Mysticum Chess computer

PiPo Edition

Manufacturing Recommendations and User guide for software application

version: 16th of January 2017

Mysticum chess computer is a „do-it-yourself“ initiative,
sponsored by Guido Marquardt Programming
Michael Lang + Michael Powell hardware + Design

Foreword

Mysticum – the universal chess companion:

The **Mysticum** chess computer has been developed by Guido Marquardt since 2010. Everybody interested is welcome to rebuild this for own personal usage !
Michael Lang made this project public and besides maintaining an own dedicated web site, he is organizing workshops, where interested people can join to build up their own version. I have been effected as well by the project and supported with lot‘s of passion – especially regarding hardware and design. The new optimized circuit board with USB connection is the base for an easy built up and this documentation. With this guideline I like to encourage reproduction and want to give a simple overview of parts required, followed by tips and tricks to do the woodwork and electronics. All who are interested and who wants to be part of this exciting project, can manufacture their own chess board!
I wish you all a successful start!

General background of chess computer:
Chess computers nowadays are mainly sold in low cost segments, made out of plastic. There are only few new developments on the market available. Most devices from mass production can not be upgraded and are focussing on simple chess routines plus training functions for beginners. The market niche for chess boards with a more exclusive configuration is supported by the company DGT. Alternative some collectors are buying rather old versions from the used market, which have been manufactured during the 80th/ 90th. Prices are rather high and can go beyond 2.000,-€

Own motivation:

Since I’m not interested playing this beautiful game on a plastic chessboard - also not on a computer screen (although Fritz is representing a nice application, but we are business wise long enough in front of screens) I had to search for alternatives. There are not many available – Even the soon offered ChessGeius Exclusive by Millenium has a weird, cheap looking plastic control.
On the internet I searched for alternatives. Besides various Rasperry Pi solutions I found this project, which impressed me by it’s open concept. Further benefit was the online support by Michael Lang and cooperation with programmer Guido Marquardt. Since the project is under further development software wise, I decided to build up one on my own and document all key steps required in parallel to my progress. Costs are within the range of 350-500 Euro and everybody participating will learn a lot.

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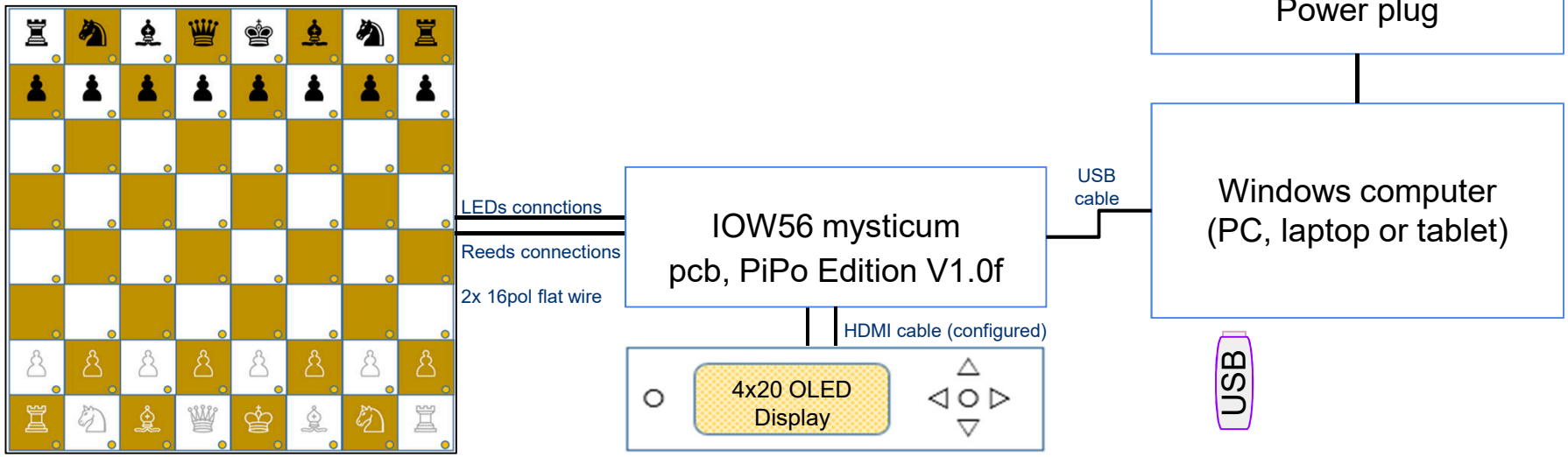
Step by step towards success …..

Principal setup of the chess computer with one OLED



Wooden chess board with
Reed contacts and
LEDs, 3mm flat

Control unit with 1 x OLED (4x20)
Display and Navimec Cursor module
plus one extra control button

computer with Mysticum software
standard application or „Touch“ +
various chess engines

External Control unit:

OLED + Navimec control unit is nice to use with standard Mysticum app. (approx. 120€ with aluminum front plate) Touch application does not support currently this module and you may save cost here.

The computer:

Any Computer unit can be chosen like laptop, tablet or desktop unit. Simple windows tablets with windows 10 are available starting with 66.-€. PiPo x8 is a great computer with external power plug, WLAN and sufficient USB ports for approx. 120€. Windows 10 is pre-configured.

Mysticum chess computer – individual configuration with Touch control

Chessboard with one led per field; sensor board with neodymium magnets, USB port connection

Wooden chess board + figures:

material:	Teak /maple; FG 40mm
Measure:	380 x 380 x 26 mm
Figures:	inclusive neodymium magnets; KH approx.71mm
additional *info:*	64 LED's, 3mm flat head, 64 reeds mysticum pcb with USB-port for tablets or PiPo - Touch computer

Mysticum Touch:

features:	Chess software with universal interface for UCI-engines like Stockfish, Houdini, Komodo, Shredder, Critter, Rybka, Fruit, Dragon, Hiarcs, … plus optional Mephisto Interface. Tournament and blitz chess level, voice response, … OS-requirements: Windows 10, 8, 7, Vista, XP

PiPo Computer x8:

CPU/ RAM:	Intel Atom Z3736F Quad Core/ DDR3 2GB
GPU/ ROM:	Intel HD Graphics/ 32GB NAND Flash
Others:	Windows10 + Android 4.4 dual boot Wireless LAN, Bluetooth, speaker, Audio 3.5mm 4x USB-connections, 1x RJ45-port, 1x HDMI TypA…

Mysticum Touch software – black knight beats white bishop

Mysticum Touch working on PiPo x8 computer, windows 10 operation system

User forum ➔ www.miclangschach.de

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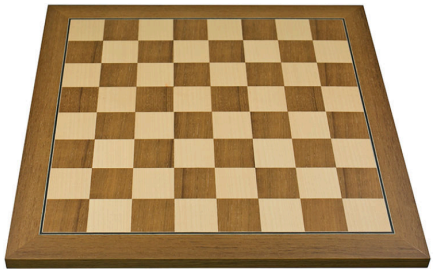
The wooden board, figures used and general work to be done

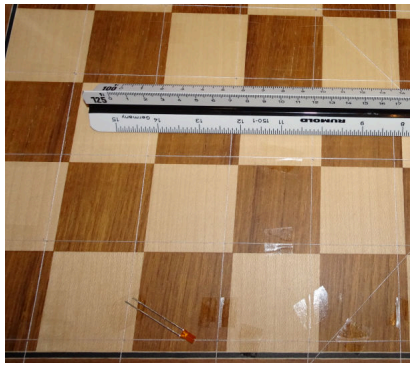


Wooden board, teak/maple FG40mm; 380x380x14,5mm

Figures for Mephisto Exclusive, king height approx. 70mm

Tools:

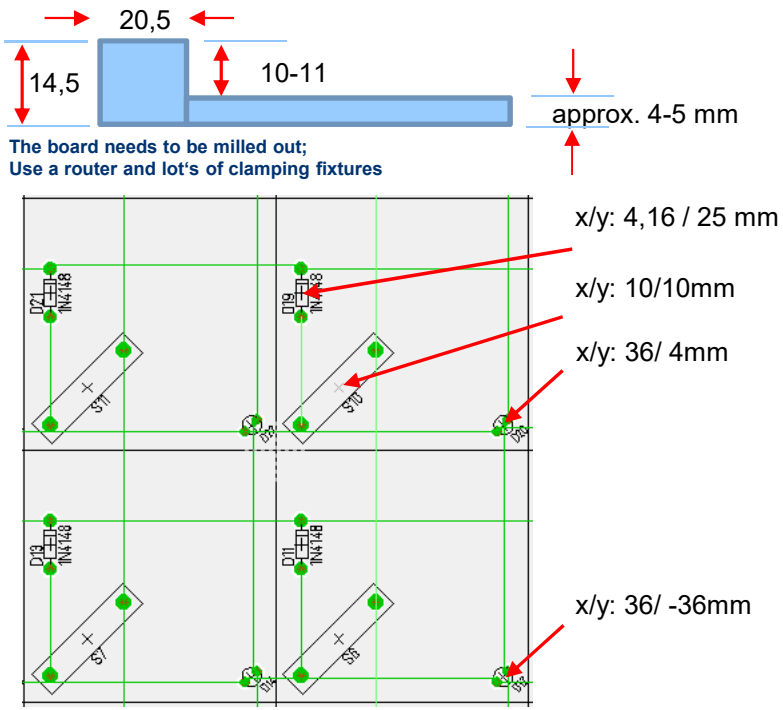
To drill 3mm holes a Proxon with drill rig is recommended. You must measure the 3mm drill before starting. Drill hole and check if led fits in. A proper router is recommended!



