Universal Filament Maker

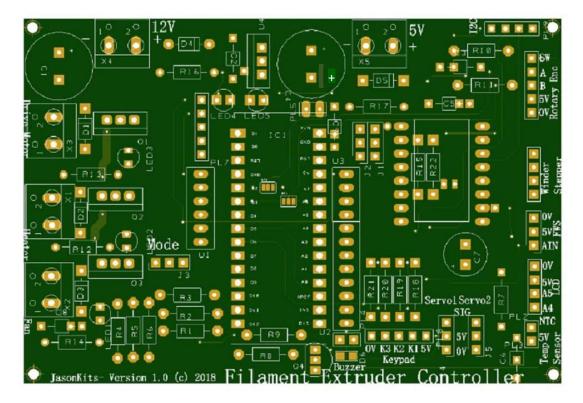Components

Resistors	Value
R1,R2,R3	100R
R4,R5,R6,R7	100K
R8,R9,R10,R11,R15,R18,R22	5K6
R12,R13,R14, R16,R17	1K
R19	2K7
R20	1K5
R21	680R
Capacitors	
C1,C4	470uf 25v
C2,C3,C5,C6,C8,C9	100nf
C7	100uf -16v
Semiconductors	
Q4	2N3904
D6	1N4148
D1,D2,D3,D5	1N4001-7
D4	1N5801
U4	7808
Q1,Q2,Q3	IRF540
LED1,LED2,LED3,LED4,LED5	Green LED
IC1	ARDUINO NANO V3 -
IC2	DRV8825 MODULE
Miscellaneous	
X1,X2,X3,X4,X5	2pin connector Terminal
Sil Pin connectors	2pin – 3pin – 4 pin – 5 pin
J1,J2,J3	Jumpers

Firmware :

Point your browser to: https://github.com/jasonmarkham/FilamentMaker and download the latest version. Software is regularly updated. So do check it out in order to get the latest firmware.

To upload the Hex file use the XLoader Tool from GitHub or get it directly from http://xloader.russemotto.com/

Assembly Instructions

Before soldering any components, Bridge the two contact jumpers SJ1, SJ2, use the centre pad and right pad to configure the rotary encoder to work on A6, A7. Also jumper with a short wire link PL5.

Install the resistors R1 – R21

Install the capacitors C2, C3, C5, C6, C8, and C9

Install the capacitors C1, C4

Install the capacitors C7

Install the Semiconductors

Diodes D1, D2, D3, D5 then D6

Diodes D4 – You will need to enlarge the hole for this component

Install Transistor Q4

Install Regulator U4

Install Power Mosfet Q1, Q2, Q3

Install LED LED1, LED2, LED3, LED4, LED5

Install IC1 – Observe orientation pin 1 to the left

Install IC2 – Observe orientation enable is pin 1 on the left. – you may need to spread the 8 pin sil a bit to fit in board – gently tweak the leads by bending on the bench.

Schematic