

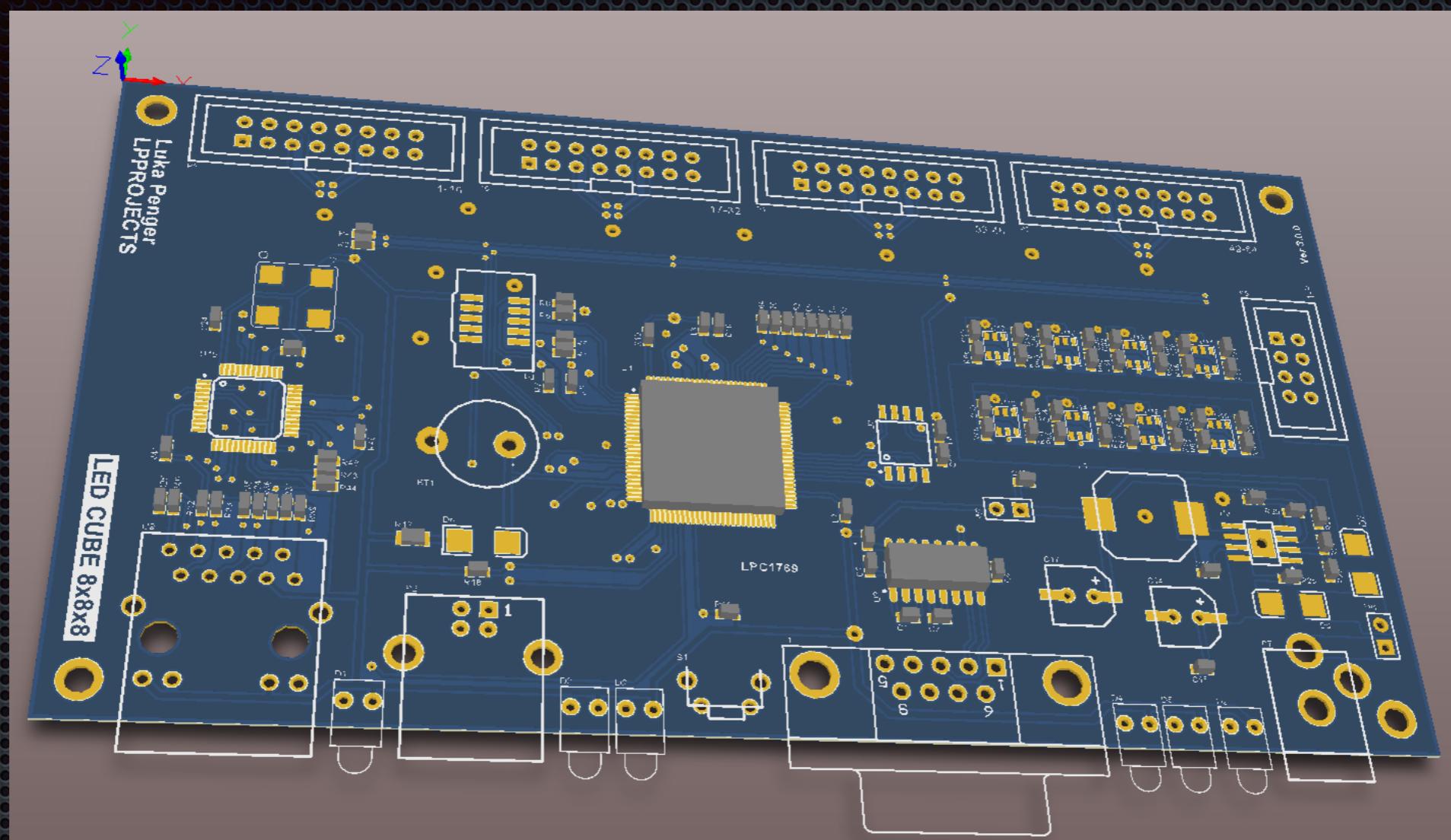
LPPProjects LED Cube 8x8x8

Luka Penger

<http://lpprojects.eu>

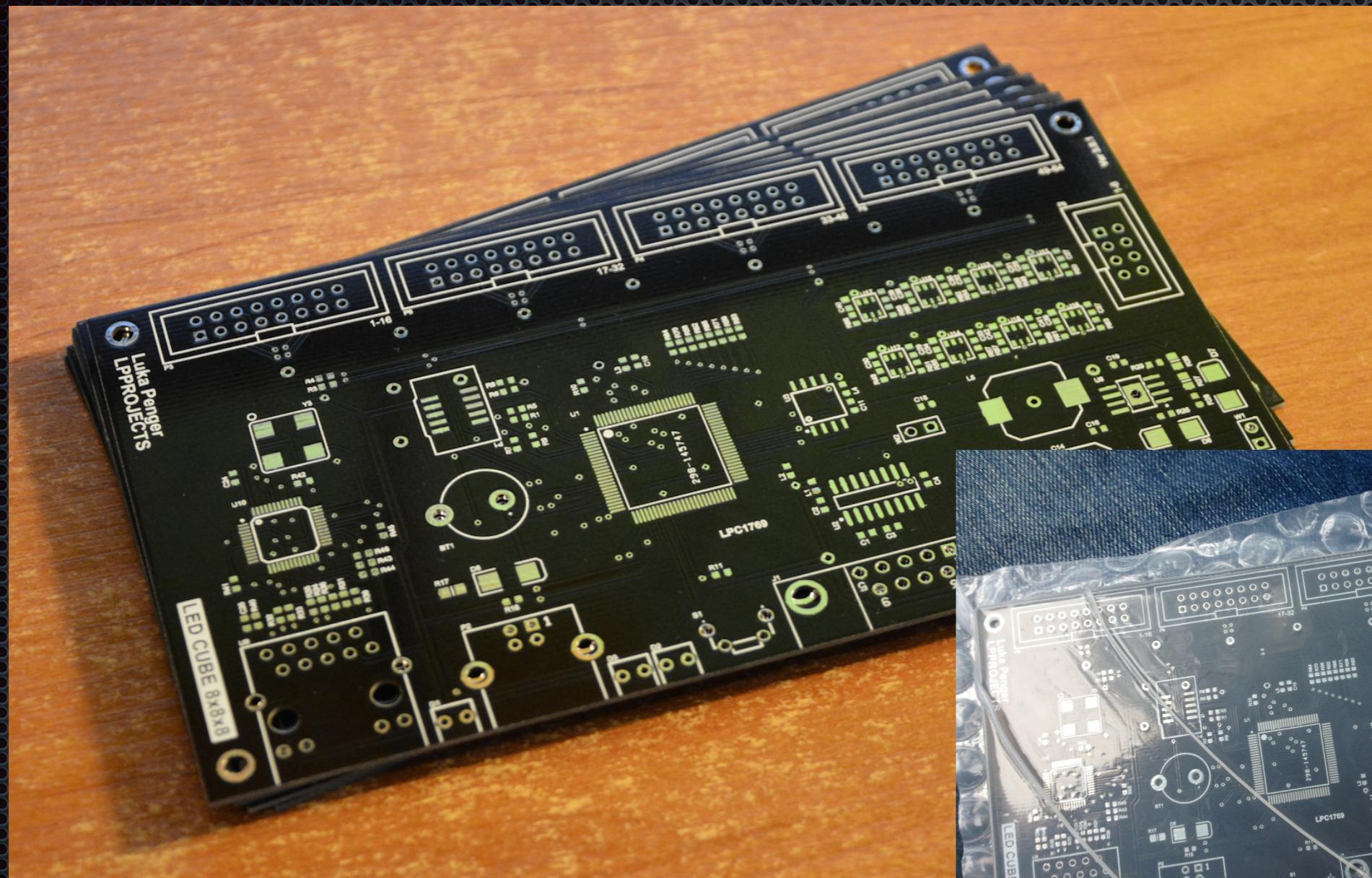
<http://lukapenger.eu>

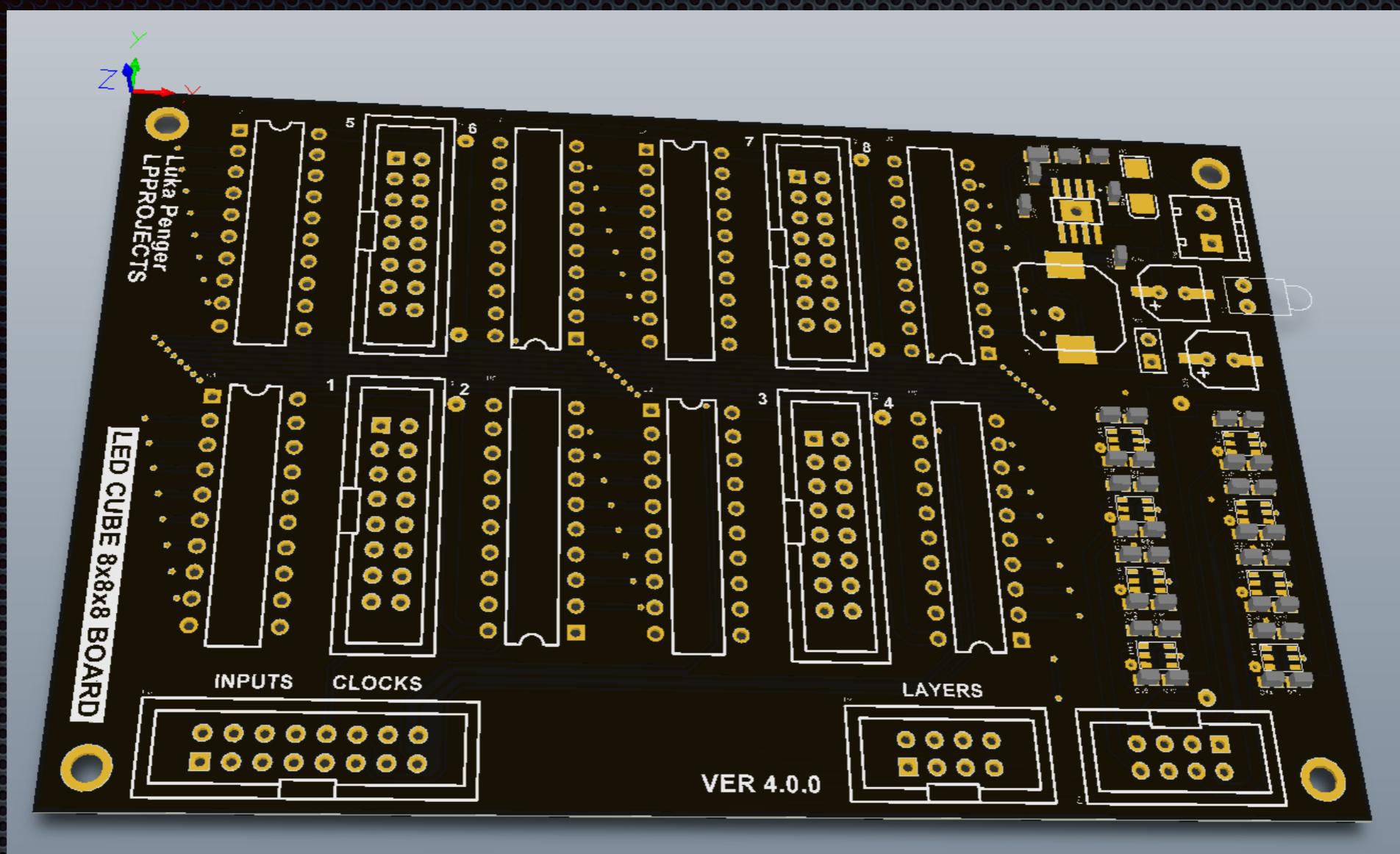
- Verjetno se vsi sprašujete kaj to sploh je in zakaj bi to rabili?
- LED kocka je matrika, s katero lahko prikazujemo razne efekte in napise v 3D oblikah katere si lahko sami naredimo v programu za računalnik ali pa kar preko pametnega telefona in WEB vmesnika.
- Do krmilnika dostopamo preko Ethernet povezave.
- Na procesorju je naložen bootloader s katerim lahko preko USB-ja update-amo program na vezju.