Mark drill holes with sewing thread

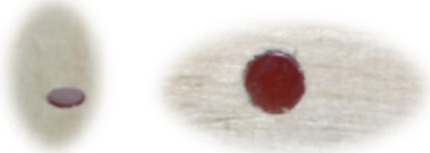
Drill holes with Proxon and 3mm drill

Routed board ready for the led /reed circuit board

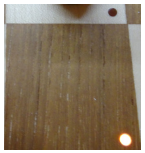


The board needs to be milled out;
Use a router and lot's of clamping fixtures

A drill jig and base of wiring for led /reed circuit board



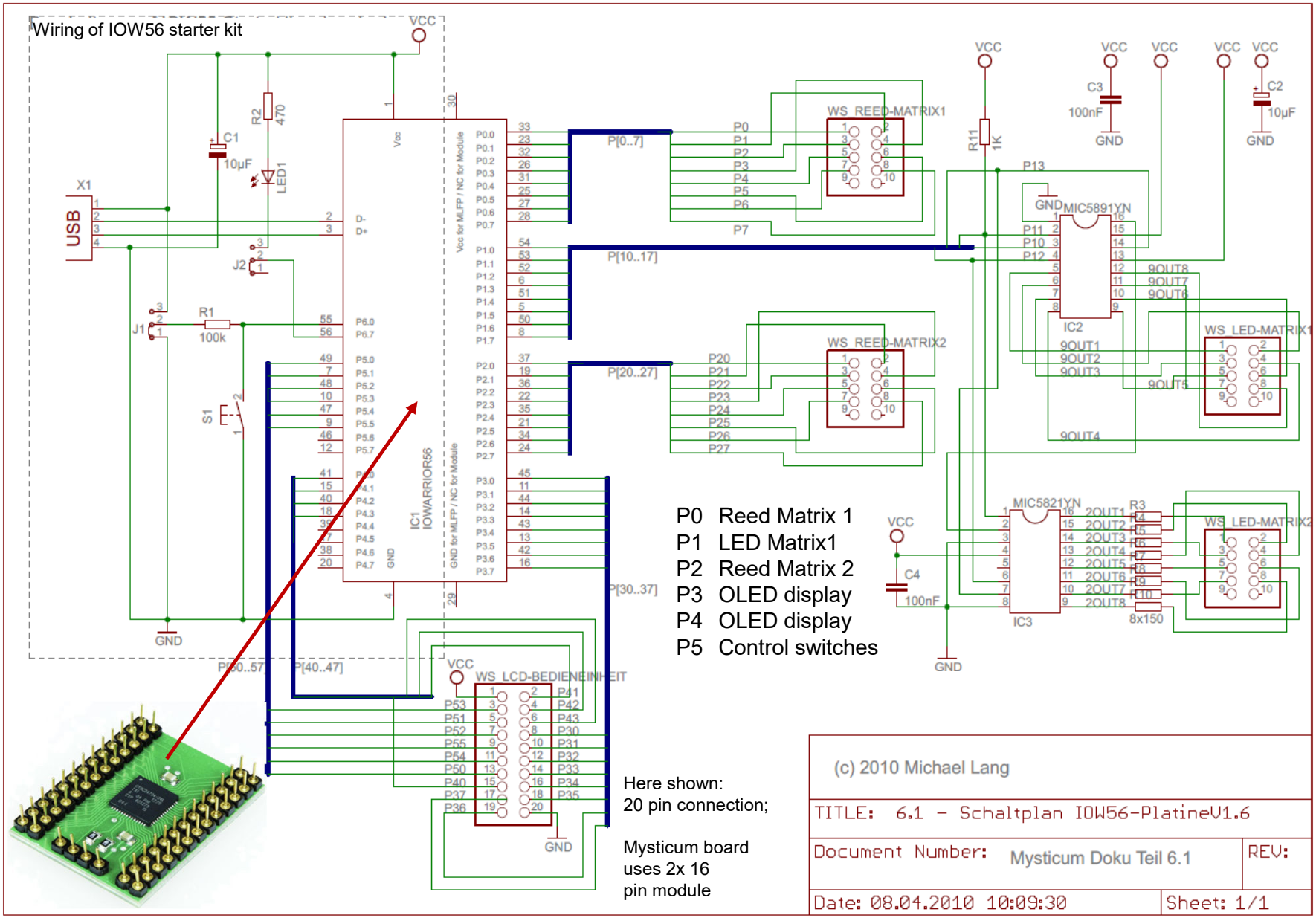
Drill test holes and fit in LED to gain experience



Bright enough?

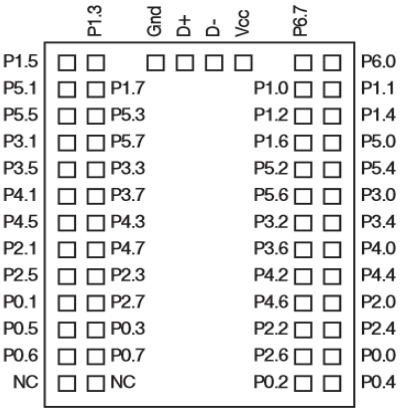
HDMI socket on side of the board

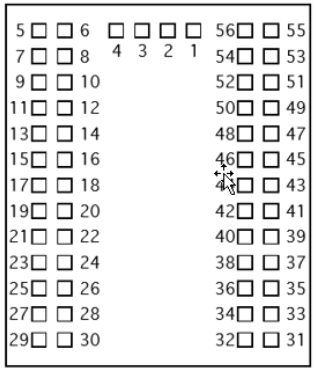
Principal connections of IO-Warrior56 Module



Connections of IO-Warrior56 MOD + DC/DC converter 5 to 12V

IOW56-Module





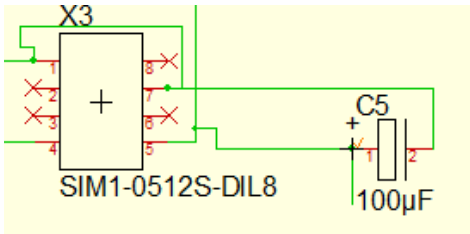
PIN Modu	Type	Funktion	Anschluß	Beschriftung
4	GND	USB Anschluß	USB-4	
3	D+	USB Anschluß	USB-3	
2	D-	USB Anschluß	USB-2	
1	VCC	USB Anschluß	USB-1	
	P.			
	P.			
33	P0.0	Reed 1	Reeds-1	
23	P0.1	Reed 2	Reeds-2	
32	P0.2	Reed 3	Reeds-3	
26	P0.3	Reed 4	Reeds-4	
31	P0.4	Reed 5	Reeds-5	
25	P0.5	Reed 6	Reeds-6	
27	P0.6	Reed 7	Reeds-7	
28	P0.7	Reed 8	Reeds-8	
54	P1.0	X2-P10	MIC5891-3	3
53	P1.1	X2-P11	MIC5891-2	2
52	P1.2	X2-P12	MIC5891-4	4
6	P1.3	X2-P13	MIC5891-14	14
51	P1.4	P14		
5	P1.5	P15		
50	P1.6	P16		
8	P1.7	P17		
37	P2.0	Reed Matrix2	Reeds-9	
19	P2.1	Reed Matrix2	Reeds-10	
36	P2.2	Reed Matrix2	Reeds-11	
22	P2.3	Reed Matrix2	Reeds-12	
35	P2.4	Reed Matrix2	Reeds-13	
21	P2.5	Reed Matrix2	Reeds-14	
34	P2.6	Reed Matrix2	Reeds-15	
24	P2.7	Reed Matrix2	Reeds-16	
45	P3.0	LCD-Data 0	Display1-7	DB0
11	P3.1	LCD-Data 1	Display1-8	DB1
44	P3.2	LCD-Data 2	Display1-9	DB2
14	P3.3	LCD-Data 3	Display1-10	DB3
43	P3.4	LCD-Data 4	Display1-11	DB4
13	P3.5	LCD-Data 5	Display1-12	DB5
42	P3.6	LCD-Data 6	Display1-13	DB6
16	P3.7	LCD-Data 7	Display1-14	DB7
41	P4.0	LCD-On	Display1-15	On
			Display1-16	K
			Display1-1	VSS/ GND
			Display1-2	VCC/ VDD
			Display1-3	Not connected
15	P4.1	LCD-RS	Display1-4	RS
40	P4.2	LCD R/W	Display1-5	R/W
18	P4.3	LCD-E	Display1-6	E
39	P4.4			
17	P4.5			
38	P4.6			
20	P4.7			

49	P5.0	ESC; Start/ Stopp & Neue Part	Keys-2	ESC
7	P5.1	Navimec Right	Keys-4	Right
48	P5.2	Navimec OK (Menüanwahl)	Keys-6	OK
10	P5.3	Navimec UP (Rauf)	Keys-8	Up
47	P5.4	Nacimec Left (Links)	Keys-10	Left
9	P5.5	Navimec down (Runter)	Keys-12	Down
46	P5.6	Clk1	Keys-14	Clk1
12	P5.7	Clk2	Keys-16	Clk2
55	P6.0			
56	P6.7			

Pi # MLFP56	Pin# Module	Type	Name	Special function
1	22	I/O	P2.3	X3
2	19	I/O	P2.1	X2
3	20	I/O	P4.7	
4	17	I/O	P4.5	LCD-CS1 (not driven by special mode function)
5	18	I/O	P4.3	LCD-E-/RE
6	15	I/O	P4.1	LCD-RS
7	16	I/O	P3.7	LCD-Data7
8	13	I/O	P3.5	LCD-Data5
9	14	I/O	P3.3	LCD-Data3
10	11	I/O	P3.1	LCD-Data1
11	12	I/O	P5.7	
12	9	I/O	P5.5	
13	10	I/O	P5.3	SPI-/DRDY
14	7	I/O	P5.1	SPI-/SS
15	8	I/O	P1.7	IIC-SCL
16	5	I/O	P1.5	IIC-SDA
17	6	I/O	P1.3	LED-/OE
18	53	I/O	P1.1	LED-Clk, undefined state during start up
19	4	power	Gnd	
20	3	USB	D+	
21	2	USB	D-	
22	1	power	Vcc	
23	56	I/O	P6.7	
24	55	I/O	P6.0	Power select during start up
25	54	I/O	P1.0	LED-Data, undefined state during start up
26	52	I/O	P1.2	LED-Strobe
27	51	I/O	P1.4	
28	50	I/O	P1.6	
29	49	I/O	P5.0	SPI-SCK
30	48	I/O	P5.2	SPI-MOSI
31	47	I/O	P5.4	SPI-MISO
32	46	I/O	P5.6	
33	45	I/O	P3.0	LCD-Data0
34	44	I/O	P3.2	LCD-Data2
35	43	I/O	P3.4	LCD-Data4
36	42	I/O	P3.6	LCD-Data6
37	41	I/O	P4.0	LCD-/On
38	40	I/O	P4.2	LCD-R/W-/WE
39	39	I/O	P4.4	LCD-E2-/RES
40	38	I/O	P4.6	LCD-CS2 (not driven by special mode function)
41	37	I/O	P2.0	X0
42	36	I/O	P2.2	X2
43	35	I/O	P2.4	X4
44	34	I/O	P2.6	X6
45	33	I/O	P0.0	Y0
46	32	I/O	P0.2	Y2
47	31	I/O	P0.4	Y4
48	27	I/O	P0.6	Y6
49	-	power	Vcc	
50	-	power	Gnd	
51	28	I/O	P0.7	Y7
52	25	I/O	P0.5	Y5
53	26	I/O	P0.3	Y3
54	23	I/O	P0.1	Y1
55	24	I/O	P2.7	X7
56	21	I/O	P2.5	X5

DC/DC-converter, Print HN Power SIM1-0512S-DIL8 5 V/DC 12 V/DC 100 mA 1 W with one output

Pin Connection		
Pin	Single Output	Dual Output
1	-V Input	-V Input
4	+V Input	+V Input
5	+V Output	+V Output
6	No Pin	No Pin
7	-V Output	Common
8	No Pin	-V Output



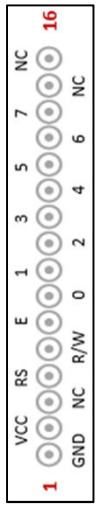
Mysticum PiPo Edition V1.0f – connections and parts list

OLED:

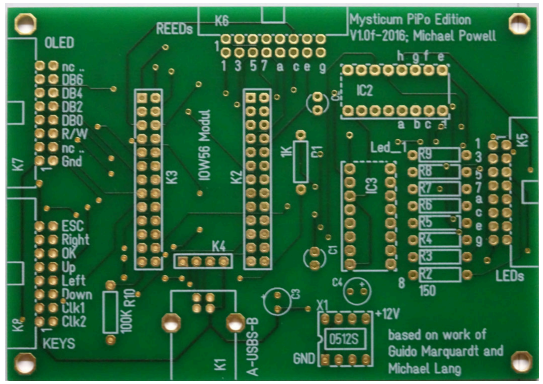
nc	⊙	⊙	nc
DB7	⊙	⊙	DB6
DB5	⊙	⊙	DB4
DB3	⊙	⊙	DB2
DB1	⊙	⊙	DB0
Enable	⊙	⊙	R/W
RS	⊙	⊙	nc
VDD	⊙	⊙	GND

