ELECTRONOOBS KEYBOARD V1.0
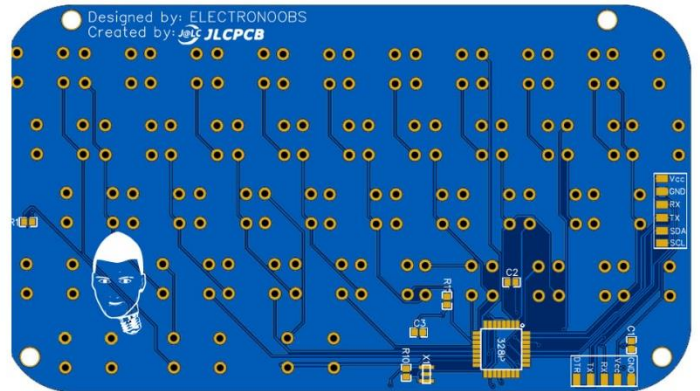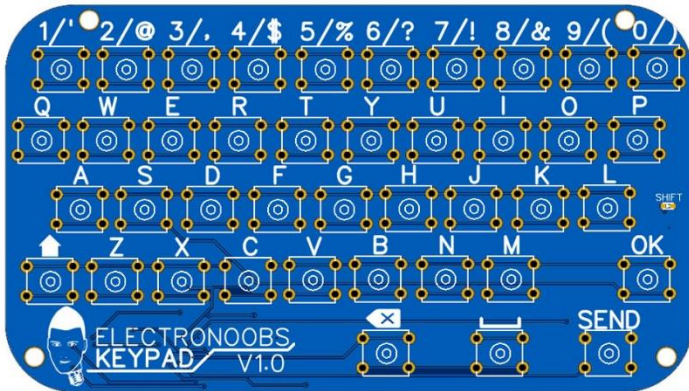
-manual-

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1. What we send when we press buttons?

| Button pressed	Sent character on serial port	
	Shift OFF	Shift ON
1	1	'
2	2	@
3	3	,
4	4	$
5	5	%
6	6	?
7	7	!
8	8	&
9	9	(
0	0	)
Q	q	Q
W	w	W
E	e	E
R	r	R
T	t	T
Y	y	Y
U	u	U
I	i	I
O	o	O
P	p	P
A	a	A
S	s	S
D	d	D
F	f	F
G	g	G
H	h	H
J	j	J
K	k	K
L	l	L
SHIFT	none	None
Z	z	Z
X	x	X
C	c	C
V	v	V
B	b	B
N	n	N
M	m	M
OK	}	none
SEND	{	{
SPACE	Blank space	None
RETURN	^	none

Each time you press a button a new character will be sent trough the serial port on the TX pin. If you press the SHIFT button, the shift LED will turn on and SHIFT enabled. Now if you press any of the buttons you will send special characters or uppercase. When SHIFT button is pressed you won't send any character trough the UART port, just invert the shift state in the code.

2. The PCB

See full tutorial here: LINK
Download the GERBERs from here: LINK
See part list here: LINK
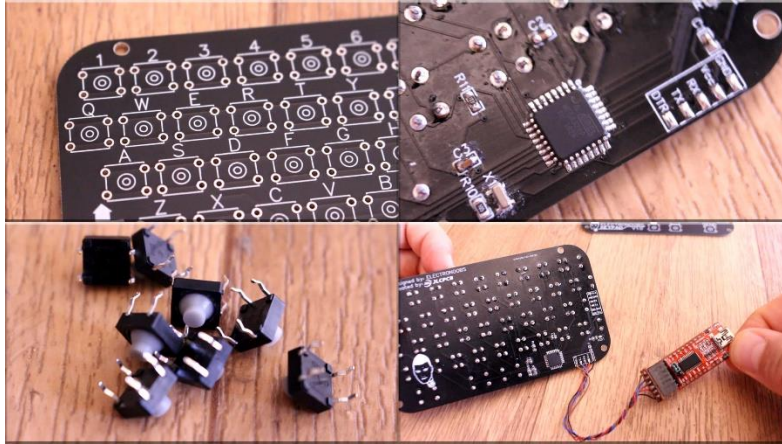
3. Schematic