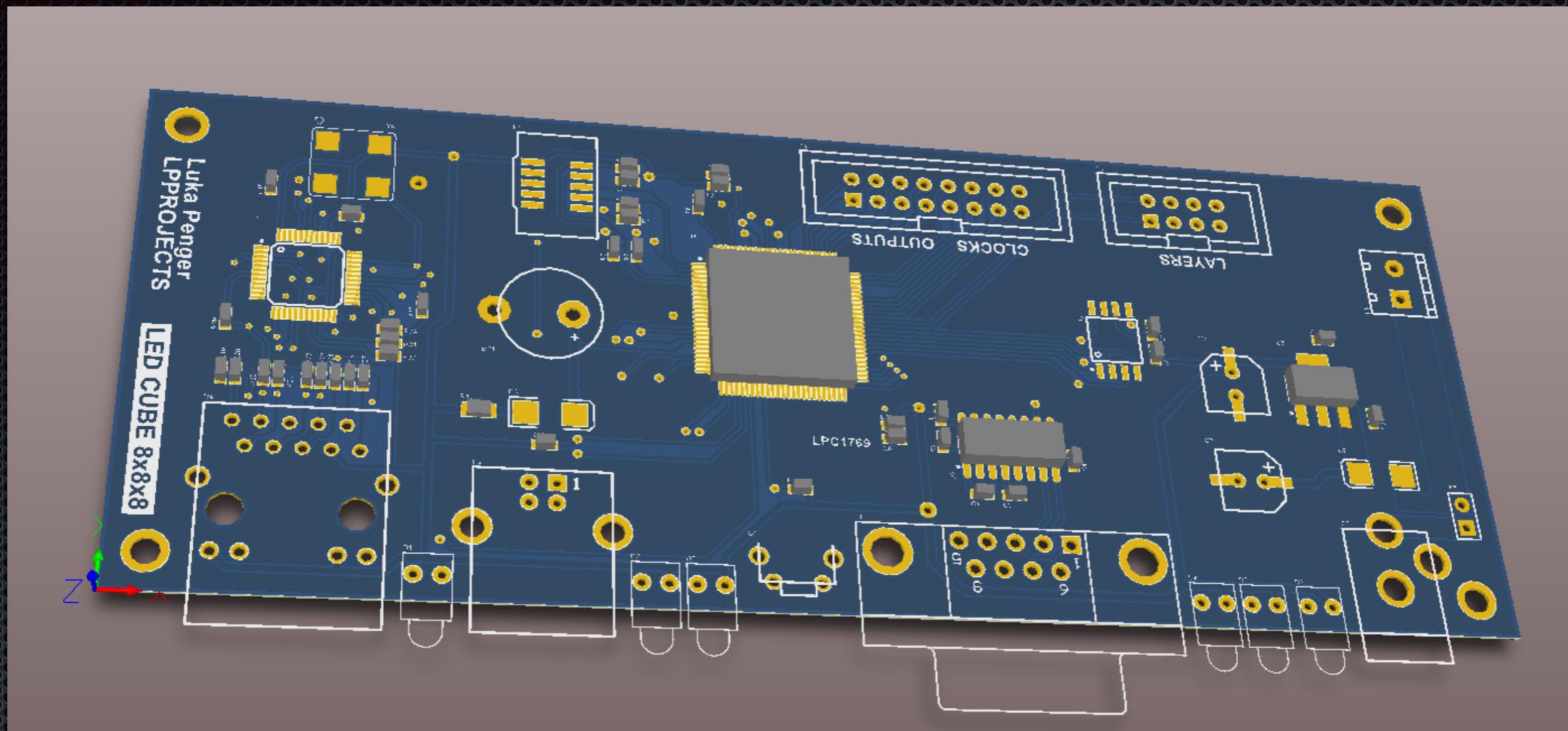
Glavni del LED kocke je krmilnik, ki ga poganja procesor LPC1769 jedra ARM Cortex M3. Vezje na sliki je verzije 3.0.1. Narisano je v programu Altium Designer.

