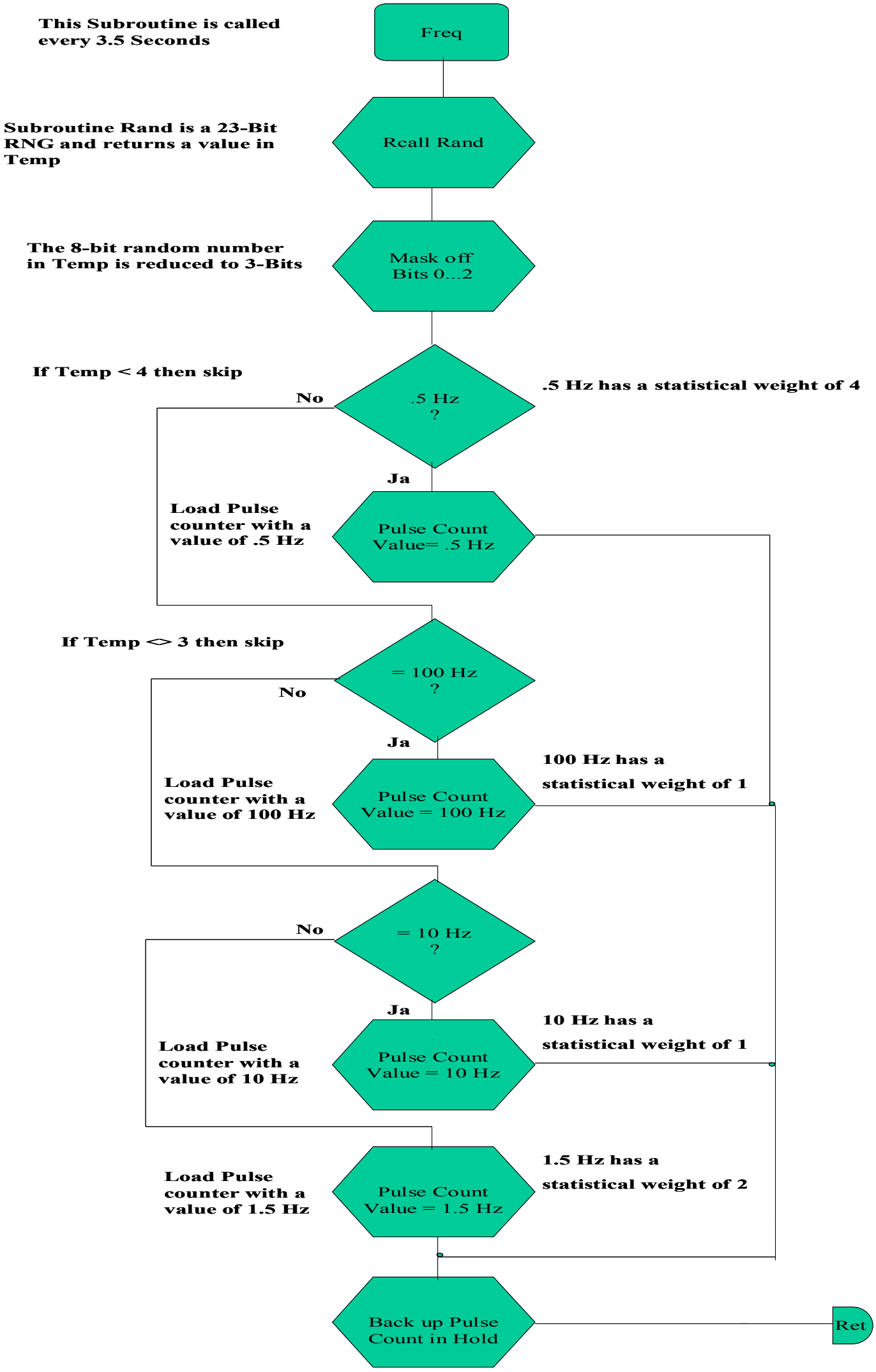
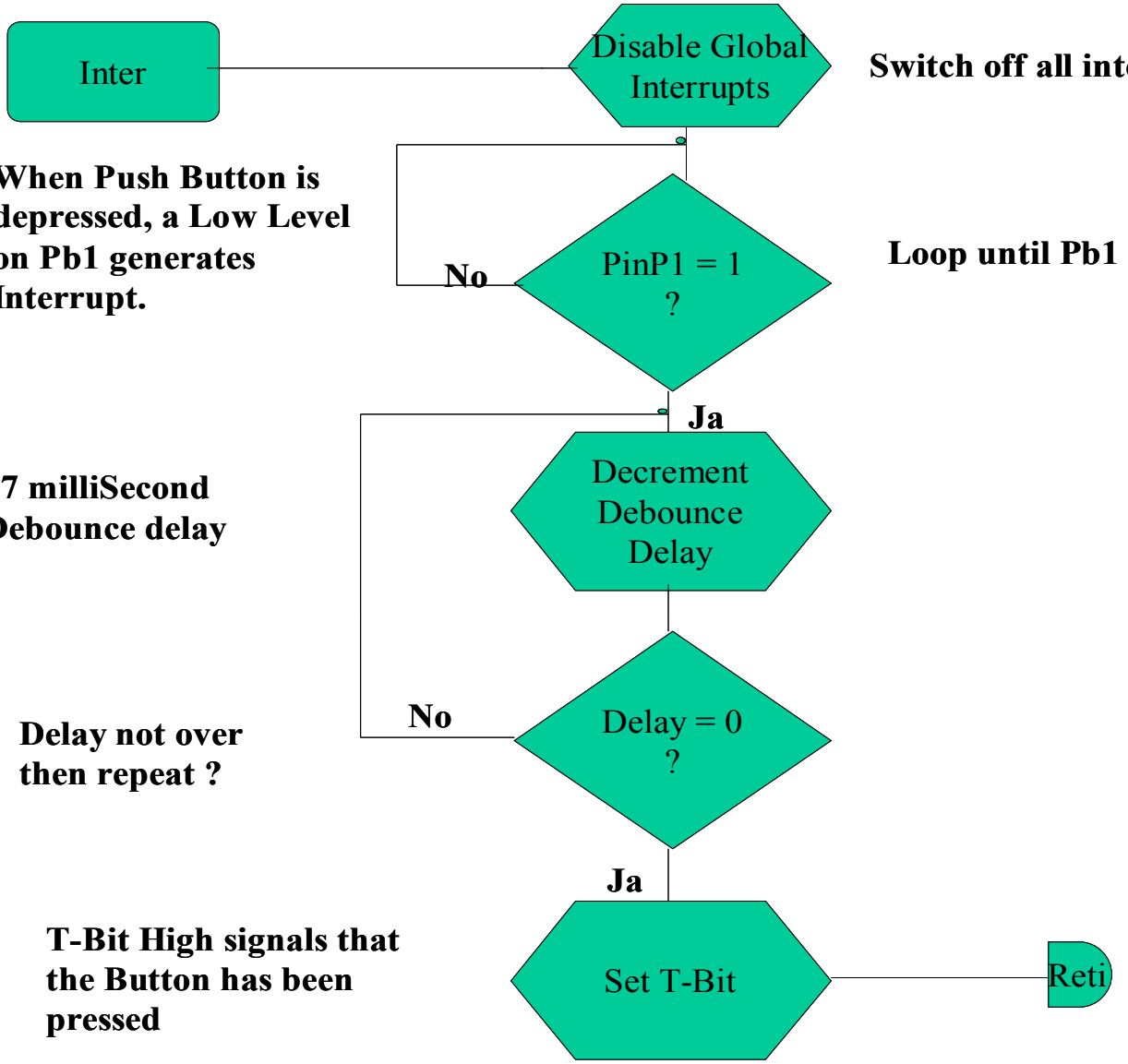
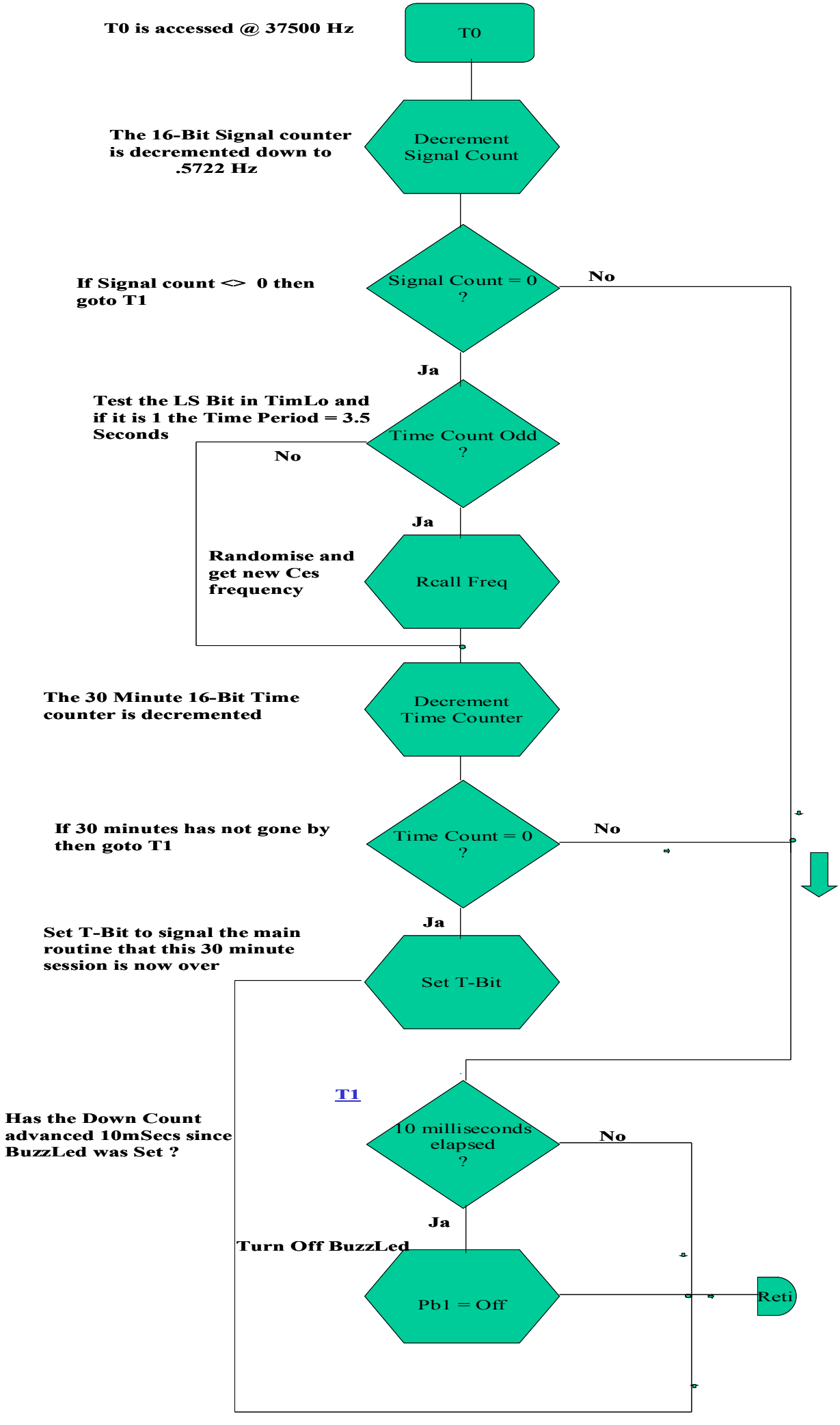
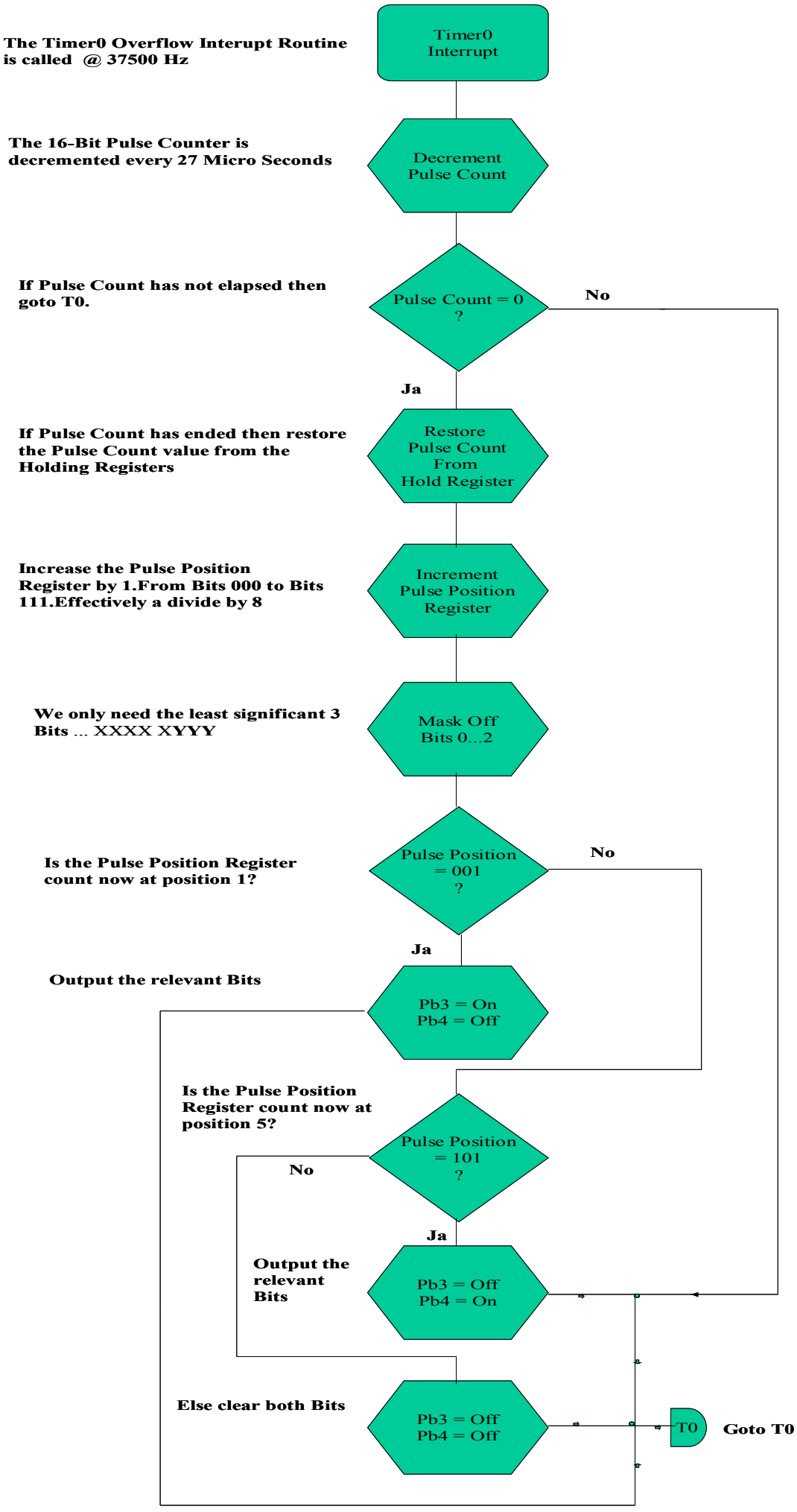

This Subroutine is called every 3.5 Seconds
Freq
Subroutine Rand is a 23-Bit RNG and returns a value in Temp
Rcall Rand
The 8-bit random number in Temp is reduced to 3-Bits
Mask off Bits 0...2
If Temp < 4 then skip
.5 Hz ?
No
.5 Hz has a statistical weight of 4
Ja
Load Pulse counter with a value of .5 Hz
Pulse Count Value= .5 Hz
If Temp <> 3 then skip
= 100 Hz ?
No
Ja
Load Pulse counter with a value of 100 Hz
Pulse Count Value = 100 Hz
100 Hz has a statistical weight of 1
= 10 Hz ?
No
Ja
Load Pulse counter with a value of 10 Hz