REEDs:

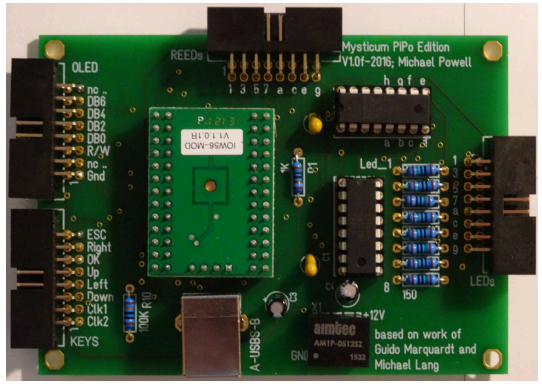
1	⊙	⊙	2
3	⊙	⊙	4
5	⊙	⊙	6
7	⊙	⊙	8
a	⊙	⊙	b
c	⊙	⊙	d
e	⊙	⊙	f
g	⊙	⊙	h



	OLED Display1:		Mysticum Disp1:
1	GND	Ground	VSS
2	VCC	Supply Voltage 5V	VDD (5V+)
3	NC	**Not Connected**	
4	RS	(H/L) Data/Instruction	RS
5	R/W	(H/L) Read/Write	R/W
6	E	Enable	E
7	DB0	Data bit 0	DB0
8	DB1	Data bit 1	DB1
9	DB2	Data bit 2	DB2
10	DB3	Data bit 3	DB3
11	DB4	Data bit 4	DB4
12	DB5	Data bit 5	DB5
13	DB6	Data bit 6	DB6
14	DB7	Data bit 7	DB7
15	NC	**Not connected**	
16	NC	**Not connected**	



Circuit board prior assembly



Complete assembly, ready to play

Pos	description	QTY	remark
K1	USB port	1	USB socket type B, angeled
K2-K4	Buchsenleiste	3	2x 13pol dual row, 1x4pol RM2,54
IOW56	IO Modul 56	1	Codemercs IO Warrior 56pol Module
X1	DC/DC0512S	1	aimtec AM1P, SIM1-0512S-DIL8 5 + 8Pol IC Socket
IC2	MIC5891YN	1	Shift Register 5-12V serial/ parallel + 16Pol Socket
IC3	MIC5821YN	1	Shift Register serial/ parallel + 16Pol IC Socket
R1	1k Ohm	1	R_MET_1K_0207
R2-R9	150 Ohm	8	R_MET_150Ohm_0207
C1, C2	100nF	2	489D_35V_0,1µF Tantal condensator
C3, C4	10µF	2	RC3_35V_10µF, Elko radial RC3, RM 2,54
R10	100k Ohm	1	R_MET_100K_0207

KEYS:

GND	⊙	⊙	Esc
GND	⊙	⊙	Right
GND	⊙	⊙	OK
GND	⊙	⊙	Up
GND	⊙	⊙	Left
GND	⊙	⊙	Down
GND	⊙	⊙	Clk1
GND	⊙	⊙	Clk2

LEDs:

1	⊙	⊙	2
3	⊙	⊙	4
5	⊙	⊙	6
7	⊙	⊙	8
a	⊙	⊙	b
c	⊙	⊙	d
e	⊙	⊙	f
g	⊙	⊙	h

DC/DC Wandler 0512S:

GND	⊙	⊙	nc
nc	⊙	⊙	-V Out (GND)
nc	⊙	⊙	nc
+5V In	⊙	⊙	12V Out

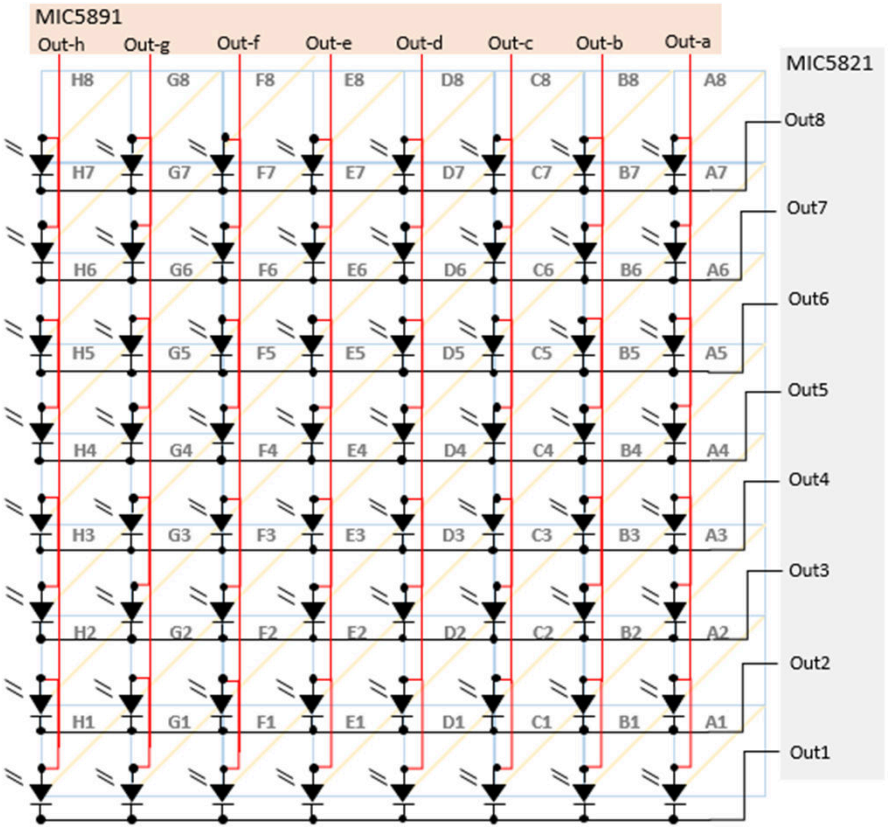
By using a DC/DC converter there is no need for a separate power plug for the leds. The power taken from the USB is sufficient for having bright shining leds

DC/DC-converter module 1 Watt, unregulated, in 8 Pin Dil-body. Input: 5VDC via USB; Output: 12VDC for IC2 Pin13/ LEDs, Current: 100mA; can be ordered via Reichelt; approx. 4,30€

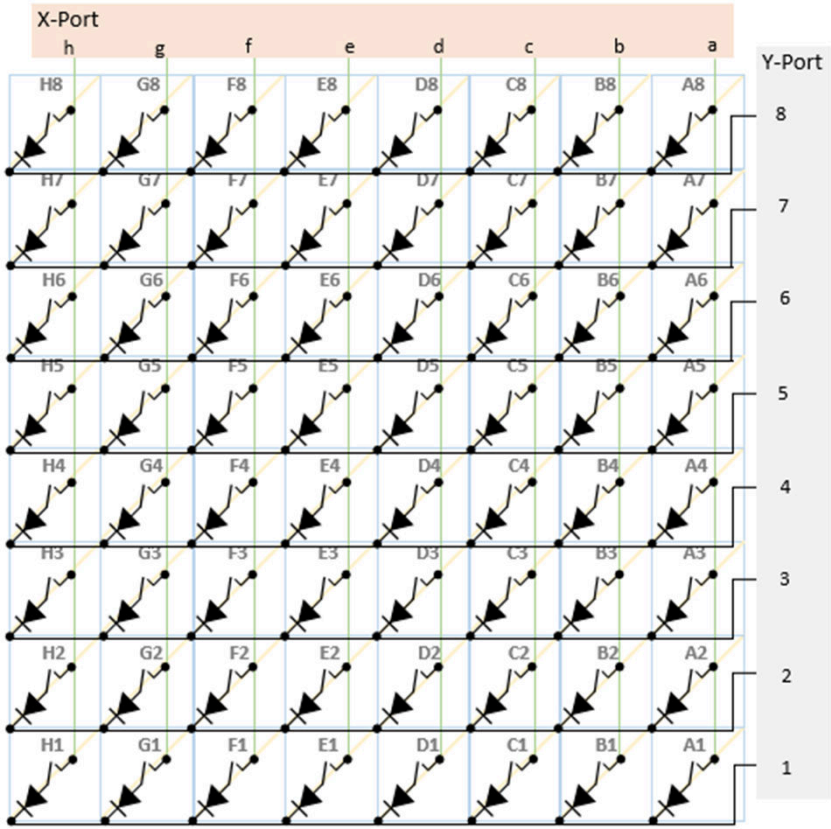
System requirement:
Requirement is a computer with windows OS like Windows XP or Windows 10 plus Mysticum SW version >1.0 realized by uido Marquardt. Mysticum Touch application is currently under development but already usable. Here is no external control required as you use here simply the touch screen of the computer/ tablet

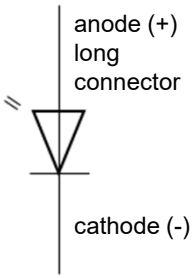
Circuit of leds and reed switches beneath the chess board

