

# Cylon LEDs

This Cylon LEDs project is a kit that uses 8 red LEDs to create a pattern that moves back and forth. This effect was also very popular on “KITTY” the car from Knight Rider.

An SX28 microcontroller is used to create the effect. A pot is read by the SX28 to adjust the speed of the motion, and the eight LEDs are driven by the SX28 using 8 I/O pins.

The code for the SX28 is written using the SX/B basic compiler for the SX series of controllers. If you have an SX programmer (SX-Key or SX-Blitz) you are free to modify the program and try different patterns.

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' Cylon-LEDS.SXB
' For Gadget Gangster Cylon-LED project (www.gadgetgangster.com)
' Author: Hitt Consulting (terry@hittconsulting.com)
,
DEVICE SX28,OSC4MHZ,TURBO,OPTIONX,STACKX,BOR22
FREQ 4_000_000

' Define I/O Pins
UnusedRA PIN RA INPUT PULLUP
UnusedRB PIN RB INPUT PULLUP

ADCIn PIN RA.1 INPUT CMOS NOPULLUP
ADCOut PIN RB.0 OUTPUT NOPULLUP

LEDS PIN RC OUTPUT

' Define Variables
temp VAR BYTE
patternOffset VAR BYTE

' Define Program starting label
PROGRAM Start

' Start of program
Start:
patternOffset = 0
DO
    READINC Patterns + patternOffset, temp
    IF temp = $FF THEN
        patternOffset = 0
    ELSE
        LEDS = temp
        ANALOGIN ADCIn, ADCOut, temp
        PAUSE temp
    ENDIF
LOOP
END

Patterns:
' Pattern is ended with %1111_1111 value
' Back & Forth Pattern
DATA %1000_0000, %0100_0000, %0010_0000, %0001_0000, %0000_1000, %0000_0100, %0000_0010, %0000_0001
DATA %0000_0010, %0000_0100, %0000_1000, %0001_0000, %0010_0000, %0100_0000, %0100_0000, %1111_1111

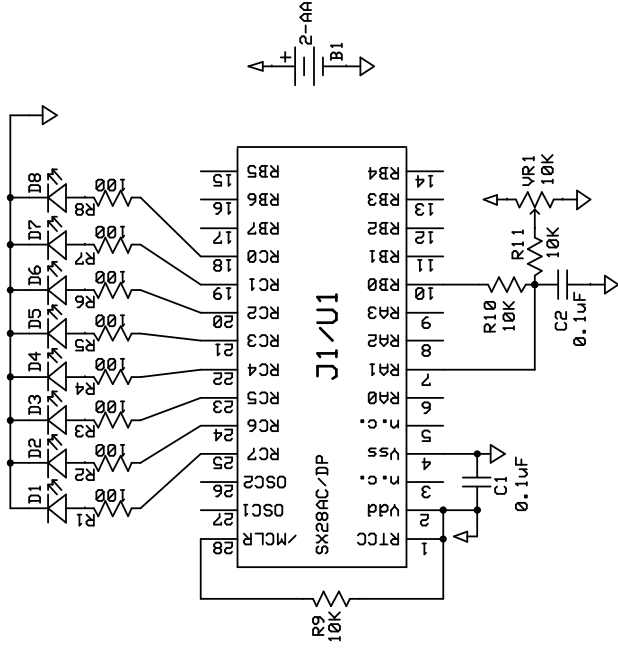
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### Parts:

PCB = Half Board PCB  
 W1 = Gray Jumper Wire  
 W2,3 = Red Jumper Wire  
 R1-8 = 100 Ohm Resistor (Brown, Black, Brown)  
 R9-11 = 10K Resistor (Brown, Black, Orange)  
 C1,2 = 0.1uF Capacitor (104)  
 J1 = 28 Pin Socket (0.3 width)  
 D1-8 = Red LED  
 VR1 = 10K Pot  
 B1 = 2 AA Cell Holder  
 U1 = SX28AC/DP (Pre-Programmed)

### Connections:

W1 - E22, M22  
 W2 - D6, F6  
 W3 - D11, F11  
 R1 - 01, K8  
 R2 - 04, K9  
 R3 - 07, K10  
 R4 - 010, K11  
 R5 - 013, K12  
 R6 - 016, K13  
 R7 - 019, K14  
 R8 - 022, K15  
 R9 - F4-F5-F6, K4-K5  
 R10 - F14, C11  
 R11 - B11, B15-B16  
 C1 - E4, A4  
 C2 - E8-F8, B10-B11  
 J1 - G2(Pin 1)  
 D1 - Q1(short lead, flat side), P1(Long lead, round side)  
 D2 - Q4(short lead, flat side), P4(Long lead, round side)  
 D3 - Q7(short lead, flat side), P7(Long lead, round side)  
 D4 - Q10(short lead, flat side), P10(Long lead, round side)  
 D5 - Q13(short lead, flat side), P13(Long lead, round side)  
 D6 - Q16(short lead, flat side), P16(Long lead, round side)  
 D7 - Q19(short lead, flat side), P19(Long lead, round side)  
 D8 - Q22(short lead, flat side), P22(Long lead, round side)  
 VR1 - B16, A20, C20-D20-E20  
 B1 - A22(red), N23(black)  
 ...- A6-B6  
 ...- Q23-M23-M22  
 ...- D20-E20



