Arduino Intervalometer

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What?

+

= ...

Why?

- Fun!
- Learn!
- Kits?!

and…

Why?

450$

(75$ = LCD backlight!)

305$

150$

WHAT!?!

Beginnings: Specs!

- What do you want?
- What *might* you want?
- How *might* you pull it off?

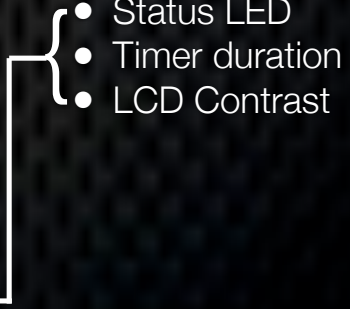
- Sit down at a piece of paper and figure it out...
- Sleep.
- Repeat!

- Version control. Right. Now.

Parts!

- Interface
  - Encoder
  - LCD
  - Buttons
  - ⅛” jacks
  - RGB Status LED

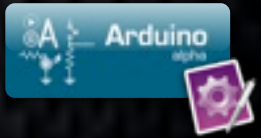
- Supporting Logic
  - Shift Register
  - Digital Potentiometer
  - Trigger Timer



Parts!

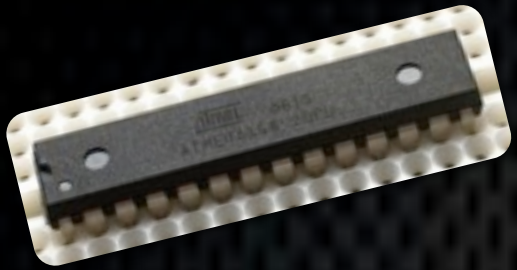
~30$

On to the ‘how’…



- Separate problem into segments, construct each segment individually:
  - Write the required code
  - Keep it small and reusable
  - Diagram the circuit (on paper!)

