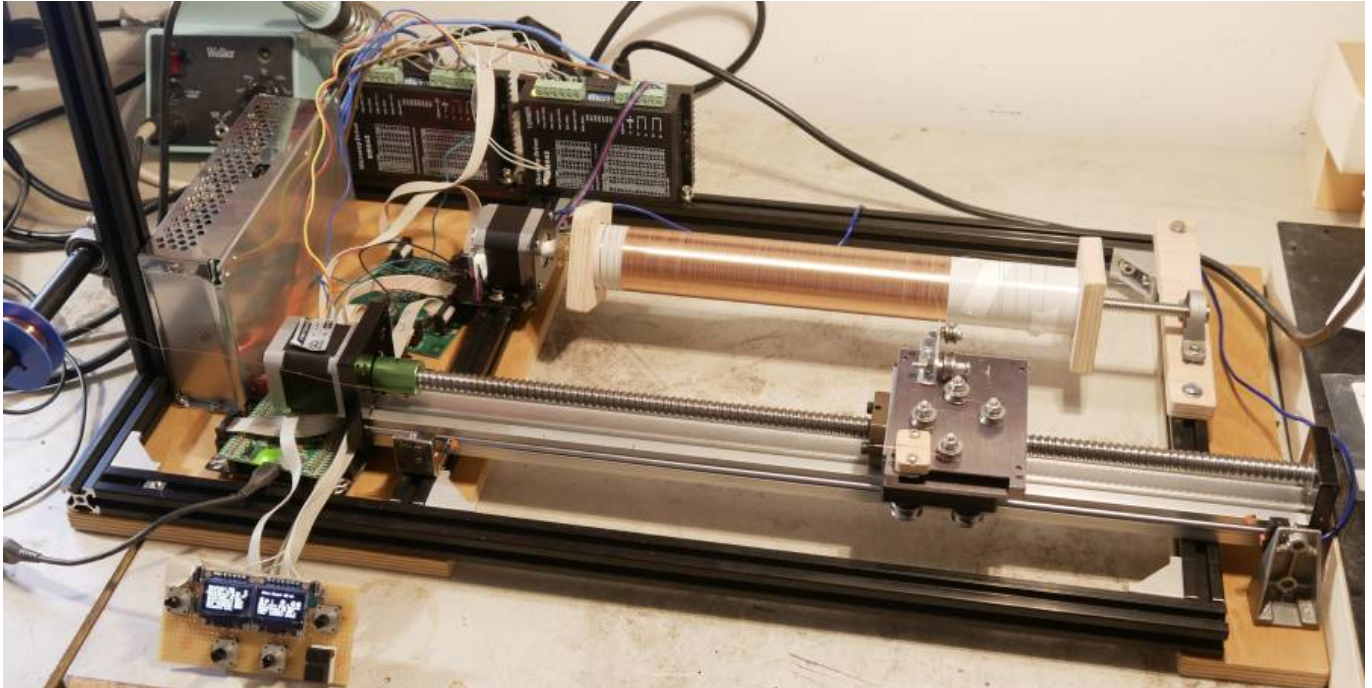


# Coil Winder

A Tesla Coil winding machine, controlled with Mios:



## CODE, FIRMWARE

Install **MIOS Studio**, connect a Core-Stm32F4 via USB, and Start the STUDIO

### 1. Upload **MIOS BOOTLOADER**

2. (only needet for Virgin Machines) type following commands into the MIOS-TERMINAL:

- set lcd\_type GLCD\_SSD1306\_ROTATED
- set lcd\_num\_x 2
- set lcd\_num\_y 1
- set lcd\_width 128
- set lcd\_height 64
- store