Circuit of leds

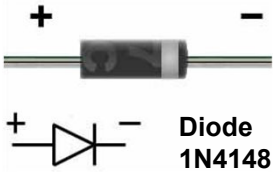


Circuit of reed-switches





LED
3mm
flat
head
orange

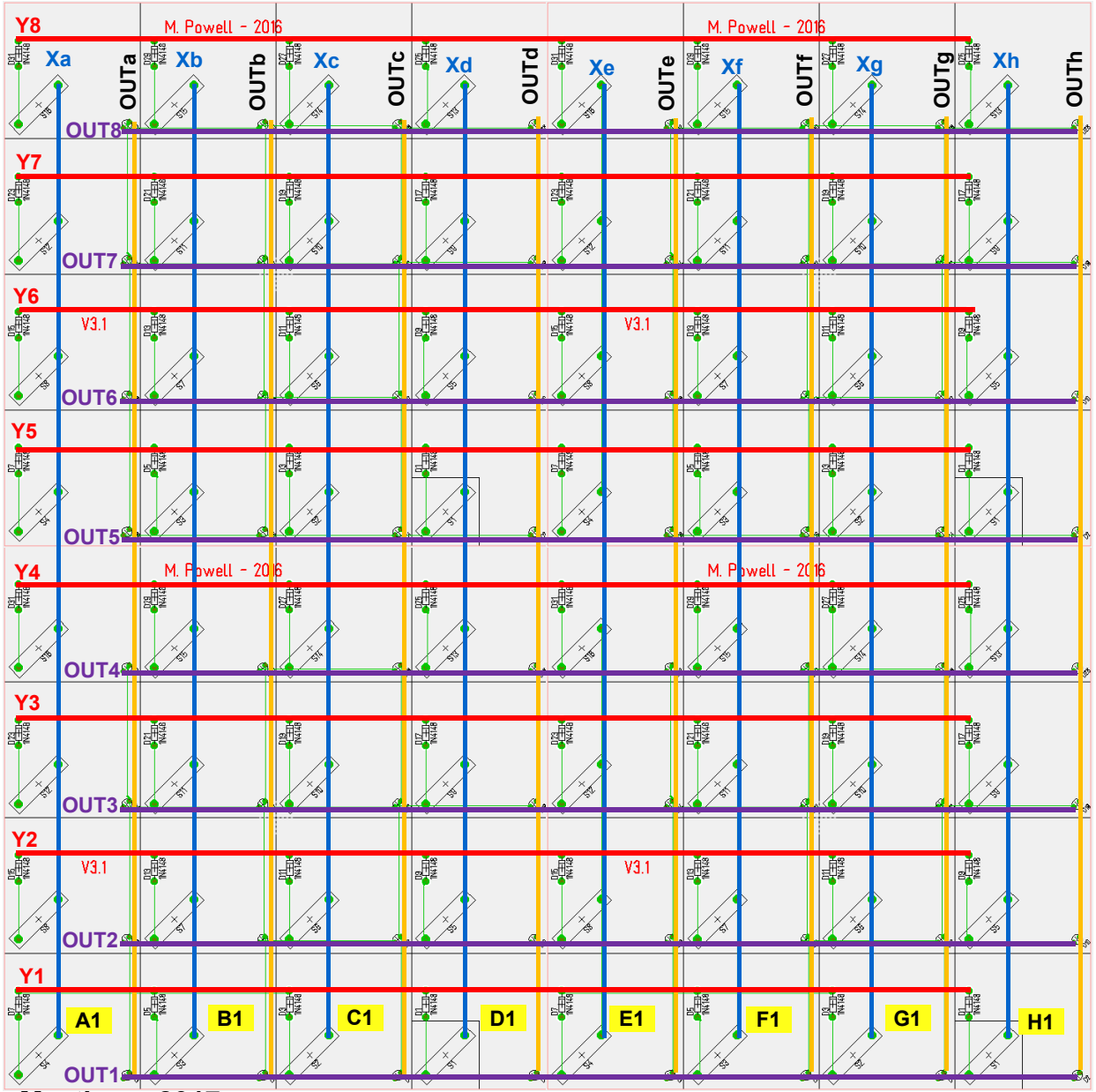


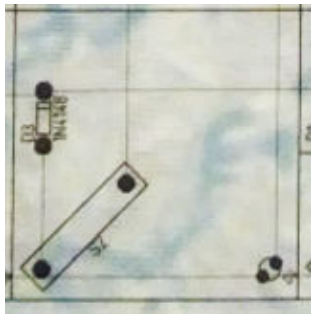
Diode
1N4148

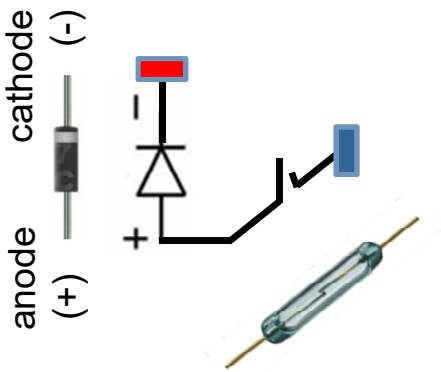
Reed switch
KSK 1A66

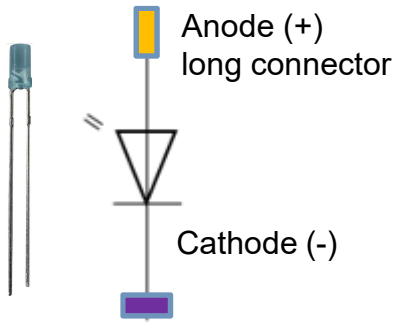
View: Top view beneath chessboard
field H1 on left side, bottom

Combined circuit beneath the chess board

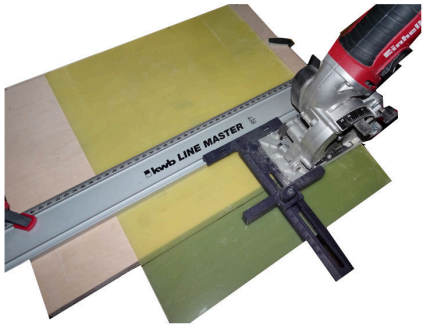




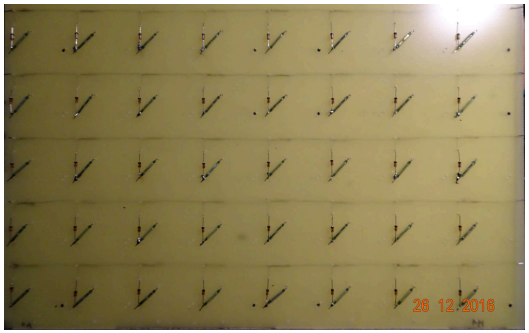




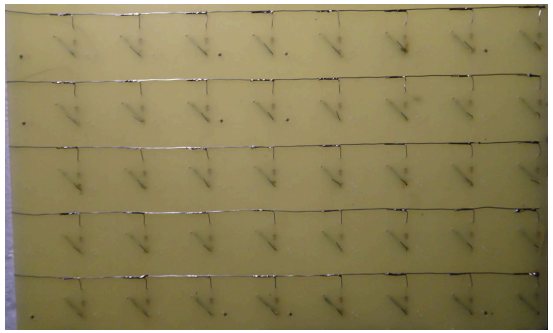
Manufacturing of reed and led circuit board (LBH: 32x32x1mm)



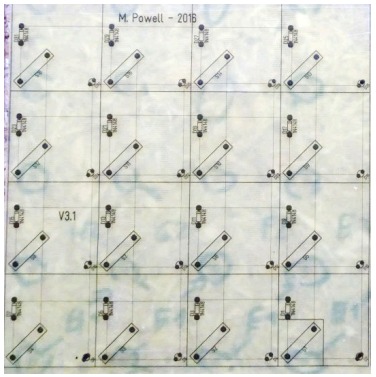
Finishing of the GFK board



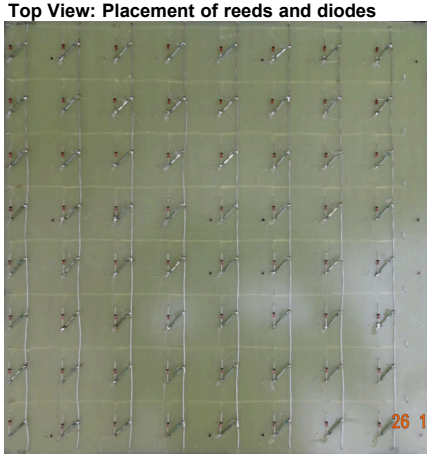
Top View: Placement of reeds and diodes



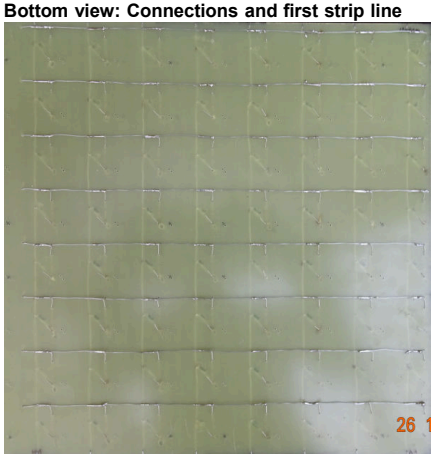
Bottom view: Connections and first strip line



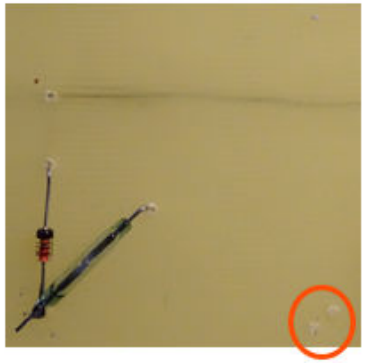
Print out of drill jig + conncetions



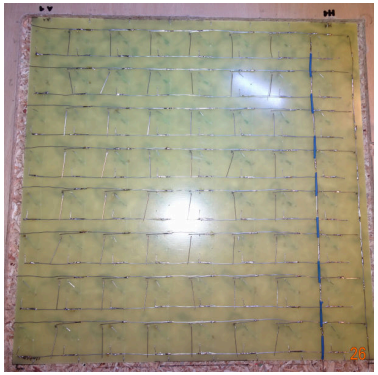
Top view: reeds and diodes, vertical wiring



Bottom view: horizontal wiring



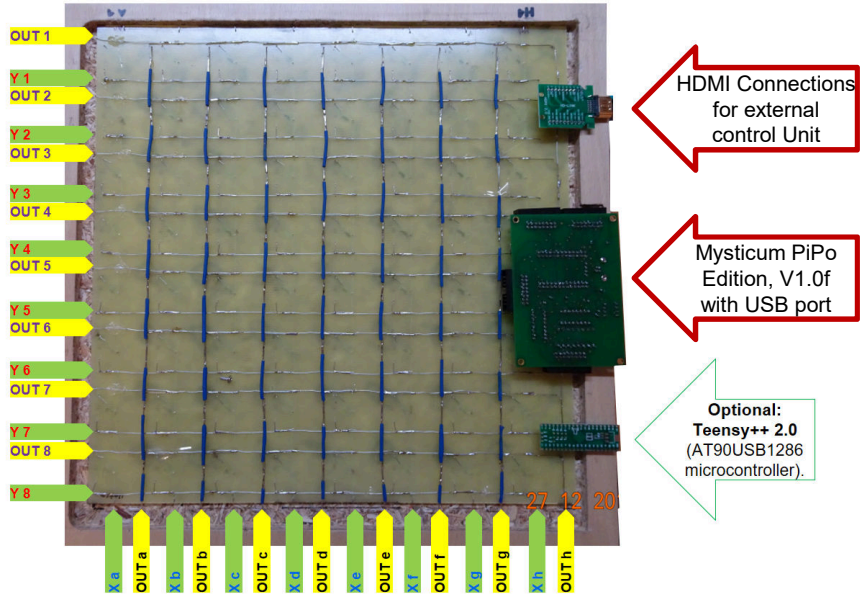
Mount and check reeds+diode/ LED holes



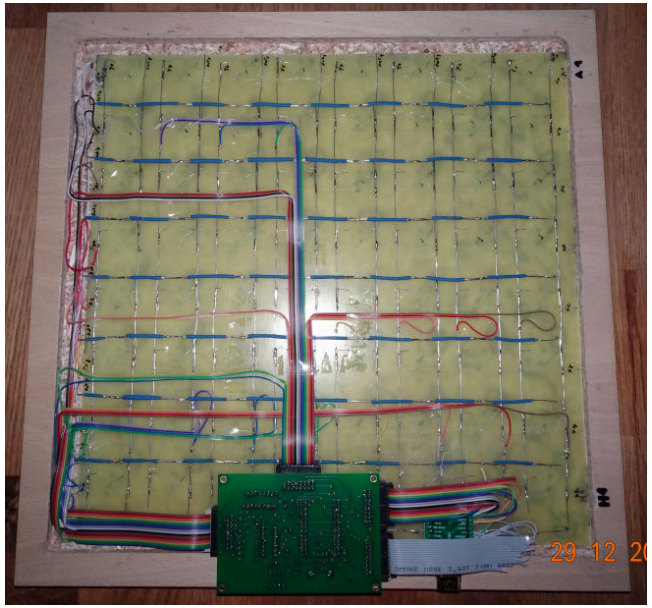
Protection; blue shrink hose

Special hint:
Here we used a one 1mm GFK plate, which was cut to size of the chessboard. Drilling was supportd by a drill jig (printed with laser on transparent overhead film). Good experience was made with the Proxon drill press. The wiring was done with bare wire.
Leds have been mounted as follows: First mount them loose on the holes of the GFK plate. Then place the wooden board carefully on top and turn it to the other side. Now push each led carefully into the hole of each chess field. As all vertical and horizontal wiring will be done on the same side you nee dto protect the crossing points with a shrink hose (condo principle).!

