

```

*****
* Name      : Mushroom Clock COLOR.pbp      *
* Author    : Guy Marsden                    *
* Date      : 1/24/19                        *
* Version   : 1.9                            *
* Notes     : uses 16 LED NeoPixel from AdaFruit
*           : and PIC12F683 @20MHz          *
*           : color changing by the hour for Mushroom lamp clock
*           : Uses 16 NeoPixel ring
*           : triggered by Sync_in or manual button set
*****

#IF __PROCESSOR__ = "12F683"
#CONFIG
    __config _EC_OSC & _WDT_OFF & _MCLRE_OFF & _CP_OFF
#ENDCONFIG
#ELSE
    #MSG "Wrong Processor selected!"
#ENDIF

DEFINE OSC 20
DEFINE NO_CLRWDT 1 ' Don't waste cycles clearing WDT

'----- Const -----
NEO_NUM      CON 16 'Number of pixels

'----- Variables -----

NeoGreen     VAR BYTE[NEO_NUM]
NeoBlue      VAR BYTE[NEO_NUM]
NeoRed       VAR BYTE[NEO_NUM]
NeoPixel     VAR BYTE           'Looping variable
NeoPixValue  VAR BYTE           'Value to be bit-banged
Red          VAR BYTE           ' colors
Green        VAR BYTE
Blue         VAR BYTE
Time         VAR WORD
X            VAR BYTE
Color        VAR BYTE           ' color

'----- ALIAS -----

NeoPin       VAR GPIO.2         ' NeoPixel output pin
Mode_1       VAR gpio.0         ' mode switch
Mode_2       VAR gpio.1
Sync_out     VAR gpio.4         ' sync to other modules
Sync_in      VAR gpio.3

'----- Initialization -----

CLEAR        ' Clear RAM before entry

ANSEL = 0
CMCON0 = 7           'Comparator disabled
CCP1CON = 0
OPTION_REG.7 = 0     ' ENABLE WEAK PULL-UPS
WPU = %00001011     ' WEAK PULL UPS ON 0 AND 1
TRISIO = %101011    ' I/o config

```

```
NeoPin = 0
```

```
'----- Main program -----'
```

```
Init:
```

```
Color = 0
GOSUB SetColor      ' start at 12:00 on power up
GOSUB NeoPixelDump
PAUSE 5
GOSUB NeoPixelDump      ' update LEDs
Color = 0
```

```
Main:
```

```
IF (Sync_in = 0) OR (Mode_1 = 0) THEN      ' hourly trigger to step through clock
    Color = Color + 1
    IF Color > 11 THEN Color = 0
    GOSUB SetColor
    WHILE (Sync_in = 0) OR (Mode_1 = 0) : WEND      ' wait for end of cync signal
ENDIF
GOTO Main
```

```
SetColor:
```

```
BRANCH Color, [Color0, Color1, Color2, Color3, Color4, Color5, Color6, Color7, Color8,
Color9, Color10, Color11]
```

```
' hand tweaked colors
```

```
Color0:      ' fill color red
```

```
FOR X = 0 TO NEO_NUM -1
    NeoGreen[X] = 0      ' set solid color
    NeoBlue[X] = 0
    NeoRed[X] = 100
NEXT X
GOSUB NeoPixelDump      ' update
RETURN
```

```
Color1:      ' fill color light orange
```

```
FOR X = 0 TO NEO_NUM -1
    NeoGreen[X] = 20      ' set solid color
    NeoBlue[X] = 0
    NeoRed[X] = 190
NEXT X
GOSUB NeoPixelDump      ' update
RETURN
```

```
Color2:      ' fill color
```

```
FOR X = 0 TO NEO_NUM -1
    NeoGreen[X] = 50      ' set solid color
    NeoBlue[X] = 0
    NeoRed[X] = 190
NEXT X
GOSUB NeoPixelDump      ' update
RETURN
```

```
Color3:      ' fill color light orange
```

```
FOR X = 0 TO NEO_NUM -1
    NeoGreen[X] = 80      ' set solid color
    NeoBlue[X] = 0
    NeoRed[X] = 200
```

```
    NEXT X
    GOSUB NeoPixelDump      ' update
    RETURN

Color4:  ' fill color yellow
    FOR X = 0 TO NEO_NUM -1
        NeoGreen[X] = 110      ' set solid color
        NeoBlue[X] = 0
        NeoRed[X] = 170
    NEXT X
    GOSUB NeoPixelDump      ' update
    RETURN

Color5:  ' fill color
    FOR X = 0 TO NEO_NUM -1
        NeoGreen[X] = 180      ' set solid color
        NeoBlue[X] = 0
        NeoRed[X] = 60
    NEXT X
    GOSUB NeoPixelDump      ' update
    RETURN

Color6:  ' fill color green
    FOR X = 0 TO NEO_NUM -1
        NeoGreen[X] = 200      ' set solid color
        NeoBlue[X] = 10
        NeoRed[X] = 0
    NEXT X
    GOSUB NeoPixelDump      ' update
    RETURN

Color7:  ' fill color blue-green
    FOR X = 0 TO NEO_NUM -1
        NeoGreen[X] = 140      ' set solid color
        NeoBlue[X] = 35
        NeoRed[X] = 0
    NEXT X
    GOSUB NeoPixelDump      ' update
    RETURN

Color8:  ' fill color blue
    FOR X = 0 TO NEO_NUM -1
        NeoGreen[X] = 50      ' set solid color
        NeoBlue[X] = 240
        NeoRed[X] = 0
    NEXT X
    GOSUB NeoPixelDump      ' update
    RETURN

Color9:  ' fill color blue-violet
    FOR X = 0 TO NEO_NUM -1
        NeoGreen[X] = 0      ' set solid color
        NeoBlue[X] = 255
        NeoRed[X] = 62
    NEXT X
    GOSUB NeoPixelDump      ' update
    RETURN

Color10: ' fill color violet
    FOR X = 0 TO NEO_NUM -1
```

```
        NeoGreen[X] = 0           ' set solid color
        NeoBlue[X] = 150
        NeoRed[X] = 150
NEXT X
GOSUB NeoPixelDump           ' update
RETURN

Color11:  ' fill color red-violet
FOR X = 0 TO NEO_NUM -1
    NeoGreen[X] = 0           ' set solid color
    NeoBlue[X] = 22
    NeoRed[X] = 90
NEXT X
GOSUB NeoPixelDump           ' update
RETURN

' ===== subroutines =====

INCLUDE "..\_Include\NeoPixelDump.pbp"
```