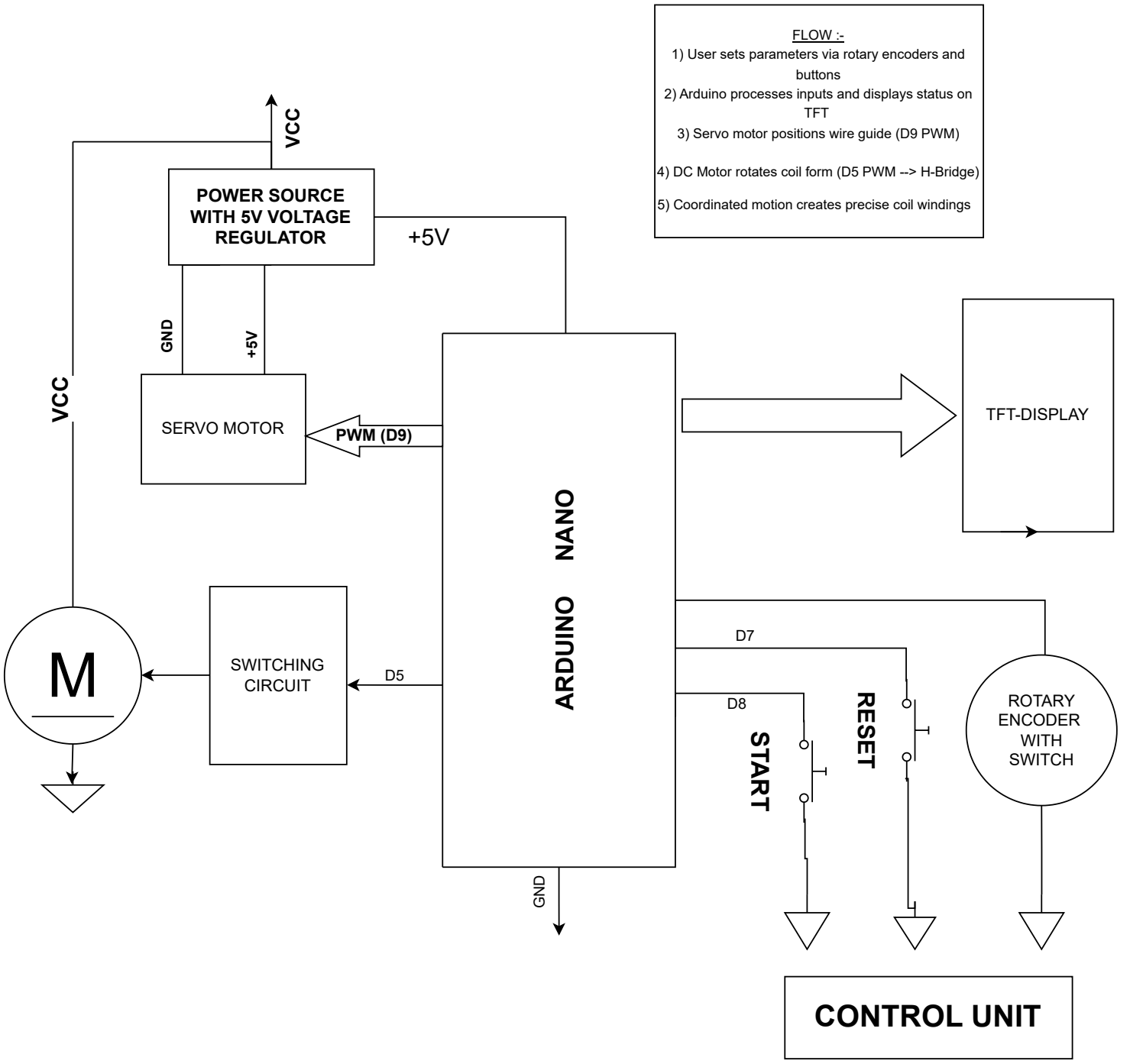
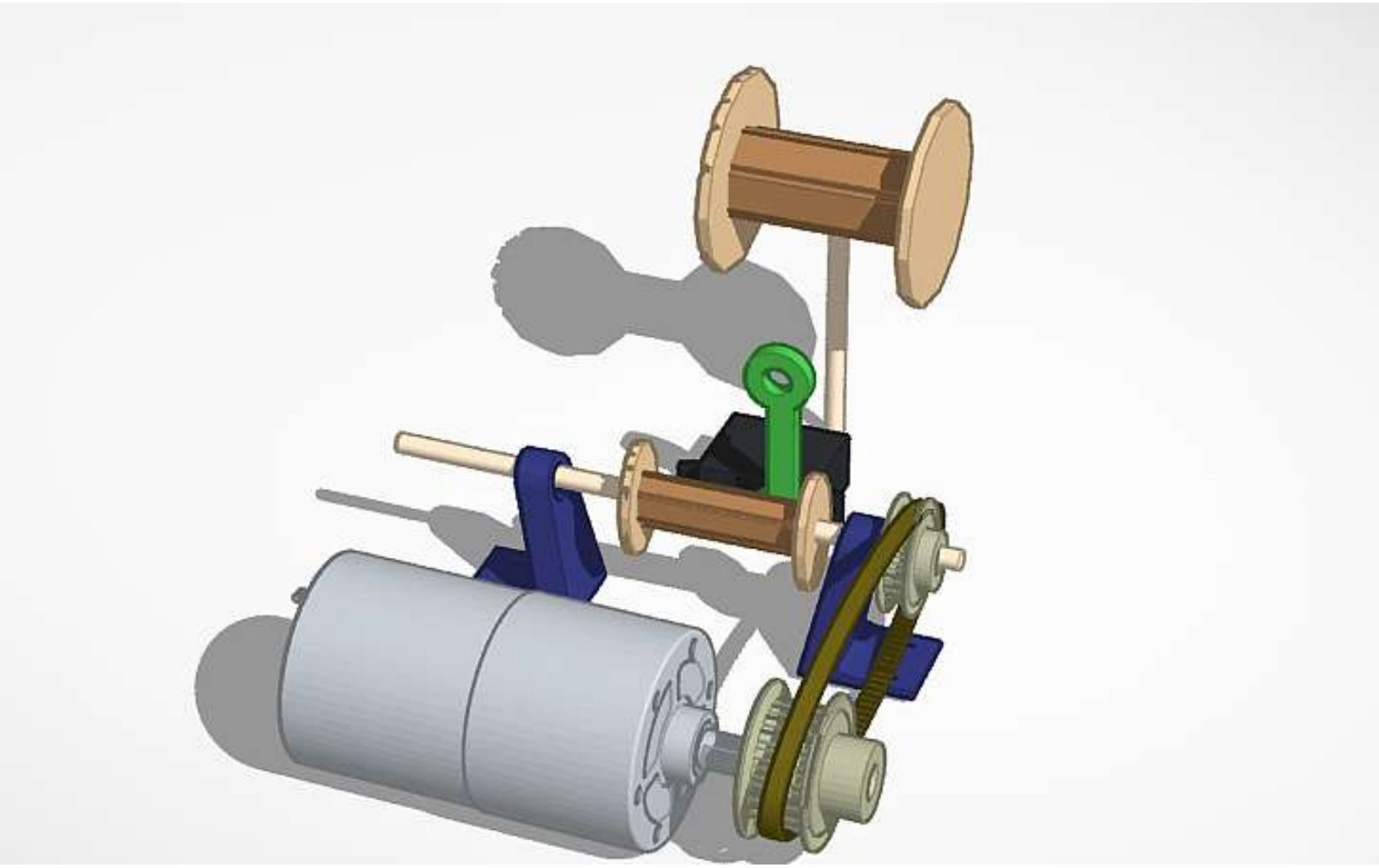
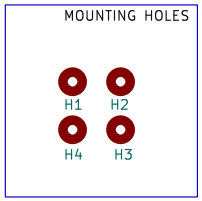
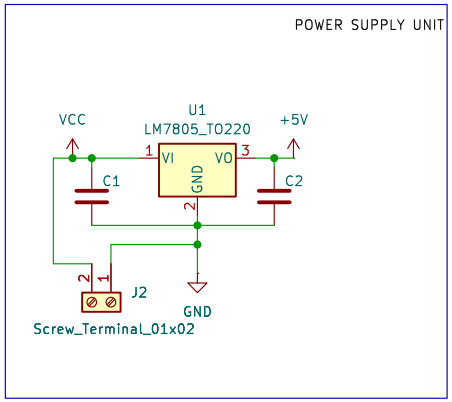
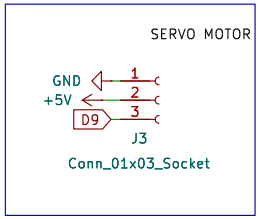
COIL WINDING MACHINE