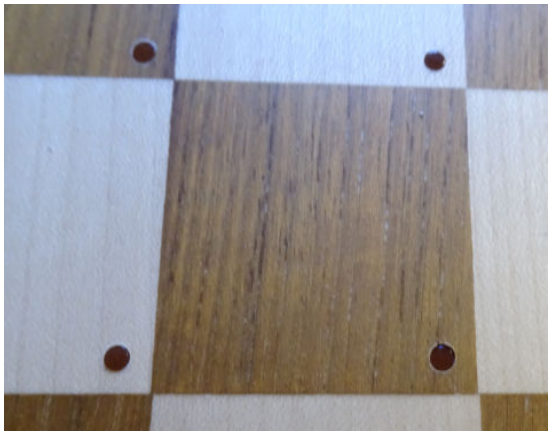
Circuit of leds and reeds beneath the chessboard



View beneath the chess board – circuit and placement of components



Wiring completed with connecting to mysticum printed circuit



Some fine tuning required, but already functional

Bright leds

Top view of the completed board

Connecting mysticum with external control via HDMI cable

OLED:

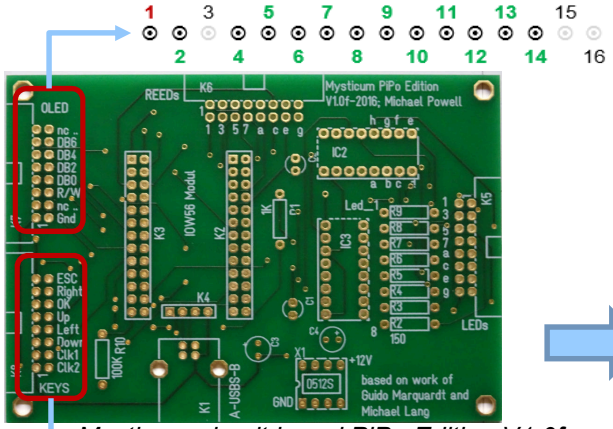
nc	16		nc
DB7			DB6
DB5			DB4
DB3			DB2
DB1			DB0
Enable			R/W
RS			nc
VDD		1	GND

KEYS:

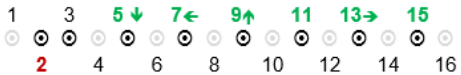
GND	16		Esc
GND			Right
GND			OK
GND			Up
GND			Left
GND			Down
GND			Clk1
GND		1	Clk2

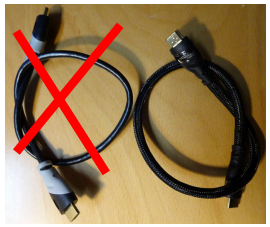
HDMI 2.0:

19			1
18			2
17			3
16			4
15			5
14			6
13			7
12			8
11			9
10			20



Mysticum circuit board PiPo Edition V1.0f

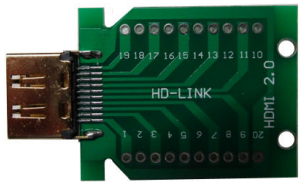




HDMI cable, 0,5m

Cable direct 0,5m HDMI cable / compatible with HDMI 2.1, 2.0a, 2.0, 1.4a (Ultra HD, 4K, 3D, Full HD, 1080p, HDR, ARC, Highspeed with Ethernet) - PRO Series

Essential: just buy high quality cable !



HDMI Breakout Board (use 2 of them)

Cristal clear OLED Display

Prototype

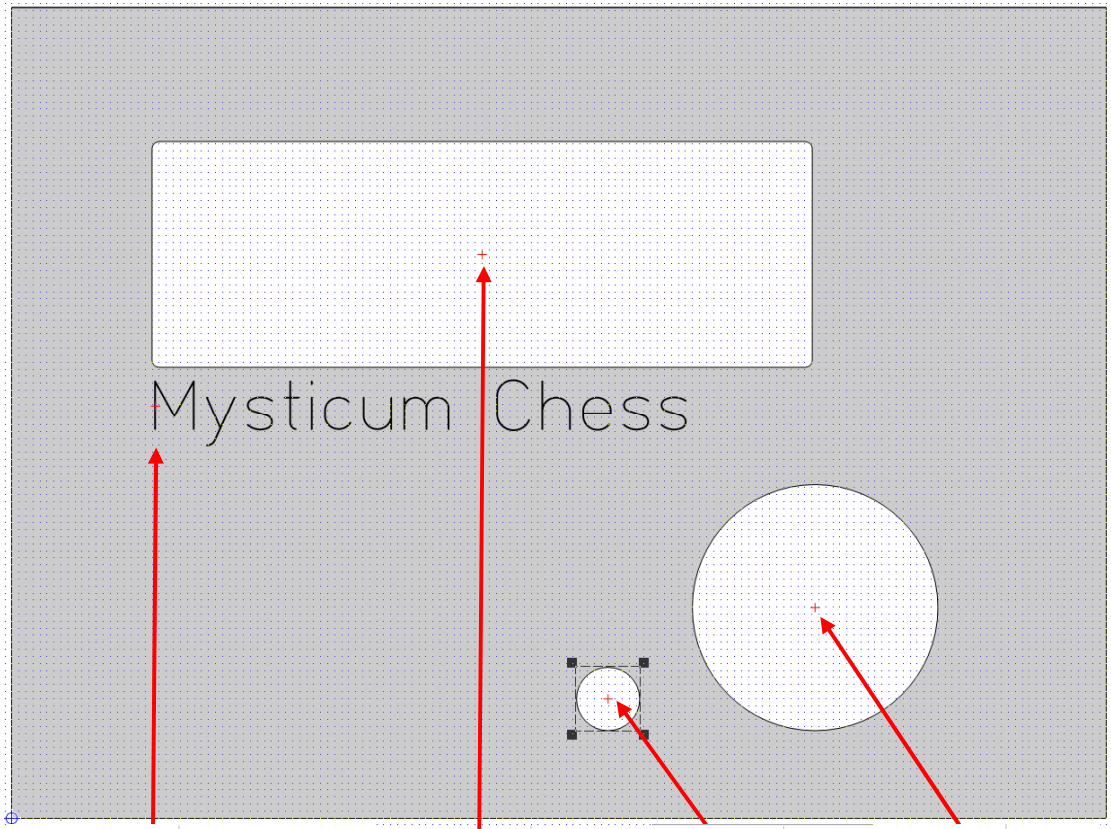
Verbindung 2x 16pol Stecker zu HDMI Board:

OLED_1 (GND)	>	HDMI_20
OLED_2 (VDD)	>	HDMI_1
OLED_3 (nc)	>	No use
OLED_4 (RS)	>	HDMI_2
OLED_5 (R/W)	>	HDMI_3
OLED_6 (Enable)	>	HDMI_4
OLED_7 (DB0)	>	HDMI_5
OLED_8 (DB1)	>	HDMI_6
OLED_9 (DB2)	>	HDMI_7
OLED_10 (DB3)	>	HDMI_8
OLED_11 (DB4)	>	HDMI_9
OLED_12 (DB5)	>	HDMI_10
OLED_13 (DB6)	>	HDMI_11
OLED_14 (DB7)	>	HDMI_12
KEYS_1 (Clk2)	>	No use
KEYS_2 (GND)	>	HDMI_20
KEYS_3 (Clk1)	>	HDMI_13 (No Use)
KEYS_5 (Down)	>	HDMI_14
KEYS_7 (Left)	>	HDMI_15
KEYS_9 (Up)	>	HDMI_16
KEYS_11 (OK)	>	HDMI_17
KEYS_13 (Right)	>	HDMI_18
KEYS_15 (ESC)	>	HDMI_19

The completed control unit !

Manufacturing instruction_Mysticum

Mysticum Chess aluminium front plate - dimensions



Shape	Rectangular shape	X	67.05 mm	X	85.00 mm	X	114.50 mm
Height	115.50 mm	Y	80.38 mm	Y	17.00 mm	Y	30.00 mm
Width	156.00 mm	Height	32.10 mm	Diameter	9.00 mm	Diameter	35.00 mm
Thick.	2.50 mm	Width	94.10 mm	Countersink	None	Countersink	None
Material	Aluminum anodized/chrom	Corner radius	1.00 mm	Thread	None	Thread	None
Material color	Natural	Angle of rotation	0.00°	Blind hole	No	Blind hole	No
Customer provided mate	No	Automatic tool	Yes	Do not produce	No	Do not produce	No
Identical corner radii	Yes	Triangle	No	ObjectID		ObjectID	
Corner radius	0.00 mm	Angle left	0.00°	Edge machining		Edge machining	
Remark		Angle right	0.00°	Front edges	No machining	Front edges	No machining
Engraving mode	Infill engravings	Do not produce	No	Rear edges	No machining	Rear edges	No machining
Print white	No	ObjectID					
Edge machining		Edge machining					
Front edges	No machining	Front edges	No machining				
Rear edges	No machining	Rear edges	No machining				

Price calculation for the file: Frontplatte_Mysticum Chess.fpd

Based on price list of: Schaeffer AG
Price list date: 10/17/2016

Calculate price without VAT: **29.94 €**
Price incl. 19.0% VAT: **35.63 €**
Estimated weight: 94.2 g

Discounts:

Quantity	5-9 pieces	10-19 pieces	20-29 pieces	≥ 30 pieces
Discount	10.0%	20.0%	30.0%	upon request
Price w/o VAT Price with VAT	26.95 € 32.07 €	23.95 € 28.50 €	20.96 € 24.94 €	

The price is without tax and shipping charges. In our constant effort to improve our products and services we reserve the right to change specifications and prices without notice.

Calculation:

Type	Position [mm]		Description	Price
	X	Y		
Other	-	-	Preparing/finishing	7.30 €
Material	-	-	2.5 mm Aluminum anodized/chromated / Natural	5.50 €
Frame	0.00	0.00	Height: 115.50 mm / Width: 156.00 mm	5.37 €
Rect. cutout	67.05	80.38	Height: 32.10 mm / Width: 94.10 mm	1.[illegible] €
Drill hole	114.50	30.00	Diameter: 35.00 mm	0.83 €
Drill hole	85.00	17.00	Diameter: 9.00 mm	0.28 €
Engraving	20.50	58.80	Mysticum Chess	1.02 €
Other	-	-	Engraving infill	5.64 €
Other	-	-	2 tool changes	2.20 €
			Total:	**29.94 €**

Front Panel Designer 5.01
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DIY-Mysticum Chess computer with Mysticum SW V1.8 or Touch

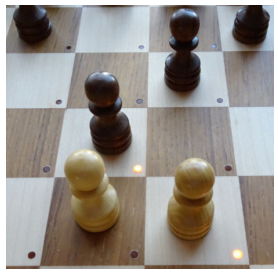
The first game on the completed board; APP: Mysticum Touch; board connected via USB to computer