Vezja izdeluje podjetje ITEADStudio.



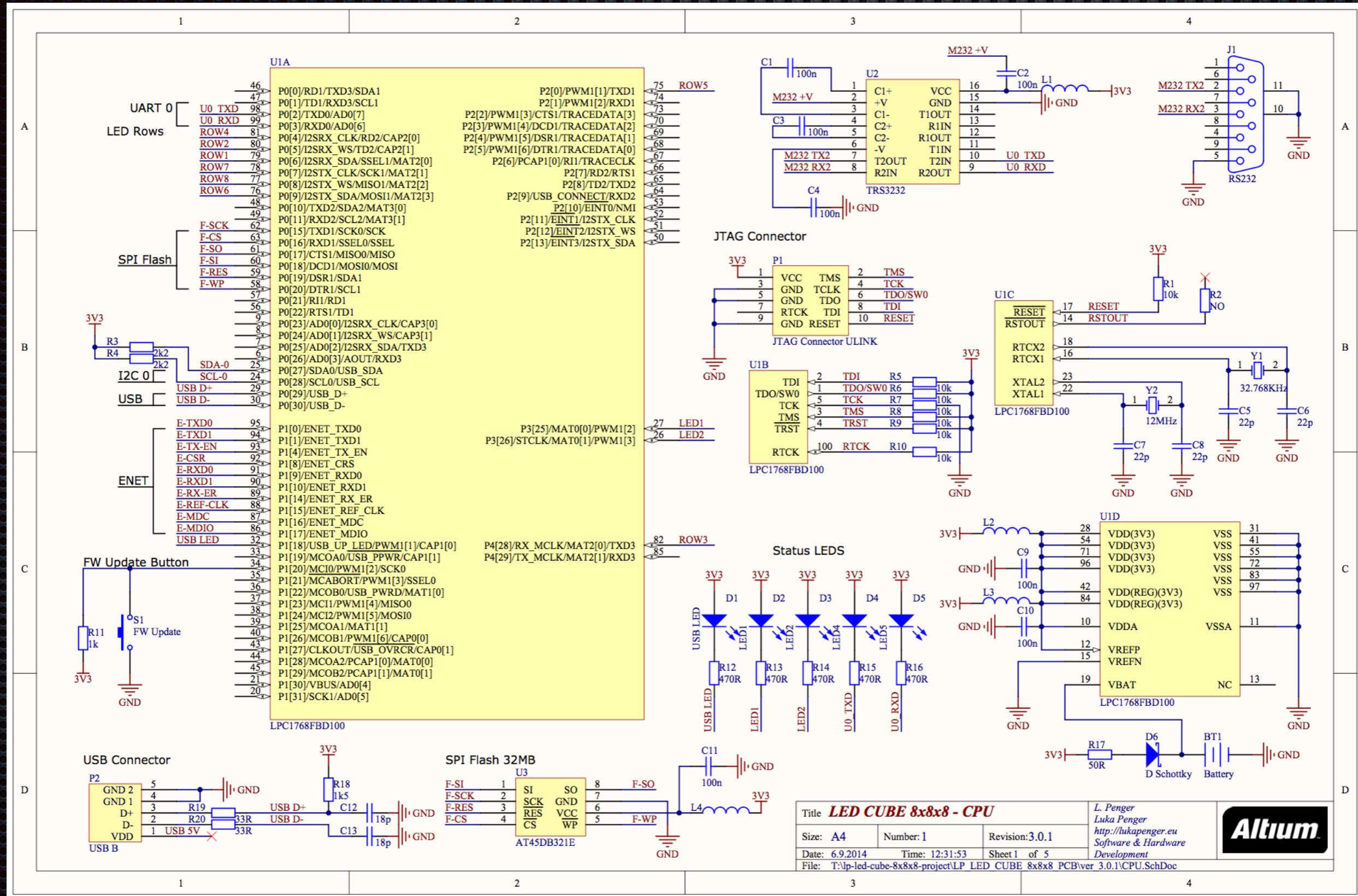


Krmilnik verzije 4.0.0 je razdeljen na 2 enoti. Krmilna LED enota, ter krmilna enota s procesorjem, ki upravlja LED enoto.

