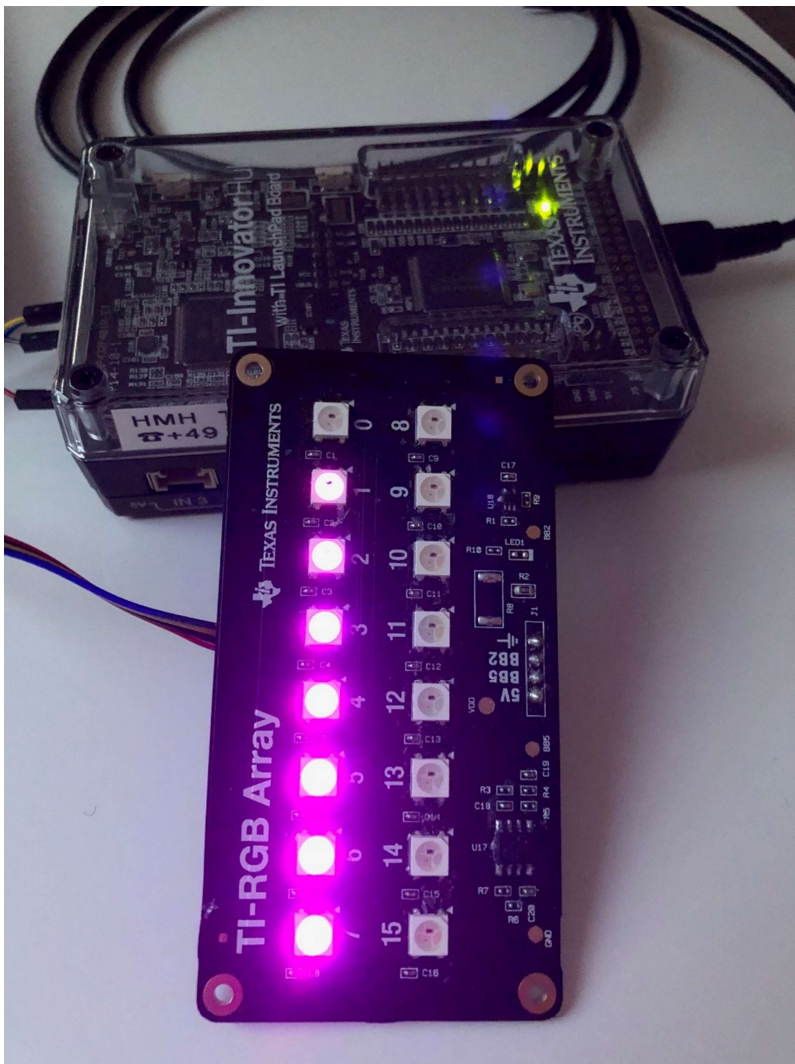# XMAS Lights using TI-Innovator Hub (firmware 1.4) & TI RGB Array

This program turns on a row of RGB diodes (0-7), one LED each, at random color. After all LEDs are on, it dims down the LEDs in 4 stages (75%/50%/25%/off), starting at LED 0, all the way to LED 7.

The effect is very similar to popular snow drop LED animation, created by professional Christmas Light decoration gear. Enjoy decorating your Christmas Tree with a couple TI-RGB Arrays, powered by TI-Innovators 😊.

```
Define colorsnowdrops()=
Prgm
:Local r,g,b,i,x,p,l,n,t,z,pwravail,statok                              Keep all variables local
:Send "READ PWR"                                                        Check for external power avail on hub
:Get pwravail,statok

:If statok=0 Then                                                       Sometimes the first <Get> command does not work
:  Get pwravail,statok
:EndIf
:If pwravail=1 Then
:  Send "CONNECT RGB AS LAMP"                                           Boost LED brightness if xternal power available
:Else
:  Send "CONNECT RGB"                                                   Else: use normal brightness
:EndIf
:While getKey()=""                                                      Keep going as long as no key is pressed
:  z:=randInt(1,7)                                                      Random pick one out of 7 possible colors
:  r:=((z and 4)/(4))                                                   Isolate the RGB bits to represent the appropriate RGB color
:  g:=((z and 2)/(2))
:  b:=z and 1
:For i,0,7
:  Send "SET RGB eval(i) eval(r*255) eval(g*255) eval(b*255)"          Successively turn on row of LEDs, one by one
:Wait 0.1                                                               Wait 100ms before proceeding to next LED
:EndFor
:For i,0,11                                                             Now, here starts the LED dim cycle
:  If i<4 Then                                                          Different parameters needed to build a group of for LEDs
:    x:=i                                                               getting dimmed. Start with the first four
:    l:=−1
:  ElseIf i≤7 Then                                                      Then proceed through the line of the 8 LEDs, till the end is
:    x:=4                                                               reached
:    l:=−1
:  ElseIf i>7 Then                                                      At the end, reduce the fading group to 3,2,1 LEDs
:    x:=4
:    l:=i-8
:  EndIf
:  While x>l                                                            Adjust brightness level, depending on which LED is currently
:   If x=0 Then                                                         being addressed:
:     p:=204                                                            80% brightness (while 100% equal 255)
:   ElseIf x=1 Then
:     p:=153                                                            60% brightness
:   ElseIf x=2 Then
:     p:=102                                                            40% brightness
:   ElseIf x=3 Then
:     p:=51                                                             20% brightness
:
```

```
ElseIf x=4 Then                                        … and 0% brightness (Off)
:     p:=0
:    EndIf
: Send "SET RGB eval(i-x) eval(p*r) eval(p*g) eval(p*b)"    Update the LED of the array
:    x:=x-1
:  EndWhile                                             Are we done with all four?
: Wait 0.1                                              Yes, wait 100ms before proceeding
:EndFor                                                 Next group to dim
:EndWhile                                               Key pressed? Yes: exit the program
:EndPrgm
```