Power supply
modified USB cable

PWR_FLAG

+5V

78L05
IN   OUT
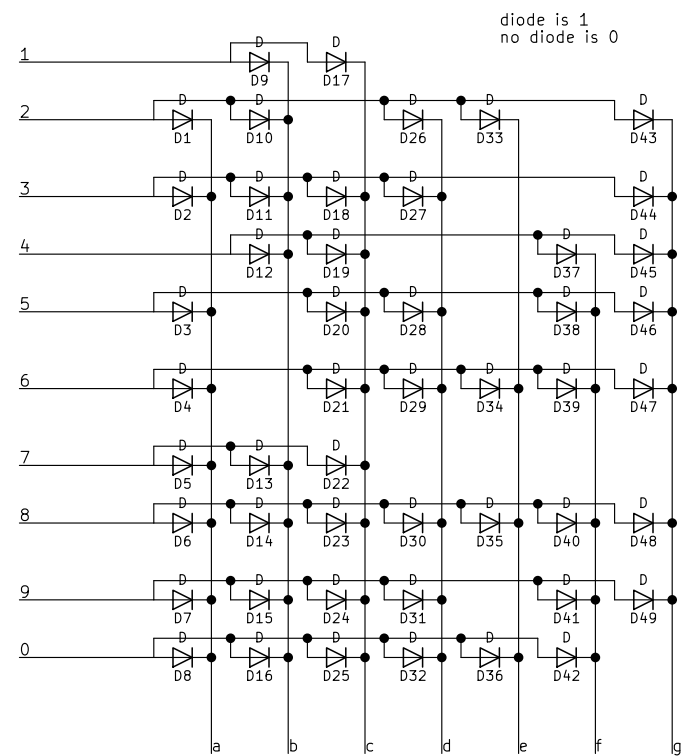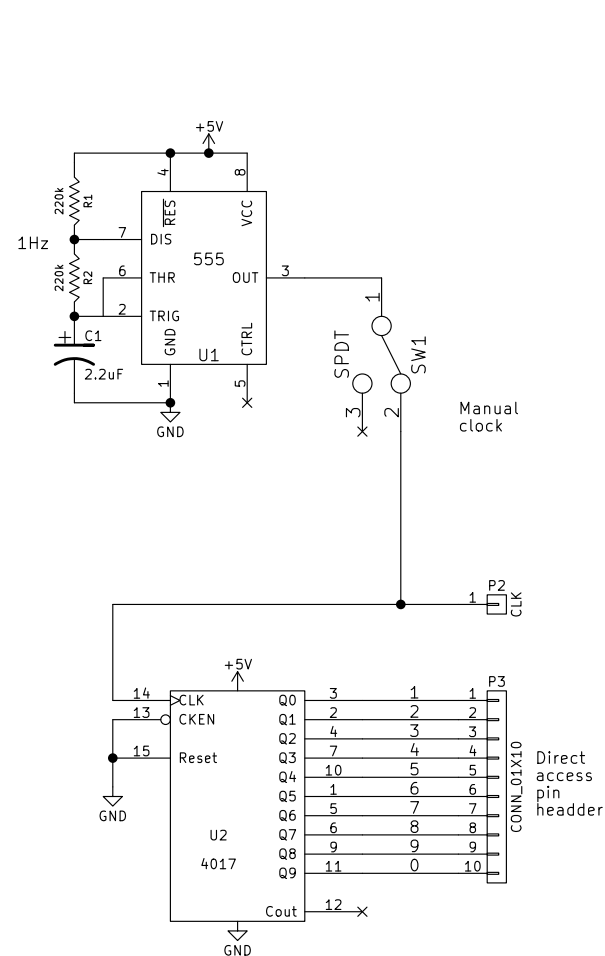GND
U3

CONN_01X02 P1
PWR_FLAG
C2
1uF
GND

This is a diode ROM
similar that was used in pioneers of
computing. Look up "diode matrix"

Q: lolwtf?
A: The matrix of diodes is hardwired memory.
   Each row is one word/byte with the
   length of 7 bits. The circuit 'stores' data
   for displaying a number on a 7 segment LED display
   (hence 7 bit word)
   I'll be making the memory and the display from
   discrete diodes and the only chips are for
   changing the address. Counting up at 1Hz frequency.
   It would also work by putting logic HIGH on anode
   of one of the leftmost diodes and get your output
   on the bottom. That's where the display is wired.

Rows are digits, columns are segments

diode is 1
no diode is 0

+5V
220k R1
1Hz
220k R2
RES VCC
DIS
THR 555 OUT
TRIG U1
GND CTRL
C1
2.2uF
GND

SPDT
SW1
Manual
clock

P2
CLK

+5V
CLK   Q0
CKEN Q1
      Q2
Reset Q3
      Q4
      Q5
U2   Q6
4017 Q7
      Q8
      Q9
Cout
GND

P3
Direct
access
pin
headder
CONN_01X10

1
2
3
4
5
6
7
8
9
0

D9 D17
D1 D10 D26 D33 D43
D2 D11 D18 D27 D44
D12 D19 D37 D45
D3 D20 D28 D38 D46
D4 D21 D29 D34 D39 D47
D5 D13 D22
D6 D14 D23 D30 D35 D40 D48
D7 D15 D24 D31 D41 D49
D8 D16 D25 D32 D36 D42

a b c d e f g

--a--
f   b
--g--
e   c
--d--

      abcdefg
1 -- 0110000
2 -- 1101101
3 -- 1111001
4 -- 0110011
5 -- 1011011
6 -- 1011111
7 -- 1110000
8 -- 1111111
9 -- 1111011
0 -- 1111110

+5V
BC547
Aiming for 10mA per
segment

a   Q1
    Q_NPN_CBE
        R3
        330
b   Q2   1.7V drop per segment
    Q_NPN_CBE
        R4   7-seg_1-dig
        330   U4
c   Q3   A
    Q_NPN_CBE   B
        R5   C
        330   D
d   Q4   E
    Q_NPN_CBE   F
        R6   G
        330   DP GND GND
e   Q5
    Q_NPN_CBE   GND
        R7
        330
f   Q6
    Q_NPN_CBE
        R8
        330
g   Q7
    Q_NPN_CBE
        R9
        330

orange
orange
brown