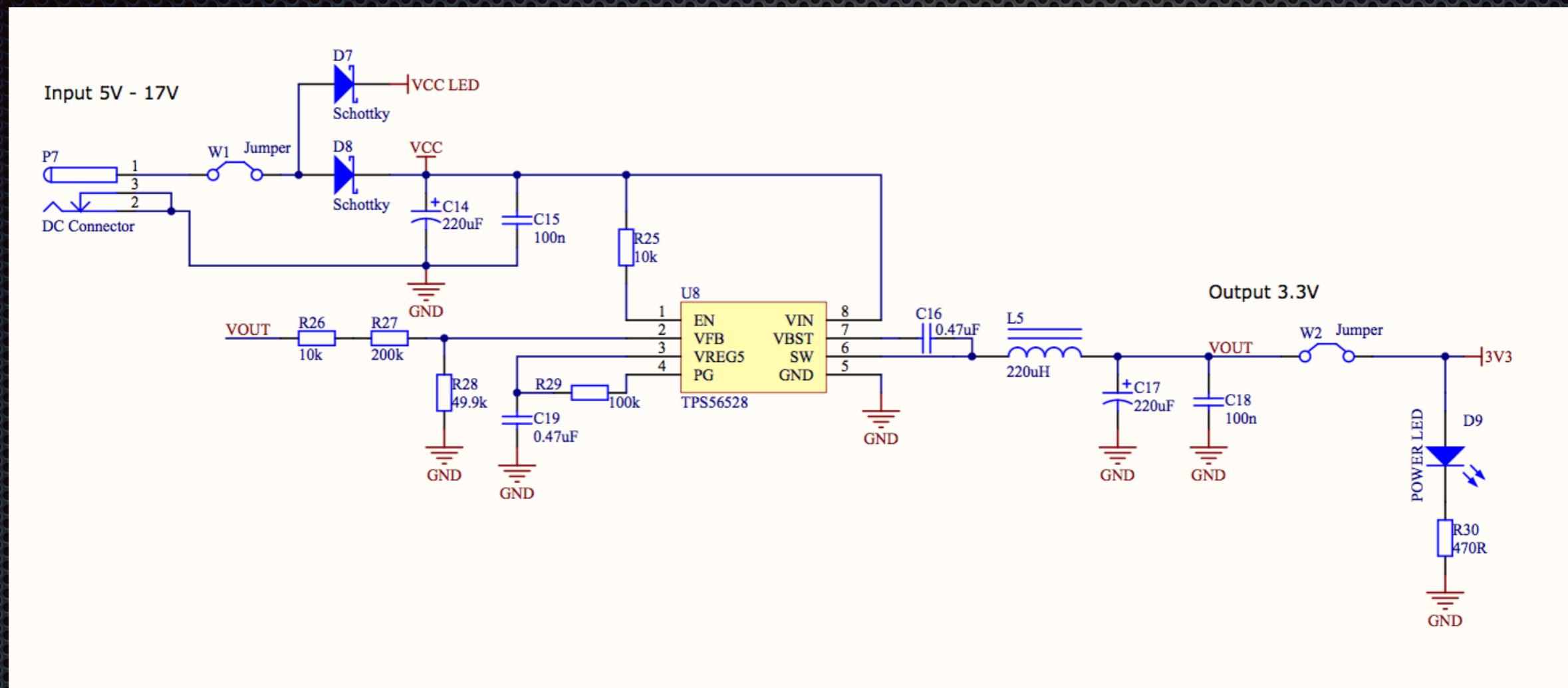


Krmino vezje, ki poganja naprej poganja LED vezje.
To je zadnja verzija 4.0.0 vezja, ki je bila narejena in je
končna verzija.