Chess board ready to play a new game; APP: Mysticum V1.8 with external control unit

chessboard (FG40mm) and figures (KH70mm) creating a perfect union

Mysticum
PiPo Edition

2016-2017



Bright LED‘s 3mm flat

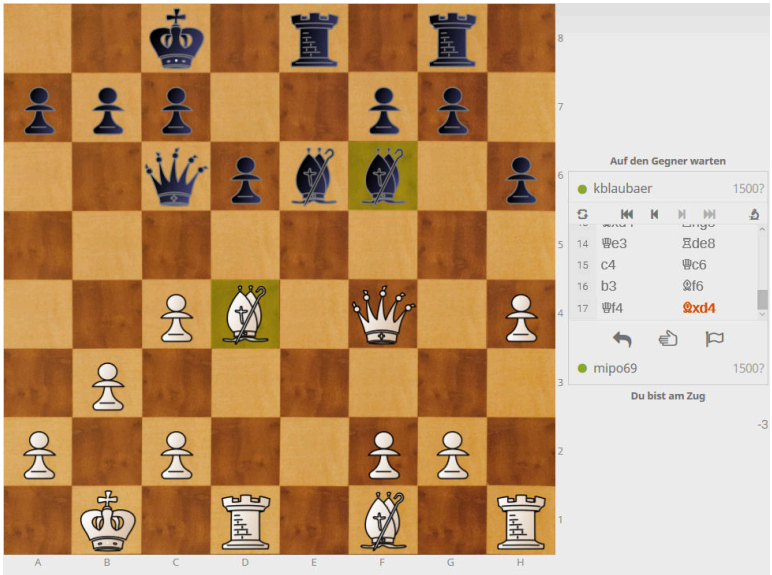
The chess board with game in progress

connections (USB and customized HDMI)

external control unit (optional) via HDMI

Some impressions of playing against opponent on lichess.org

Mysticum moves white queen f4



Lichess answers with black bishop xd4

bishop moved towards d3

Lichess moves bishop d3

C42 Russian Game: Nimzowitsch Attack
1. e4 e5 2. Nf3 Nf6 3. Nxe5 d6 ... 40 moves

mipo69 1500? ⚔ kblaubaer 1500?
Remis

lichess.org

Mysticum Chess computer – the DIY parts list

Mysticum PiPo Edition Version 1.0f

	Pos	label	value	typ	Qty	Source
	Parts list Mysticum circuit board					
A	01	PCB	V1.0f	Mysticum circuit board PiPo Edition 1.0f	1	Mpowell
	02	K1	A-USBS-B	USB socket series B	1	Reichelt
	03	X1	0512S	Sockel-DIL8 gold plated	1	Reichelt
	04	IC2, IC3	Sockel	Sockel-DIL16 gold plated	2	Reichelt
	05	K2, K3, K4	SPL64	IC strip 64pin single row grid dimension 2,54mm	3	Reichelt
	06	K5-K8	WSL 16W	plug 16-polig, tilted	6	Reichelt
	07	LED, REED, OLED,	HAN 516 6803	Connector 16pin grid dimension 2,54mm	6	Reichelt
	08	R10	1K Ohm	0207_MET resistor	1	Reichelt
	09	R2-R9	150 Ohm	0207 carbon resistor	8	Reichelt
	10	C1, C2	100N F	489D_35V_01,uF 2,54 Elko Tantal	2	Reichelt
	11	C3, C4	10u F	ELRA 10u-35 4x7mm grid dimension 1,5	2	Reichelt
	12	R10	100K Ohm	0207_MET resistor	1	Reichelt
	13	X1	5V to 12V	DC/DC converter	1	Reichelt
	14	IC2	MIC 5821 YN	IC DIL 16	1	Reichelt
	15	IC3	MIC 5891 YN	IC DIL 16	1	Reichelt
	16	K2-K4	IO Warrior 56	IC PiggyPack 56	1	Segor
	External control unit (optional for OLED and keys)					
B	18	front plate	aluminium	Mysticum Chess front plate/ case	1	Various
	19	OLED	NHD0420DZW	Display OLED, 4x20, 98x60mm, yellow/black	1	Mouser
	20	Keys	5-fold keys	Navimec Cursor-module	1	Reichelt
	21	Keys	1-fold keys	bush button, 24V, 0,1A, Ø9,1mm, red	1	Segor
	22	Connection	159349	Panel Mount HDMI Breakout board	1	e_s Electronic Shop
	23	Connection		HDMI cable 0,5m	1	amazon
	Chess board with reeds and Led circuit board					
C	25	board	MB62142	chess board teak/mable 40mm	1	Niggemann
	26	figures	CXFIGEXC	chess figures Mephisto Exclusive KH71mm; Magnet	1	Niggemann
	27	PCB	PCB 300x200	GFK board 400x400x1 mm	1	various
	28	diode	1N 4148	planar Epitaxial switching diode, 75V-200mA 100pcs	1	Reichelt
	29	reeds	KSK 1A-66-6060	reed contact/switch 1xEIN AW6060	70	Segor
	31	LEDs	LED 3 Or Plan	LED 3mm flat head, orange, round diffuse	70	Segor
	32	wire	YV 0,5sws	bare wire	4	Segor
	34	connection	159349	Panel Mount HDMI Breakout board	1	e_s Electronic Shop
	35	wire		ribbon cable 16	4	Reichelt
	computer (PiPo X8)					
D	37	PCB	PiPo	PIPO X8 Dual Boot Smart TV Box Mini PC Windows10 & Android 4.4 Intel Z3736F Quad Core 2.16GHz 2G+32G BT Media Player	1	amazon

PiPo-Touch Config:

A	85 €
C	185 €
D	120 €
Σ	390 €

PiPo-V1.8 & Touch Minimum Config:

A	85 €
B w/o #18	80 €
C	190 €
D *)	- €
Σ	355 €

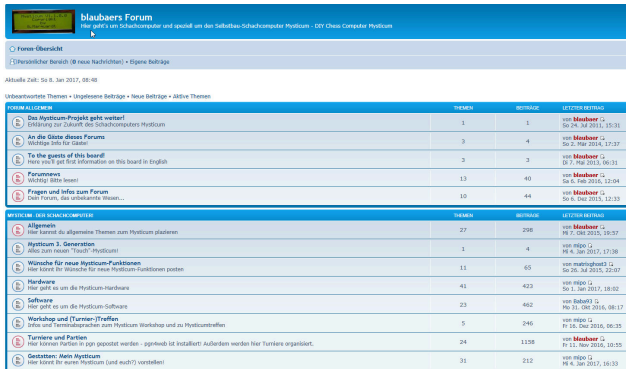
PiPo-V1.8 & Touch Complete Config:

A	85 €
B	135 €
C	190 €
D	120 €
Σ	530 €

*) By using an existing computer or small 8" Windows tablet you can save 60-120€ !

+ some time to complete your DIY experience

The Mysticum web site and forum



The mysticum forum:

Since 4th of July 2011 the forum is online, hosted by Michael Lang, who supported Guido Marquardt, building up this project and creating a community of fans, who built up their individual chess computer, using same platform
Her you can find technical details, some rebuilds, place questions and share creative ideas. Michael Powell joint the community in 2015 and is active since then with lot‘s of contribution within the community.

Access to the forum:
http://www.miclangschach.de/forum/

Mysticum...From the idea to reality:

Extract of original manufacturing guideline for mysticum, created by Guido Marquardt, original sponsor of the project [Mysticum V1.8.10.6, dated 09.02.2012]:

“While looking for a suitable and cheap electronic chessboard with led indicatiors, with whom I’m able to archive games and to do some analysis I started to develop an own board. During the development it came to my mind to add a small silent mini PC motherboard and have a complete chess computer. The idea of the mysticum was born. The hardware was solved without to much difficulties baut main hurdle was the software. Here I wanted to have a full working chess computer without monitor, keyboard or mouse.”

A remarkable software application has been realized with a wide range of functions, which only a view commercial sold chess computers have. Matter of fact I haven’t seen one which is as flexible to use and to configure with various chess engines. Controlling all with one 4x20 OLED display and 5 push buttons is simple and give’s you the ability to concentrate full onto the chess game.

Installation of mysticum software:

Requirement: destop computer, notebook or tablet with Windows OS
Recommended is Windows XP, 7, 8.x or
Windows 10; 32 oder 64bit
.NET Framework 2 or higher
<Download>
Mysticum Software
(Permission for download required)
<Antrag zum download>

Recommended steps:

① Apply permissions for download with Michael Lang
② Close current applications running
③ download software und extract in a dedicated folder.
④ installation pf .Net Frameworks
⑤ connect hardware via USB cable to computer
⑥ Start mysticum application from folder mysticum V1 or start Touch application (currently Beta Version)

Switch on, start immediately … Usage of mysticum software (version 1)

❶ switching on:
The program starts by initialization of the display and gives an info regarding software version plus credits to the of the programmer. On the next screen the user will receive a warm welcome, shown with **"Hello dear chess friend"**. The chess program (motor/ engine) will continue as started before.
If you start the application for the first time **Fruit 2.3.1** will be loaded.

The menue shows the following options:

← **Partie fortsetzen/ continue game**	continue previous game	◄
→ **Neue Partie/ new game**	new game with figures on their home position	►
↓ **Demo Modus/ demo modus**	Mysticum plays a game against himself	▼
↑ **Hardwaretest / hardware test**	testing reeds, leds and push-buttons	▲

→ new game:
Push the ► button to start a new game plus confirm action with ◄. The Mysticum checks if all figures are recognized on their home position. If a figure is not recognized the relevant led will turn on and display shows exact potion of figure missing. If all figures are recognized the leds flicker short and the display indicates which engine is active. The time resets to **0:00:00** and the game can start now….**finally !!**
You select first move and move the figure as an example from E2 towards E4. computer calculates his answer and shows on the display but also on the board with two leds where he wants his figure to be placed. The clock waits until the move has taken place. If the function "ponder" has been enabled, Mysticum will analyse the setup in the background.

❷ Switch back to the main menu:
By confirming the OK button you can access the main menue. Following options will show up:
Neue Partie/ new game, **Spielstufe/ level**, **Motor/ engine, Partie/Stellung/ game/position**, **Einstellungen/ settings**, a possible **Ausschalten/ tunr off** and **Menü verlassen/ leave main menu.**
While using the arrow keys ▲or ▼ you will scroll up and down. Confirm selection with OK. screenshot to the right show that the motor has been changed to **Fruit 2.3.1.** If you like to switch sides during the game just confirm action with the [START/STOP/ESC] key. The computer will take over your position and you can continue to strand on the previous side of the computer😉 Please use this unfair method only for consultation purpose. While pushing once again on the [START/ STOP/ ESC] key, you will switch back to your previous position and game color.