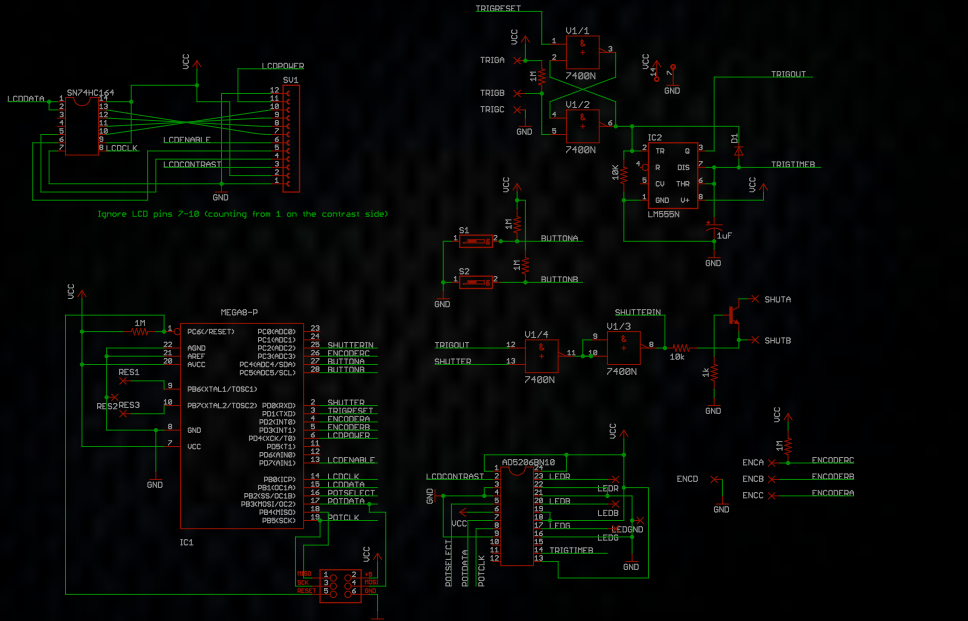
Arduino

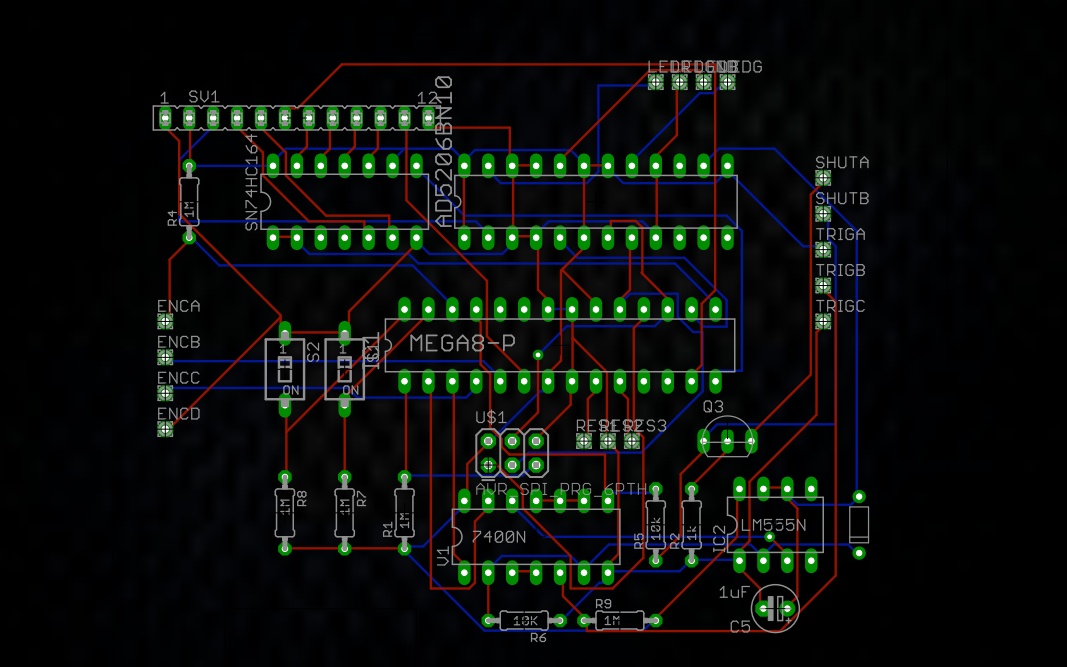


ATmega168

- 20 I/O (6 PWM, 6 ADC)
- 16 KB program memory
- Free GCC backend
- 5 volts
- 16 MHz
- 4$ apiece

EAGLE


LCDPOWER
SU1
LCDDATA
SN74HC164
LCDENABLE
LCDCLK
LCDCONTRAST
GND
VCC
Ignore LCD pins 7-10 (counting from 1 on the contrast side)
TRIGRESET
V1/1
TRIGA
TRIGB
TRIGC
1M
7400N
V1/2
IC2
TRIGOUT
D1
TRIGTIMEB
10K
LM555N
1uF
S1
S2
BUTTONA
BUTTONB
MEGA8-P
IC1
RES1
RES2
RES3
SHUTTERIN
ENCODERC
BUTTONA
BUTTONB
SHUTTER
TRIGRESET
ENCODERA
ENCODERB
LCDPOWER
LCDENABLE
LCDCLK
LCDDATA
POTSELECT
POTDATA
POTCLK
V1/4
V1/3
SHUTA
SHUTB
10k
1k
ADS7843N10
LCDCONTRAST
LEDR
LEDB
LEDG
LEDGND
TRIGTIMEB
POTSELECT
POTDATA
POTCLK
ENCD
ENCA
ENCB
ENCC
ENCODERC
ENCODERB
ENCODERA



1
SV1
12
SN74HC164
AD5206BN10
R4
1M
SHUTA
SHUTB
TRIGA
TRIGB
TRIGC
ENCA
ENCB
ENCC
ENCD
S2
ON
MEGA8-P
U$1
Q3
AVR_SPI_PRG_6PTH
R8
R7
R1
1M
7400N
V1
R5
10k
R2
1k
IC2
LM555N
1uF
C5
R9
1M
10K
R6