Below you have the schematic with the values for this PCB. ll the buttons are in a matrix formation with 10 columns and 4 rows and we will see why later. We also have an extra button connected for the send input. The ATmega328p chip needs its basic configuration with the 16MHz crystal, pullup resistor and the DTR capacitor of 100nF. We need a few more resistors and capacitors, the LED connected to a digital pin and all the pads for the UART and i2c ports.
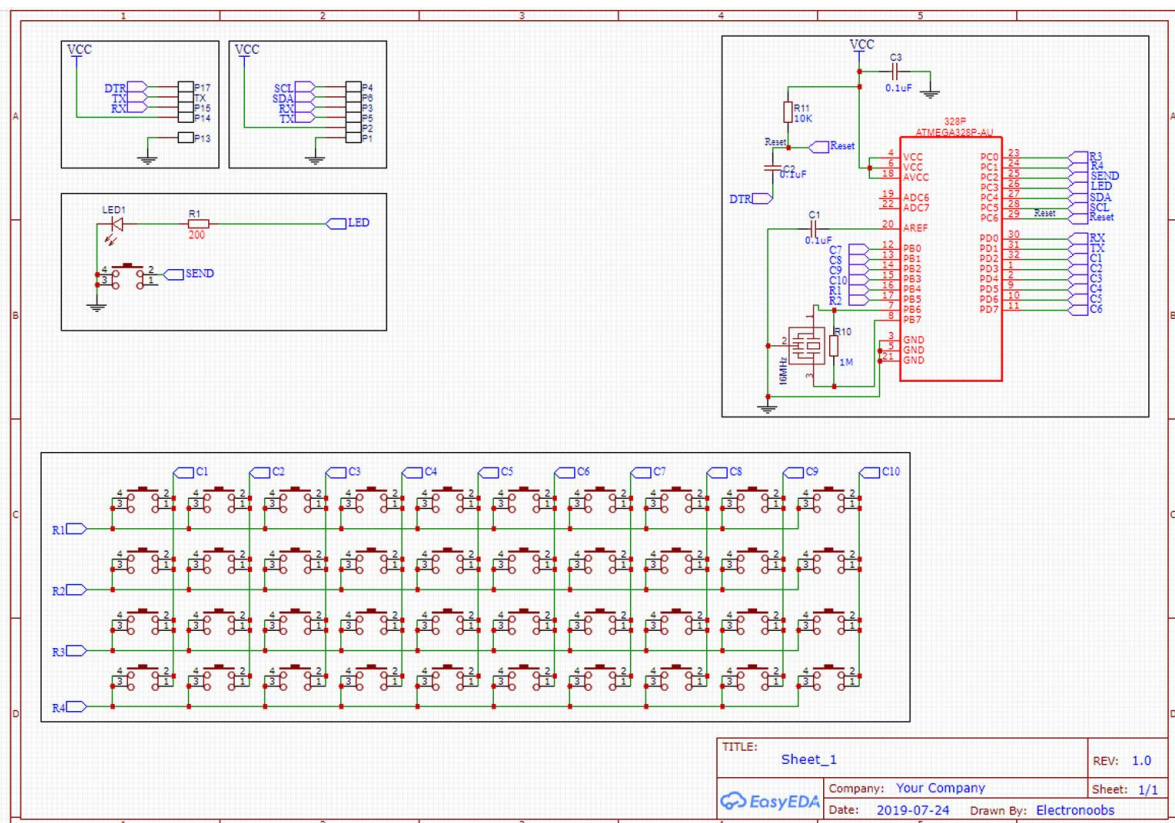
4. Code

Download full KEYBOARD code here: LINK
You will need the keypad library: LINK

5. Test

Now that the keypad has the code uploaded, it will send a character each time we press any button. For that we need to make a test. Use an LCD with i2c port to print the received values but you could also use the serial monitor. For the LCD you will need the i2c liquid crystal library as well so from the link below, download that as well and install it to the Arduino IDE. Upload the test code to the Arduino and then connect the keyboard to the Rx and Tx pins. Don't connect the keyboard while uploading the code, otherwise the code won't be uploaded since the FTDI chip is using the Tx and Rx pins as well. Press buttons and see the received character on the screen.