Menu structure of the mysticum software (version 1)

1.	**Main Menue**
1.1	New game
1.2	Game level
1.3	Engine
1.4	Game/ position
1.5	Settings
1.6	Turn off
1.7	Leave menu

1.	**Main Menue**	
1.1	New game	
	1.1.1	New game? ← YES NO →
1.2	Game level	
	1.2.1	Tournament level
	1.2.2	Flash level
	1.2.3	Time/ move
1.3	Engine	
	1.3.1	UCI-engine
	1.3.2	Mephisto
	1.3.3	engine options
	1.3.4	BT-test
	1.3.5	MoSlo-test
	1.3.6	**back to main menu**
1.4	Game/ position	
	1.4.1	save game
	1.4.2	check board
	1.4.3	Home. ← position →
	1.4.4	clear board
	1.4.5	add figure
	1.4.6	remove figure
	1.4.7	load game
	1.4.8	replay game
	1.4.9	**back to main menu**
1.5	Settings	
	1.5.1	Libraries
	1.5.2	board/ lcd
	1.5.3	communication
	1.5.4	system
	1.5.5	**back to main menu**
1.6	Turn off	
1.7	Leave menu	

1.2	Game level	
	1.2.1	Tournament level
		1.2.1.1 40 moves in 5 minutes
		1.2.1.2 40 moves in 15 minutes
		1.2.1.3 40 moves in 20 minutes
		1.2.1.4 40 moves in30 minutes
		1.2.1.5 40 moves in 45 minutes
		1.2.1.6 40 moves in 1 hours
		1.2.1.7 40 moves in 1,5 hours
		1.2.1.8 40 moves in 2 hours
		1.2.1.9 40 moves in 2,5 hours
		1.2.1.10 **back to game level**
	1.2.2	Flash level
		1.2.2.1 Game in 3 minutes
		1.2.2.2 Game in 5 minutes
		1.2.2.3 Game in 10 minutes
		1.2.2.4 Game in 15 minutes
		1.2.2.5 Game in 30 minutes
		1.2.2.6 Game in 45 minutes
		1.2.2.7 Game in 1 hours
		1.2.2.8 Game in 1,5 hours
		1.2.2.9 Game in 2 hours
		1.2.2.10 Game in 2,5 hours
		1.2.2.11 **back to game level**
	1.2.3	Time/ move
		1.2.3.1 5 seconds
		1.2.3.2 10 seconds
		1.2.3.3 15 seconds
		1.2.3.4 30 seconds
		1.2.3.5 1 minutes
		1.2.3.6 2 minutes
		1.2.3.7 3 minutes
		1.2.3.8 15 minutes
		1.2.3.9 30 minutes
		1.2.3.10 1 hours
		1.2.3.11 3 hours
		1.2.3.12 4 hours
		1.2.3.13 9 hours
		1.2.3.14 **back to game level**
	1.2.4	back to main menu

1.3	Engine	
	1.3.1	UCI-engine
		1.3.1.1 Colossus
		1.3.1.2 Colussus2008b
		1.3.1.3 Crafty
		1.3.1.4 Critter
		1.3.1.5 Cyclone xTreme
		1.3.1.6 DeepSjeng c't
		1.3.1.7 Doch 1.3
		1.3.1.8 Dragon
		1.3.1.9 Fruit
		1.3.1.10 Glaurung
		1.3.1.11 Houdini
		1.3.1.12 Komodo
		1.3.1.13 Mephisto Gideon pr
		1.3.1.14 Naum
		1.3.1.15 Protector
		1.3.1.16 Rebel (Prodeo)
		1.3.1.17 RoboLito
		1.3.1.18 Scorpio
		1.3.1.19 Shredder Classic 4
		1.3.1.20 SOS
		1.3.1.21 Spike
		1.3.1.22 Spike 1.4
		1.3.1.23 Stockfish 1.6.3
		1.3.1.24 Stockfish 1.7
		1.3.1.25 Stockfish 1.8
		1.3.1.26 Stockfish 2.0.1
		1.3.1.27 Toga II 1.0 SE
		1.3.1.28 TwistedLogic
		1.3.1.29 WildCat
		1.3.1.30 **back to engine**
	1.3.2	Mephisto
		1.3.2.1 MM IV
		1.3.2.2 MM V (5.1)
		1.3.2.3 **back to engine**
	1.3.3	engine options
		1.3.3.1 GUI-Book
		1.3.3.2 Ponder
		1.3.3.3 **back to engine**
	1.3.4	BT-test
	1.3.5	MoSlo-test
	1.3.6	back to main menu

Additional UCI Engines can be added on your own, simple and easy.

1.4	Game/ position	
	1.4.1	save game
	1.4.2	check board
	1.4.3	Home. ← position →
	1.4.4	clear board
	1.4.5	add figure
	1.4.6	remove figure
	1.4.7	load game
	1.4.8	replay game
	1.4.9	back to main menu
1.5	Settings	
	1.5.1	Libraries
		1.5.1.1 seelct main book
		1.5.1.2 tournamet book
		1.5.1.3 **back to settings**
	1.5.2	board/ lcd
		1.5.2.1 Referee On
		1.5.2.2 Option Score off
		1.5.2.3 PV turned on
		1.5.2.4 switch board
		1.5.2.5 demo modus
		1.5.2.6 no board
		1.5.2.7 lcd off
		1.5.2.8 sound
		1.5.2.8.1 All sounds on
		1.5.2.8.2 sound engine
		1.5.2.8.3 all sounds off
		1.5.2.8.4 Move announcem.
		1.5.2.8.5 **back to board/lcd**
		1.5.2.9 **back to settings**
	1.5.3	communication
	1.5.4	system
	1.5.5	**back to main menu**
1.6	Turn off	
1.7	Leave menu	

Mysticum, the versatile
Here you can see clearly the wide variety represented by the Mysticum. A great chess companion has been realized which will provide endless playing fun while using various UCI Engines available.

Usage of the mysticum software V1 - [1 /5]

```
1.   Main menue
1.1   New game
1.2   Game level
1.3   Engine
1.4   Game/ position
1.5   Settings
1.6   Turn off
1.7   Leave main menu
```

1 Main menu
Selection of options can be handled by the push-buttons ▲▼and ◄►. You can confirm selection with OK .

1.1 New game
You can start a new game with this option. If the figures are on their home position this is option is not available. If figures are missing you will be guided which one needs to be placed where. Once all figures are on their home position the leds on the board will flicker to confirm readiness and you can start to play a new game. Please check as well description on page 17.

1.2 Game level
There are plenty of levels available and they can be selected by choosing four different groups: **Tournament level**, **flash level**, **time for each move and Mephisto Level** if an Mephestio engine has been opened.

1.2.1 Tournament level
BHere you can select how much time will be available to play in total 40 moves. As an option you have **40 moves in 5 minutes** up to **40 moves in 2,5 hours**. If 40 moves have been done the chess computer will add same selection for next 40 moves. Mysticum will handle the available time individual

1.2.2 Flash level
Here you can decide on the total time of a game. Optional are **3 minutes** up to **2,5 hours** for a game**.**

1.2.3 Time / move
You can define the duration for a move. Mysticum offers the variety of **5 seconds** up to **9 hours** for the next move.

1.2.4 Mephisto Level (optional)
This level is only available if a Mephisto engine has been loaded. The original levels can be selected.

1.3 Engine
This is a remarkable option of the Mysticum. If you select a different engine the actual status of the game will be transferred to the new engine. This may take a while due to the method of copying each move step by step.

1.3.1 UCI-engines
With this selection you are able to access all UCI engines (Universal Chess Interface) which have been installed on the folder "Engine". Following rules apply:
Each engine has an own sub- folder beneath folder called „Engine".
The selected file (.exe), needs to have same description like the folder itself i.e.: "D::\Mysticum\Engine\ Rebel(Prodeo)". The file needs to be called „Rebel(Prodeo).exe" . This allows to access a variety of executable files in the folder „Engine".
The Mysticum-Software compares the names of folder and .exe-files which will show up only if they are identical. Based on this rule it is possible to work as well with WB2UCI-adapter. With support of the WB2uci.eng-file it opens the required engine. This means that the WB2UCI.exe needs to be named with same scheme. In our example Rebel(Prodeo).exe is in reality the WB2UCI-adapter which will call the file Prodeo.exe. Rebel(Prodeo).exe will show up only if the folder has been named Rebel(Prodeo).

1.3.2 Mephisto
Hegener+Glaser AG manufactured years ago the most popular chess computers. Based on the Emulator MESS (Multiple Emulator Super System) Ralf Schäfer could generate a variety of some popular versions of the Mephisto-series which can be loaded onto the Mysticum: Mephisto III-S Glasgow; Mephisto Rebel 5; Mephisto MM IV; Mephisto MM V (5.0 and 5.1); Mephisto Amsterdam; Mephisto Dallas, Dallas16, Dallas32, Mephisto Roma32. Ed Schroeder, programmer of various Mephisto-modules, allows the usage of his software versions MM IV and MM V for free. All other versions need to be copied from existing ROMs !

Please check the individual licence agreements

Usage of the mysticum software V1 - [2 /5]

… 1.3.2 Mephisto (Continuing from previous page)
While loading the mephisto emulation you will be asked if the original clock rate should apply (use original clock rate ◂ YES or ► NO)

Excursion: Selecting the original clock rate of an emulation
While selecting ◂ YES, the game level selected will use the clock rate of the Mephisto chess computer to make the playing strength comparable. The calculation speed of the Mephisto 32Bit can be compared with an old 486er VIA CPU starting with 600 MHz. If you select ► NO the computer's clock rate will be taken and this is nowadays of course much more powerful. The real speed depends on the clock rate of the computer plus hardware used (memory, hard drive, …) Nevertheless the emulation needs lots of system resources and therefore it is not that easy to compare.
Ie.: the emulation of MM IV (original 5 MHz) will reach on a 1.000 MHz mainboard only 16-18 MHz, which is still much better. You can use software tools like CPUID or MoSlo to reduce the speed to make the playing strength comparable. Based on this option the Mysticum offers as one of a few magnificent new and existing possibilities to play against older chess programs or ...you can get a chance to win against them*smile

1.3.3 Engine options
Here you can select the options of the current engine playing. As usual you can select via the ▲ and ▼ keys and confirm later selection via OK. If there is only **Yes** or **NO required** use the ▲ for **YES** and ▼ for **NO**. If you change an option of the emulation is this effective for all engines emulated. At the moment you have the option of PONDER and GUI book.

1.3.3.1 GUI-Book
With all engines you have the option to use the GUI-book. Especially if the engine doesn't offer an own book please set the option to TRUE (YES). The program will select the first moves out of the book (check the variety on menu option 1.5.1).
Attention: if the selection GUI-book = True has been made the universal book will be selected instead of the engines own book (if it has an own)
To have the engine playing with it's own book please select
"Own book" = **TRUE** and GUIBuch = **FALSE.**

1.3.3.2 Ponder
Mysticum will use your thinking time to analyse the status and tries to find his own best move.

1.3.3 BT-analysis
If you select this option the engine will start the analysis BT2630 and BT2450. Those have been developed by Hubert Bednorz and Fred Toenissen and they measure the tactical capability of the engine and are quite common. Test will be started by raising up any figure. The position of the figures doesn't matter. Mysticum will analyze on his own and present finally his results.
The BT2450 test measures the time the computer requires to find the best solution out of thirty positions. If the solution can't be found within 15 minutes (900 seconds) for each position, test result is 900 seconds.
This result is the same even if the computer will find the best move within 15 minutes but selects out of all choices a different move.
The test result will be evaluated based on the complete time of all 30 positions based on the formula: BT = 2.450 - 2x total time (time in minutes) or BT = 2.450 - total time / 30 (time in seconds). The value evaluated is somehow comparable with the international ELO values. You need to be aware that the BT2450 test only evaluates the tactical skills of the program. An improved version is the BT 2630 test. Base value here is 2.630 in the formula and it includes seven additional positions. The results will be stored in a file „BT_Test_<name of engine>.txt" gespeichert.
The test will require many hours….

Excursion: engines
a chess engine is a computer program that analysis positions and decides on the best moves on it's own. Most chess engines do not have their own graphical user interface (GUI) but are rather applications that communicate with a GUI like the Mysticum. This allows the user to play against multiple engines like in our case. Well done ….

Usage of the mysticum software V1 - [3 /5]

1.4 Game/ Position

Load a current game, stored; save current environment plus many more features...