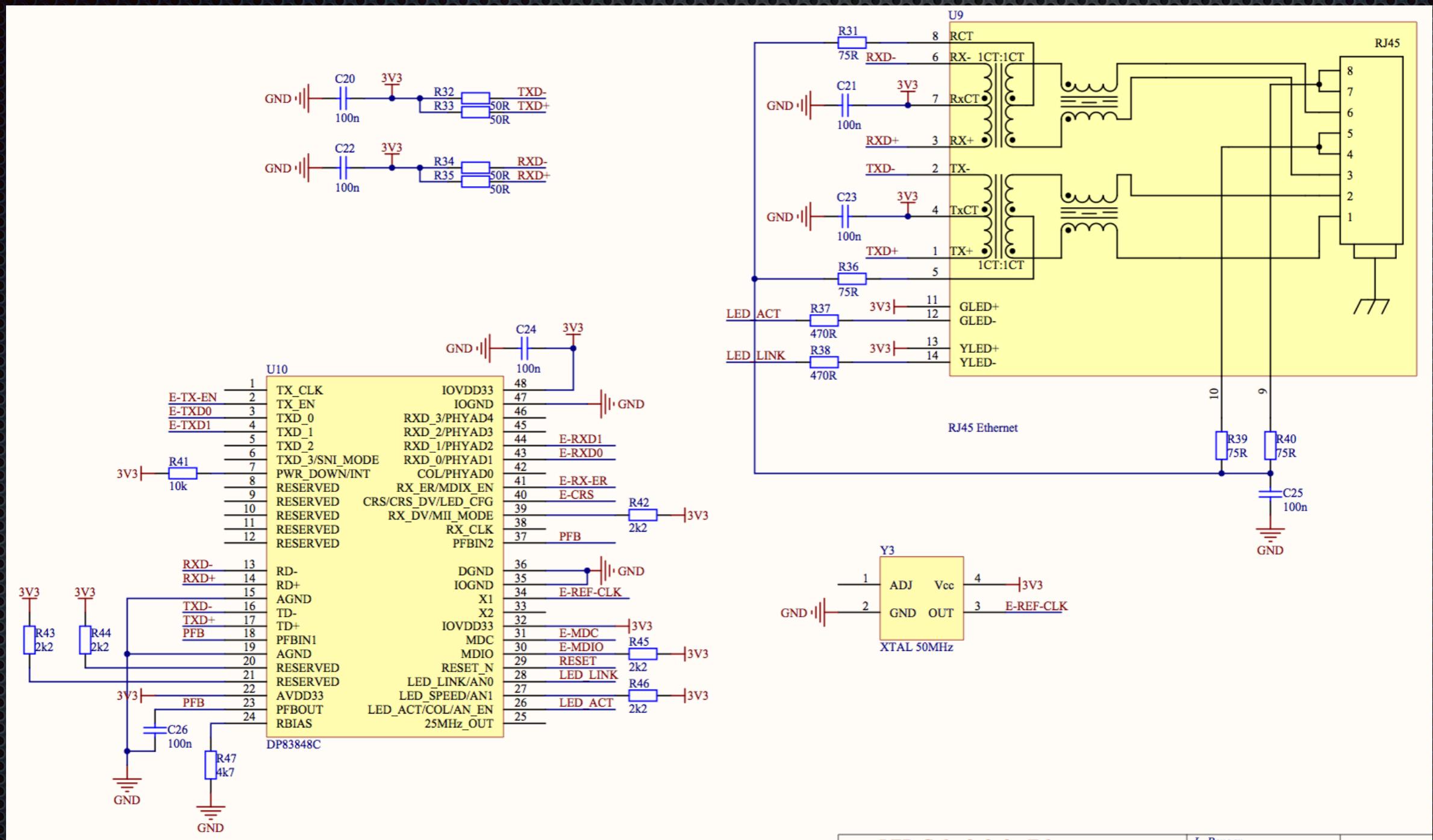
Shema vezja

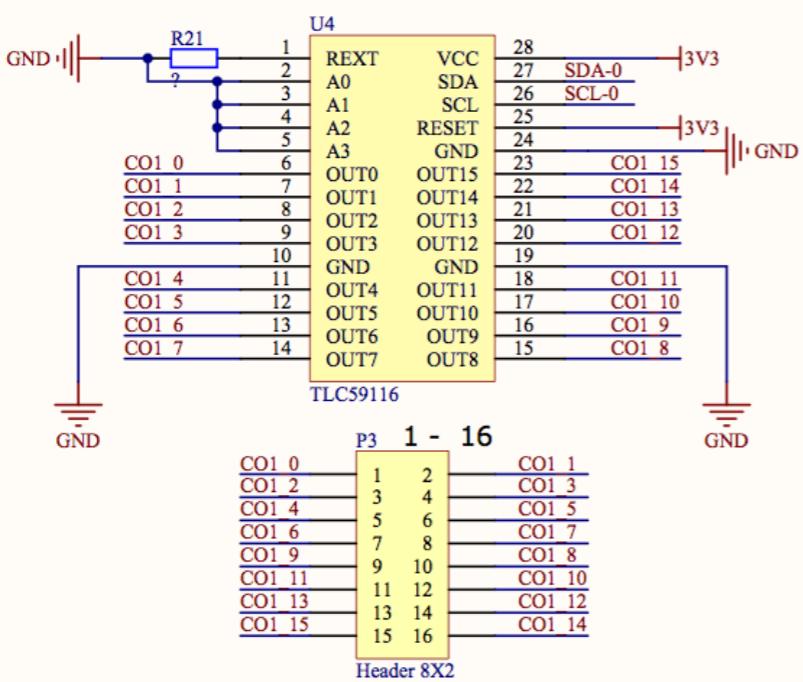


Napajalni del vezja



Ethernet del





I2C Addresses

0xC0