Pulse Count Value = 10 Hz
10 Hz has a statistical weight of 1
Load Pulse counter with a value of 1.5 Hz
Pulse Count Value = 1.5 Hz
1.5 Hz has a statistical weight of 2
Back up Pulse Count in Hold
Ret


Inter
Disable Global Interrupts
Switch off all interrupts
When Push Button is depressed, a Low Level on Pb1 generates Interrupt.
No
PinP1 = 1 ?
Loop until Pb1 goes High
Ja
27 milliSecond Debounce delay
Decrement Debounce Delay
No
Delay = 0 ?
Delay not over then repeat ?
Ja
T-Bit High signals that the Button has been pressed
Set T-Bit
Reti


T0 is accessed @ 37500 Hz
T0
The 16-Bit Signal counter is decremented down to .5722 Hz
Decrement Signal Count
If Signal count <> 0 then goto T1
Signal Count = 0 ?
No
Ja
Test the LS Bit in TimLo and if it is 1 the Time Period = 3.5 Seconds
Time Count Odd ?
No
Ja
Randomise and get new Ces frequency
Rcall Freq
The 30 Minute 16-Bit Time counter is decremented
Decrement Time Counter
If 30 minutes has not gone by then goto T1
Time Count = 0 ?
No
Ja
Set T-Bit to signal the main routine that this 30 minute session is now over
Set T-Bit
T1
Has the Down Count advanced 10mSecs since BuzzLed was Set ?
10 milliseconds elapsed ?
No
Ja
Turn Off BuzzLed
Pb1 = Off
Reti


The Timer0 Overflow Interupt Routine is called @ 37500 Hz
Timer0 Interrupt
The 16-Bit Pulse Counter is decremented every 27 Micro Seconds
Decrement Pulse Count
If Pulse Count has not elapsed then goto T0.
Pulse Count = 0 ?
No
Ja
If Pulse Count has ended then restore the Pulse Count value from the Holding Registers
Restore Pulse Count From Hold Register
Increase the Pulse Position Register by 1.From Bits 000 to Bits 111.Effectively a divide by 8
Increment Pulse Position Register
We only need the least significant 3 Bits ... XXXX XYYY
Mask Off Bits 0...2
Is the Pulse Position Register count now at position 1?
Pulse Position = 001 ?
No
Ja
Output the relevant Bits
Pb3 = On
Pb4 = Off
Is the Pulse Position Register count now at position 5?
Pulse Position = 101 ?
No
Ja
Output the relevant Bits
Pb3 = Off
Pb4 = On
Else clear both Bits
Pb3 = Off
Pb4 = Off
T0
Goto T0