1.4.1 Save current game

The current game can be stored within the database „Partiesammlung.pgn“. If demo mode has been selected this will be executed automatically.
Prior to saving the game, you need to enter name of the player. Name of the mysticum-motor is a preset but can be changed as well. To write down the name use the push-buttons▲ and ▼ to select the proper character. Upper kex and lower key plus cecial characters and numbers can be selected one after the other.By using the keys ◄ and ► you access previous or next character.
With the [START/ STOP/ ESC] button you can rename file. The OK -key confirms data entry. After name has been entered Mysticum likes to know game result which can be choosen with ▲ and ▼ keys (1-0, 1/2-1/2, 0-1). The game can be opened later once again with function **1.4.7 load game**

1.4.2 Check board

LCD-display represents 4 rows of the board. You can scroll up and down with the ▲ and ▼ keys. the black figures are blinking compared to the white figures. A blinking **S** in the upper right corner indicates black figures, a non blinking **w** on the bottom right corner represents the white figure.

1.4.3 Home Position -> Pos.

There are two ways to enter a new setup. Starting from the home position is the best way to setup an individual position. You will be asked to set up the home position on both sides. Then lift one figure and place it to target position. If you don#t position the lifted figure and lift one other, Mysticum interprets that the first figure has been removed from the board and waits where the second will be placed. You can confirm setup completed by pushing the OK key. Mysticum will ask several questions regarding the game which are dependant from it’s setup. ie: case is the white king is placed on **e1** and white rook on **h1**, question will be if castling is still possible or if the king / rook has been moved.
It is recommended to check the setup with the function (1.4.2 check board)

1.4.4 Clear board

Here you can enter a new starting position.First remove all figures and you will be guided to the following function **1.4.5 Add a figure**.

1.4.5 Add a figure

display shows possible figures which can can be added. With the ◄ and ► keys you can select figures required. Choose the color with the ▲ and ▼. Then place the figure on it’s position. Proceed as before until the setup is completed. With [START/ STOP/ ESC] you can end the setup procedure.

1.4.6 Remove a figure

Simply remove a figure and confirm setup with the [START/ STOP/ ESC] key. If the king is missing, Mysticum will call up “1.4.5 Add a figure” - function.

1.4.7 Load a game

Ny seleting this function, Mysticum will load the internal database “Partiesammlung.pgn”. It is editable with a word editor. Saved games can be opened also with other chess programs like Fritz!. By selecting **“Load a game”** first game stored will be shown. display presents name of the player and result of the game. Info ★ indicates an open not finalized game.
By moving up and down with ▲ and ▼ keys you can select the desired game. Confirm seelction with [START/ STOP/ ESC] and game gets loaded. Mysticum supports now the manual setup on the chessboard.

1.4.7 Replay a game

You seelct a game which then gets loaded. Continue with the manual setp of figures - Mysticum will present first move of the game.
By hitting the [START/STOP/ESC] key next move will be shown. The replay can be stopped with the OK and you can continue to play starting from this position.

1.4.8 Replace a game

Asa game been loaded you can replace this one now with the new position.
A tännchen: Old version gets lost!

Usage of the mysticum software V1 - [4 /5]

1.5 Settings
Here you can control the main settings.

1.5.1 Selection of book:
Not all engines do have an own opening book. For that reason Mysticum offers a variety of libraries (GUI-book). This database has been created by using ProDeo 1.2 and can be updated with same version. All books are usually stored in the folder „books“ of the mysticum root folder. If an engine should make use of the library you need to activate the function for each engine individual. Please activate the GUI-book with TRUE (YES). The setting will be kept until you change it again. There are two categories of libraries “Main library” and “tournament library”.

1.5.1.1 Select main book:
elo2500, gambit, mainbook, mysticum und **super**.
1.5.1.2 Select tournament book:
aljechin, CaroKann, classc, französisch, gambit, königsgambit, modern, mysticum, pirc, sharp, sizilianisch, skandinavisch, solid, spanisch sowie **tourbook.**
The tournament books have always priority. If there is no comparable position found, the main book will be consulted

1.5.2 Board / LCD:
Change settings concerning chess board and lcds

1.5.2.1 Include Referee:
With this function Mysticum takes over function as a referee and checks the moves on their legitimacy plus evaluates complete position. the referee modus can be recognized by the underscore _ right to the number of moves visible in the 4th row of lcd. The engine calculates the current situation endless and shows it’s rating plus possible moves recommended.If you have selected MultiPV on a value higher than 1 the engine will display many options which can be scrolled with the ▲ and ▼ keys. It is recommended to deactivate MultiPV if you play against the mysticum engine because many engines do not play their best moves and may select then a bad move.

1.5.2.2 Option Turn off score:
This feature deactivates to display current options and evaluation of position, while mysticum does his next move

1.5.2.3 PV on the board On/Off:
Switch on or off of this function to take the first choice of calculated move by the engine while it’s the computers turn and still thinking.

1.5.2.4 Switch board:
You can determine how to setup the chess board
1.5.2.4.1 White on the bottom (A1-H2) - standard
1.5.2.4.2 Black down (A8-H7) Brett gedreht
1.5.2.4.3 automatic (colors will be changed after each game)
1.5.2.4.4 Engine always at the top
By selecting 1.5.2.4.4, the engine plays always from the top independent of it’s color. This means if the engine owns the white figures Mysticum will play from the top and the white home position is a8-h7.
If the engine plays the black figures all is standard (white starts with home position a1-h2; black figures on a8-h7)

1.5.2.5 Demo modus:
by selection of this feature and confirming with [START/STOP/ESC], Mysticum plays against itself without moving figures on the board. This modus can be stopped with the push-button ▲. The final move will be calculated and this end the demo modus.

1.5.2.6 Without board:
Here you can switch off the board (indication with leds and checking of reeds). This function makes sense if a mysticum engine plays against an external device via bluetooth. Both devices send their moves automatically!

1.5.2.7 LCD off:
This selection turns the lcd off. Hit any key to switch it on again.

Usage of the mysticum software V1 - [5 /5]

1.5.2.8 Sound:
You can influence usage of the computer loudspeakers:
1.5.2.8.1 all sounds on: If the engine presents his next move or you execute your move a short beep confirms action.
1.5.2.8.2 Sound engine: Only sounds will be generated depending on the engines move. ie:.: make a move, checkmate, Give-up, u.s.w.
1.5.2.8.3 all sounds off: switch off all sounds (not recommended)
1.5.2.8.4 Announce moves: This presumes that the mysticum sub-folder “sounds” includes “Sounds” Wav-files. Function can be switched on or off.

1.5.3 Communication:
Communication focus mainly on Bluetooth.

1.5.3.1 Bluetooth switched on:
Enables the connection to external devices like. Arena on a separate computer or CEBoard on a PocketPC. both programs support the Novag-system, which is emulated by the Mysticum.
A tännchen: WIf this function has been turned on but no bluetooth connection can be confirmed you should deactivate the function. Reason is that the application might freeze under this circumstance. Mysticum my connect also with a serial cable (Nullmodemkabels) Please assign Bluetooth on it’’s nominated Com port. usually COM-Port 1.

1.5.3.2 bluetooth port:
With this function you determine the com port for data exchange via bluetooth.

1.5.3.2 WB Protokoll:
without function

1.5.4 System:
Main settings for the system

1.5.4.1 Date:
Change the system date, using ▲▼ or ◄► keys

1.5.4.2 Adjust the time:
Change the system time, using ▲▼ or◄► keys.

1.5.4.3 Language:
Select system language . Following options are available: german, english, french and spanish.

1.5.4.4 Evaluation Game “on”:
Mysticum adjust his own playing strength to yours. Function is only available if the loaded engine supports „UCI_LimitStrength“. Following engines offer this feature: **Hiarcs 12** und **13**, **Shredder 12** sowie **DeepSjeng c't.** If this option is selected for the first time you can enter a self evaluation based on an ELO-value. A higher ELO value will cause the engine to play stronger. The value can be entered only once! For the first twenty games mysticum uses a formula to adjust quick to your playing strength. Starting after the twentieth game you will gain 16 points for a win or will get those points taken away if the game is lost. If this function is enabled you will be recognized prior each new game. If a **New game** has been selected but previous has not been completed Mysticum will evaluate based on the position who would win.
-0.99 up to +0.99 Points will be evaluated as a remis.

1.5.4.5 Gaviota TB ein:
Based on this function the engine Gaviota and its tablebase will be consulted and if the position is found in the database the GUI takes over the game. Base is that the other engines need to come on their own to the starting position. Gaviota takes over and this enables to improve for some engines their playing strength for the finals.

1.5.4.6 CPUID on/ off:
Here you can adjust the multiplication of computers system tact. Attention! solely for VIA Nehmiah, AMD Geode oder Atom N270@1.6GhZ usable.
Usage at own risk - not recommended! 😈

Question and Answers (hardware and software)

Which .Net version is required?
Mysticum application requires minimum .Net Version 2.0. Win 8.1 uses .Net 3.5 which is compatible downwards.

Net 3.5 is not possible to install with Windows 7 or 8/8.1, Failure note: Error: 0x800F081F or 0x800F0906?
Here are problems known with the security Updates KB2966826, KB2966827 or KB2966828.
Problem can be resolved by installing latest windows updates or switch to Windows 10

The OLED display stays dark; Initializing not possible; Just some dots are visible.
Please check the connections of the wire; soldering and short circuit; Re-solder if required.
Please check for the right sequence of wire connected or change HDMI cable.
Windows Touch V3.0 does not support at the moment the external control unit

LEDs of the chessboard not functional
In some rare cases the IOW is partial malfunction. If all connections have been checked, 12V DC (Pin13) has been verified, replace as last option the IO Module.

OLED display shows just partial information's after several moves of a game
Please verify the version of mystiucm software. 2012 Version V1.8.x or higher are known as verify reliable versions, tested in various online/ offline tournaments over many days by different users.

Question and answers + solutions are based on the experience by various rebuilds of different mysticum users. The list will be continued

links and contact details

Michael Langs Webpage:	homepage of a chess maniac	Link
http://www.miclangschach.de		
Michael Langs Forum:	Forum zum aktuellen Stand	Link
http://www.miclangschach.de/forum/index.php		
Michael Powell	Google+ Page oder per Mail	Link
https://plus.google.com/103310182688902787443		
michaelw.powell69.gmail.com		
Segor	source for ie: IO-Warrior Module, LED‘s u.s.w	
Reichelt	source for ie.: electronic components, OLED Display, magnets, …	
Pollin	source for ie: various electronic components	
Meder	Infos about reed switches	Link
http://www.meder.com/fileadmin/meder/pdf/de/Technische_Dokumente/Die_Funktion_des_Reedschalters.pdf		
Niggemann	Source for chessboards and figures	Link
https://www.schachversand.de/startneue2.htm		
lichess.org	Internet chess playing zone/ forum	Link
https://de.lichess.org/		
TOP UCI-Engines	Download Webpage with lots of engines free to use	Link
http://www.sdchess.ru/Engines_UCI_top.htm		
Chess o.k.	Download Webpages with recommended engines	Link
http://en.chessok.net/download-chess-engines.html		
Joes Schachblog	great infos about chess and download options	Link
http://schachblog.vsud.de/schach-downloads-2/		
Mouser	OLED display for a great deal	Link
http://www.mouser.de/ProductDetail/Newhaven-Display/NHD-0420DZW-AY5/?qs=sGAEpiMZZMshRHSPqbouvFu0giaJJ%2b33bm3kz6Pvxro%3d		
Schaeffer AG	Acryl oder Aluminium Front plate and design software	Link
http://www.schaeffer-ag.de/		
German version	this guideline in German language	Link