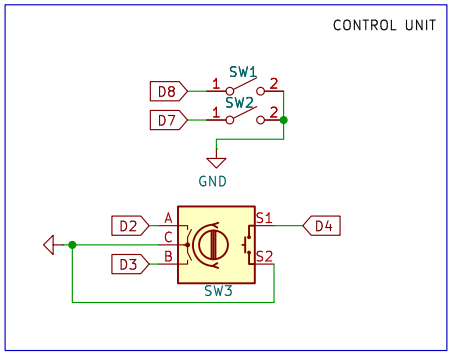


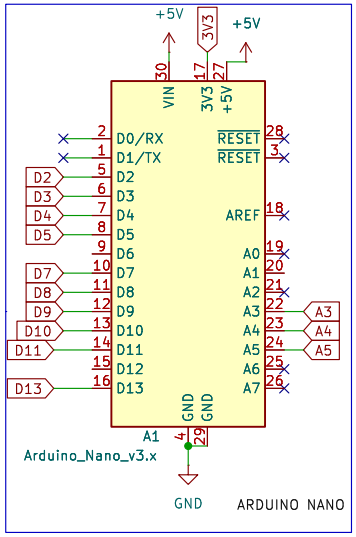


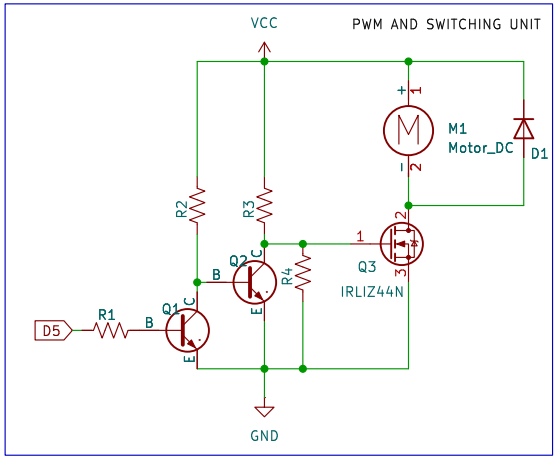

MOUNTING HOLES
H1
H2
H4
H3

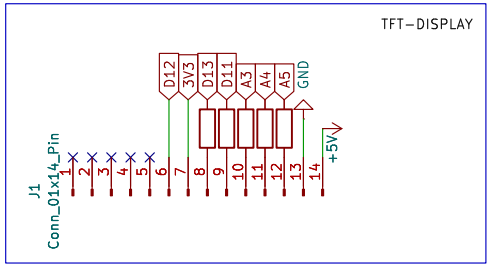

POWER SUPPLY UNIT
VCC
U1
LM7805_TO220
+5V
VI
VO
GND
C1
C2
J2
Screw_Terminal_01x02
GND


SERVO MOTOR
GND
+5V
D9
J3
Conn_01x03_Socket


CONTROL UNIT
SW1
SW2
D8
D7
GND
D2
D3
A
C
B
S1
S2
D4
SW3


+5V
3V3
+5V
VIN
3V3
+5V
D0/RX
D1/TX
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
RESET
RESET
AREF
A0
A1
A2
A3
A4
A5
A6
A7
GND
GND
A1
Arduino_Nano_v3.x
GND
ARDUINO NANO


VCC
PWM AND SWITCHING UNIT
M1
Motor_DC
D1
R2
R3
Q2
R4
Q3
IRLIZ44N
D5
R1
Q1
GND


TFT-DISPLAY
D12
3V3
D13
D11
A3
A4
A5
GND
+5V
J1
Conn_01x14_Pin

Bill of Materials (BOM)

Project: Coil Winding Machine | Date: 2025-05-26 | Revision: Rev. 1.0

Section A - Mechanical Components

Sr. No	Part Name	Qty	Specification / Details	Notes
M1	DC Motor	1	775 DC Motor, 12-24V, 10000 RPM	Shaft: 5mm
M2	Servo Motor	1	MG996R, 180deg Range, 15kg-cm	For lateral positioning
M3	MDF Board	1	11mm thick	Base structure
M4	Timing Pulley (Motor)	1	5mm bore, GT2 type	Mounted on 775 shaft
M5	Timing Pulley (Load)	1	5mm bore, GT2 type	Attached to winding mechanism
M6	Timing Belt	1	GT2, 100mm length, 6mm width	Matches 20T-40T pulley combo
M7	Ball Bearings	2	ID: 5mm, OD: 17mm, Width: 5mm	Deep groove type

Section B - Electronics Components

Sr. No	Part Name	Qty	Specification / Details	Notes
E1	Microcontroller	1	Arduino Nano (CH340 or ATmega328p)	Main control board
E2	Custom PCB	1	Single-layer, 7050 mm	Hosts power, logic, and I/O
E3	TFT Display	1	2.8-inch SPI TFT, 240320 res	CS:A5, RESET:A4, DC:A3
E4	Push Buttons	2	Tactile push buttons	For input controls
E5	Rotary Encoder	1	With push button, D-shaft	Navigation + selection
E6	MOSFET	1	IRF540N or equivalent	Controls DC motor via PWM
E7	Transistors	2	NPN type	For motor control
E8	Capacitors	10	100nF, 10uF, 470uF (mix)	Filtering and stability
E9	Resistors	10	220Ohm, 1kOhm, 10kOhm (mix)	Pull-up/down and limiting
E10	Diodes	4	1N4007	Flyback protection
E11	Voltage Regulator	1	LM7805	Power to logic and modules