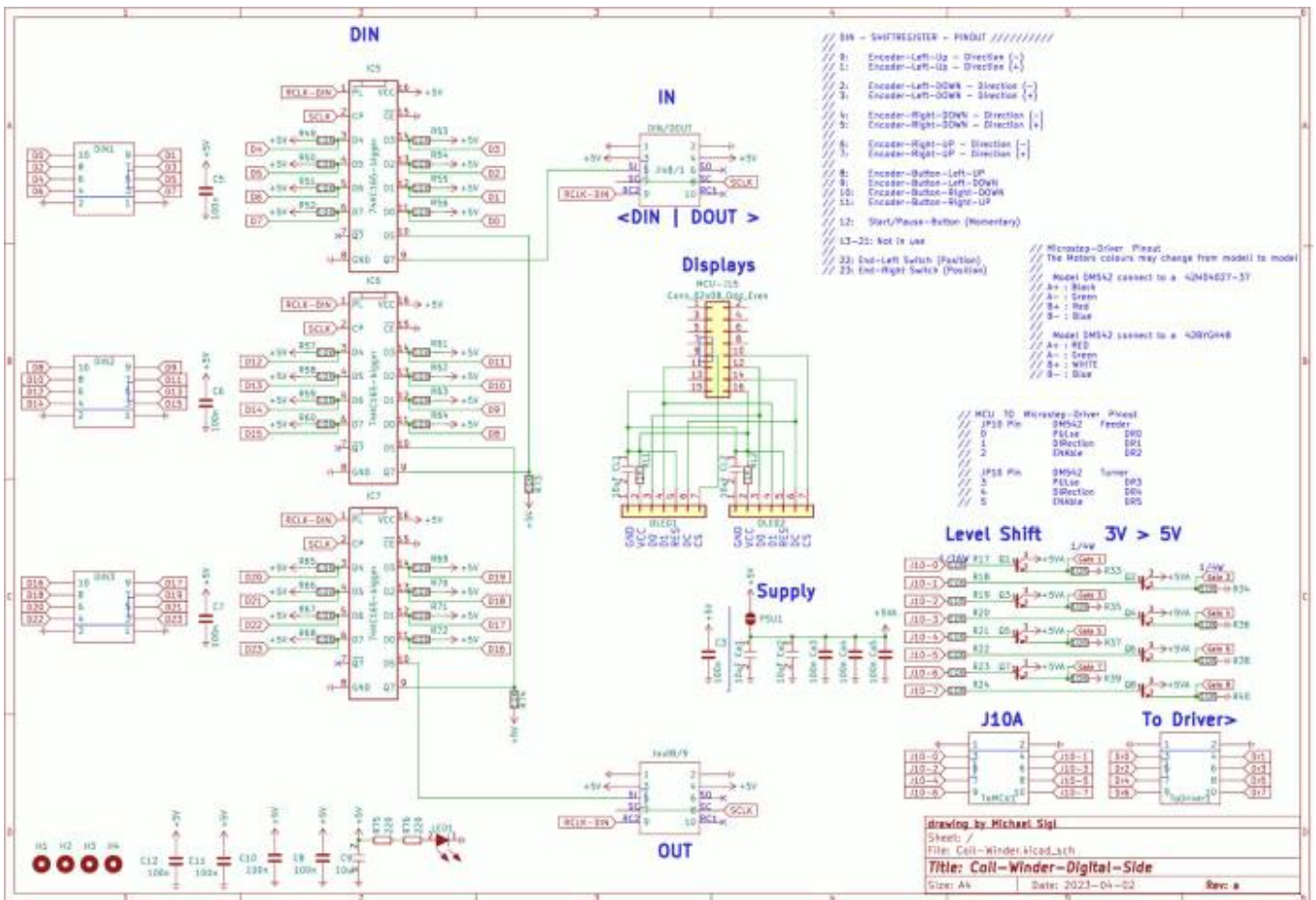
3. Unzip **the Firmware**, and Upload the project.hex

4. Unconnect USB & Connect the USB again — finished.

5. If the Machine is not detected by mios studio, and you already checked the usb-connections, the device or the code is broken, for that you may search for “Bootload Switch”, please set it to “bLOAD”, now you can upload new & unbroken codes, dont forget to set it to “normal” back again - after upload new code - else the APP will not boot...

# BUILD

## Shemata



The Rest is stated in the youtube video, in TimeLapse

You can use any motor you like, the code is programmed for a Motor that takes 400 steps for a whole 360° turn... if you use other motors you need to adapt the code (which you can download a bit above...)

## Main Parts

- Midibox:** Core STM32 based core (STM32F4)
- DINX4 Module (only 3DINX are used)
- Levelshifter circuit from 3to5Vs (J10A to Motor-Driver)
- 2x SSD1306 Screens with 64x128 Pixels - 7Pin Variant!!!
- 4x Encoders with inbuilt switches
- 1x Momentary Button for "Play/Pause"
- 1x Breathboard ca. 100x50mm
- 3 days time

There are a lot of wires, nuts and screw which i have not listed here, here are only the big and expensive parts:

## Amazon/Ebay/Ali...

Turner Motor: [Iverntech NEMA 17 Schrittmotor mit integrierter 400 mm T8-Leitspindel](#) I dont think that is a good choice, the T8 Spindle bends to much... better you M10-M12 ones and 450mm or more Travel

Feeder Motor: [Akozon Linearschiene](#) - this hasent come in good condition, the first 5cm moove a bit woobly

Corner-Mounts: [Justech 10x Winkelverbinder Aluprofil 20x20mm](#) better order 2 sets...