Download test code 1: LINK
Download test code 2: LINK
Download i2c liquid crystal library: LINK
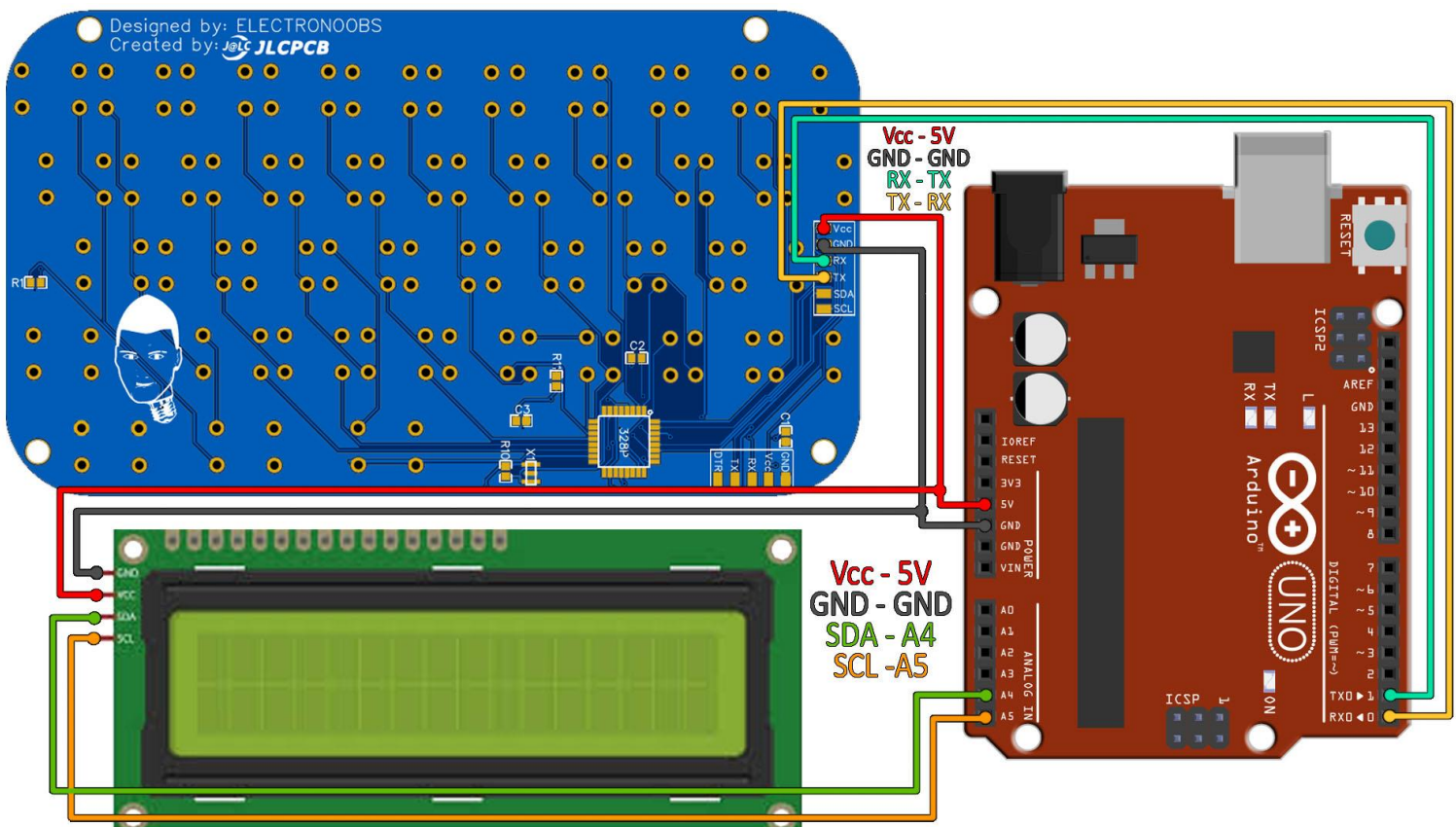
6. Video

See the video for more information and see what options you have with this PCB. I might place this on my future online store. What do you think ? Comment on my website and help the community. Consider supporting me on PATREON.