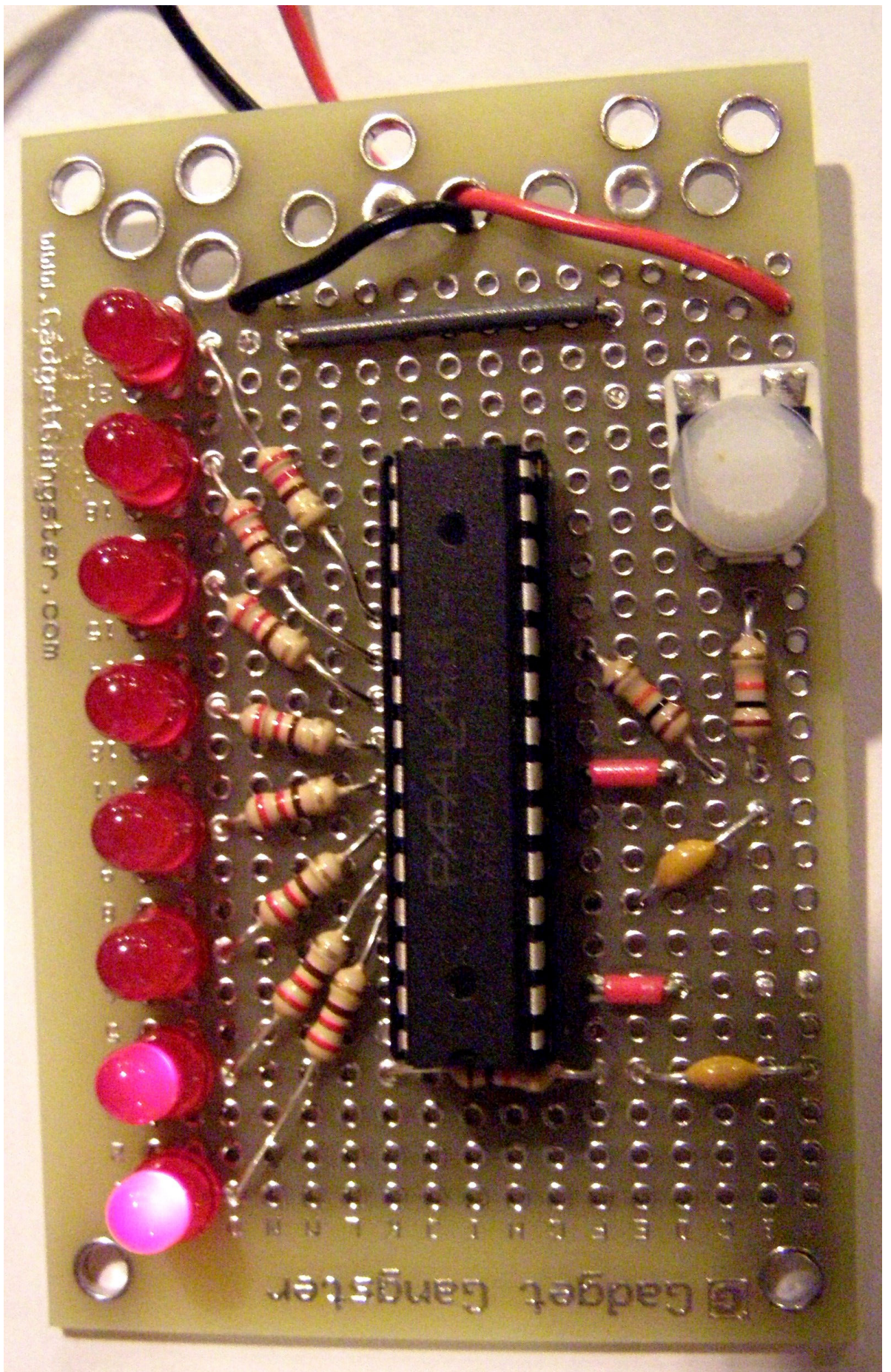
## Cylon-LEDs

Hitt Consulting [www.hittconsulting.com](http://www.hittconsulting.com)

Terry Hitt

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

P Q R N M L K J I H G F E D C B A

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