20x20mm Profiles: [CNCYEAH 4 Stück 800mm Aluminiumprofil20X20 T](#)

Stepper Motor Driver: [DM542 Schrittmotor Controller](#) you need 2 off them!

PSU: [Schaltnetzteil 24V 10A](#)

Mounting Kit for the Turner-Motor: [42 mm Schrittmotor-Halterung](#) not the stabelst one... mooves under Load...find better...

Microswitches: [Mikroschalter Endschalter mit Rollenhebel 250V 5A SPDT 1NO 1NC](#) you need 2 off them

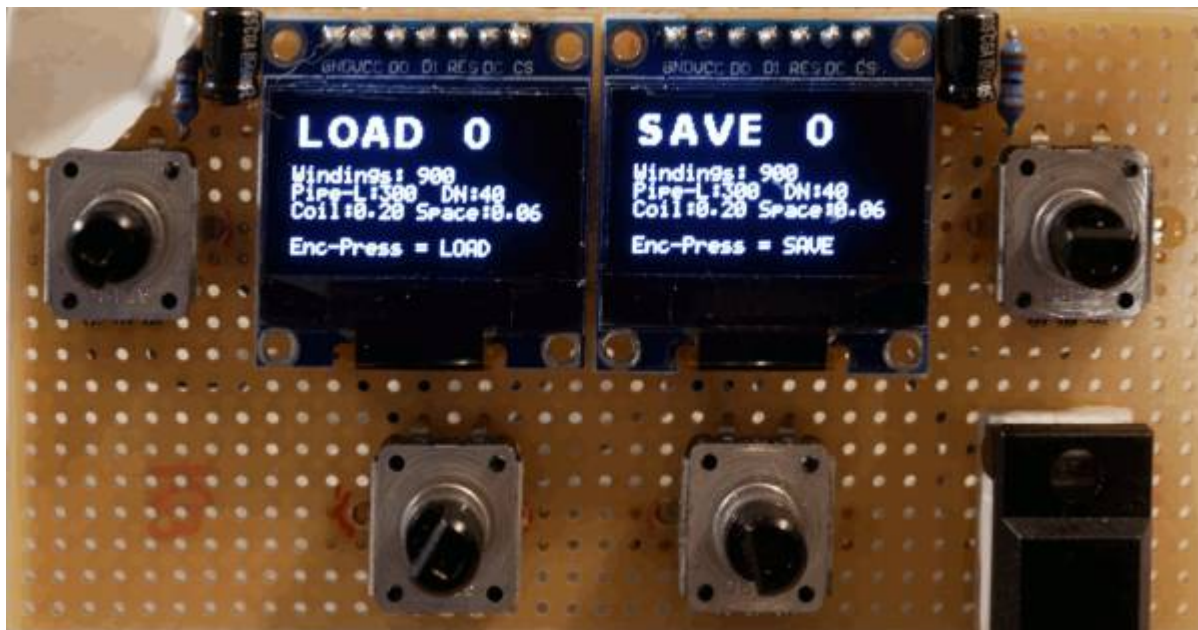
V-Rolls for Wires: [V624ZZ Kugellager V Nut Rillenkugellager](#) you will need 6 off them and special M4 Screws else they will not moove

T8 Nuts: [T8 Mutter Gewindespindel Messing Mutter](#) you need 3 off them, but you may find a better way to mount your pipe on the Spindle!

Flange Bearing: [Flanschlager](#) you need 2 off it...

## Menue Structure

Menue 1: Load and Save Coil-Data



Menue 2: Edit Coil-Data, and get some resulting values

```

Windings: 900
Wire-Di: 0.20 mm
>Wind-Space: 0.06 mm
PaintTime: 10 min
Start-Offset: 27mm
StartIsolWind: 10mm
End IsolWind: 20mm
WindTurn left

Pipe Diam: 40 mm
Sp: 0.06
29et more Viso btween
Resistance: 60 Ohm
Cable Length: 113 m
Coil Length: 273mm

```

Menue 3: Start the Operation, guide thru Stages

```

Winding      Stage:
Trn:0        Needhome

Winding      Stage:
Trn:0        FindHome

Winding      Stage:
Trn:0        StartOff

Winding      Stage:
Trn:0        StartIso

Winding      Stage:
Trn:15       NormWind

```



## Community users working on it

- **Phatline** = Programming, Documentation, Hardware-Prototype, Testing, Winding

## Getting Involved ?

Just let a Private message on the forum to user already involved

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