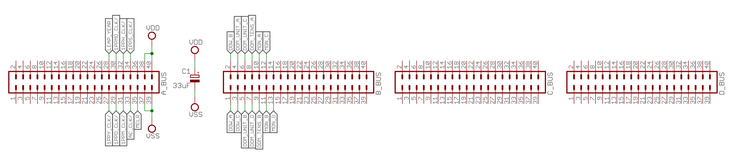
THE MONTH COUNTER IS A 4 BIT RIPPLE COUNTER. IT OUTPUTS 3 SIGNALS INDICATING WHETHER THE CURRENT MONTH IS 30 DAYS LONG, 31 DAYS LONG, OR IS FEBRUARY.

DAY OF WEEK COUNTER



DAY OF WEEK ONLY NEEDS TO COUNT 0-6 TO REPRESENT THE 7 DAYS OF THE WEEK, SO RESET AT COUNT OF 7; NO CLOCK OUTPUT IS PROVIDED AS THIS CIRCUIT DOESNT NEED TO DRIVE ANYTHING ELSE.

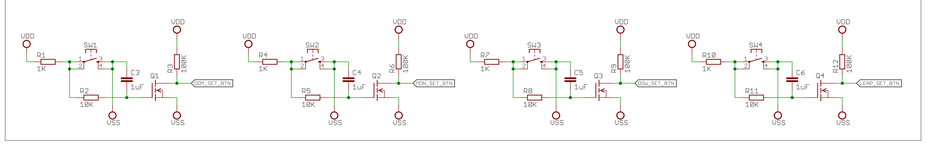
BUS CONNECTORS



SET BUTTONS

THESE BUTTONS ALLOW THE DAY OF MONTH, MONTH, DAY OF WEEK, AND LEAP YEAR COUNTERS AND SETTING TO BE ADVANCED OR SET/UNSET.

AS WITH PREVIOUS MODULES, AN RC CIRCUIT PROVIDES HARDWARE DEBOUNCING TO PREVENT MULTIPLE ADVANCES OR TOGGLES ON A SINGLE BUTTON PRESS.



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