# LEDs and Switches

I keep a handheld yahtzee electronic game on the end table. Runs on 2 AA batteries forever. It has buttons and LCD display … essentially pixel areas that could be turned on and off.

Mattel Football 1977. Playfield was 27 LEDs in a grid 3vert x 9 horiz. Bright and dim. Bright you. Dim opposing football team. Move up down left right to move down the field to score.

In this chapter we will make a simple LED/switch game. Learn to use the tools. Introduction to assembly (Z80).

Game Hardware

Computer architecture

Random

Challenges: Hex, simon

Chal

2.1 mm Barrel Plug

Parts List

* Propeller (DIP) [619-P8X32A-D40](http://www.mouser.com/ProductDetail/Parallax/P8X32A-D40/?qs=sGAEpiMZZMtOXy69nW9rM%252b9YS336GX9Xh7T%252b%252bU53NzE%3d)
* Serial EEPROM [579-24LC256-I/P](http://www.mouser.com/ProductDetail/Microchip-Technology/24LC256-I-P/?qs=sGAEpiMZZMuVhdAcoizlRS6kJF9v8jHR1dyivW9lRao%3d)
* Half height crystal [520-HCU500-20X](http://www.mouser.com/ProductDetail/ECS/ECS-50-20-4X/?qs=sGAEpiMZZMsBj6bBr9Q9aQVbz5FLOGxjOUap4FpIMqk%3d)
* 5v regulator [**821-TS2940CZ50**](http://www.mouser.com/Search/ProductDetail.aspx?R=TS2940CZ50virtualkey53310000virtualkey821-TS2940CZ50)
* 3v regulator [**619-601-00513**](http://www.mouser.com/Search/ProductDetail.aspx?R=601-00513virtualkey61900000virtualkey619-601-00513)
* 10uf [**647-UVR1E100MDD1TA**](http://www.mouser.com/Search/ProductDetail.aspx?R=UVR1E100MDD1TAvirtualkey64700000virtualkey647-UVR1E100MDD1TA)
* 1uf [**810-FK18Y5V1C105Z**](http://www.mouser.com/Search/ProductDetail.aspx?R=FK18Y5V1C105Zvirtualkey52130000virtualkey810-FK18Y5V1C105Z)
* 9v wall wart [**553-WDU9-1000**](http://www.mouser.com/Search/ProductDetail.aspx?R=WDU9-1000virtualkey55310000virtualkey553-WDU9-1000)
* Wall wart PCB socket [**163-179PH-EX**](http://www.mouser.com/Search/ProductDetail.aspx?R=163-179PH-EXvirtualkey11180000virtualkey163-179PH-EX)
* Breadboards
* 7 segment (\*2)
* PCB push buttons pololu
* 20 100 ohm
* 20 220 ohm
* 20 330 ohm

Good Z80 reference

<http://www.andreadrian.de/oldcpu/Z80_number_cruncher.html>