57 58 59 60 61 62 63 64

0xD0

49 50 51 52 53 54 55 56

0xC8

41 42 43 44 45 46 47 48

0xD8

33 34 35 36 37 38 39 40

25 26 27 28 29 30 31 32

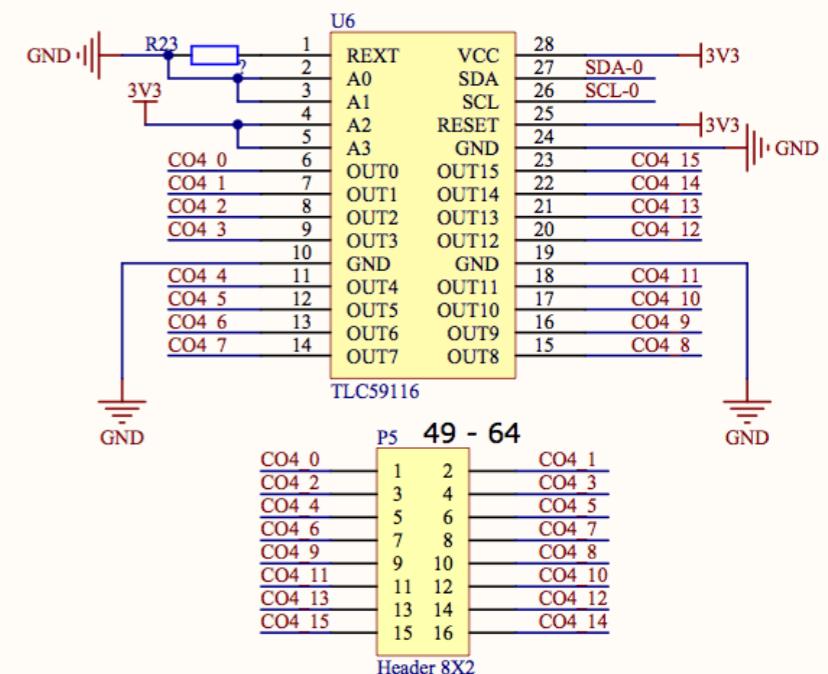
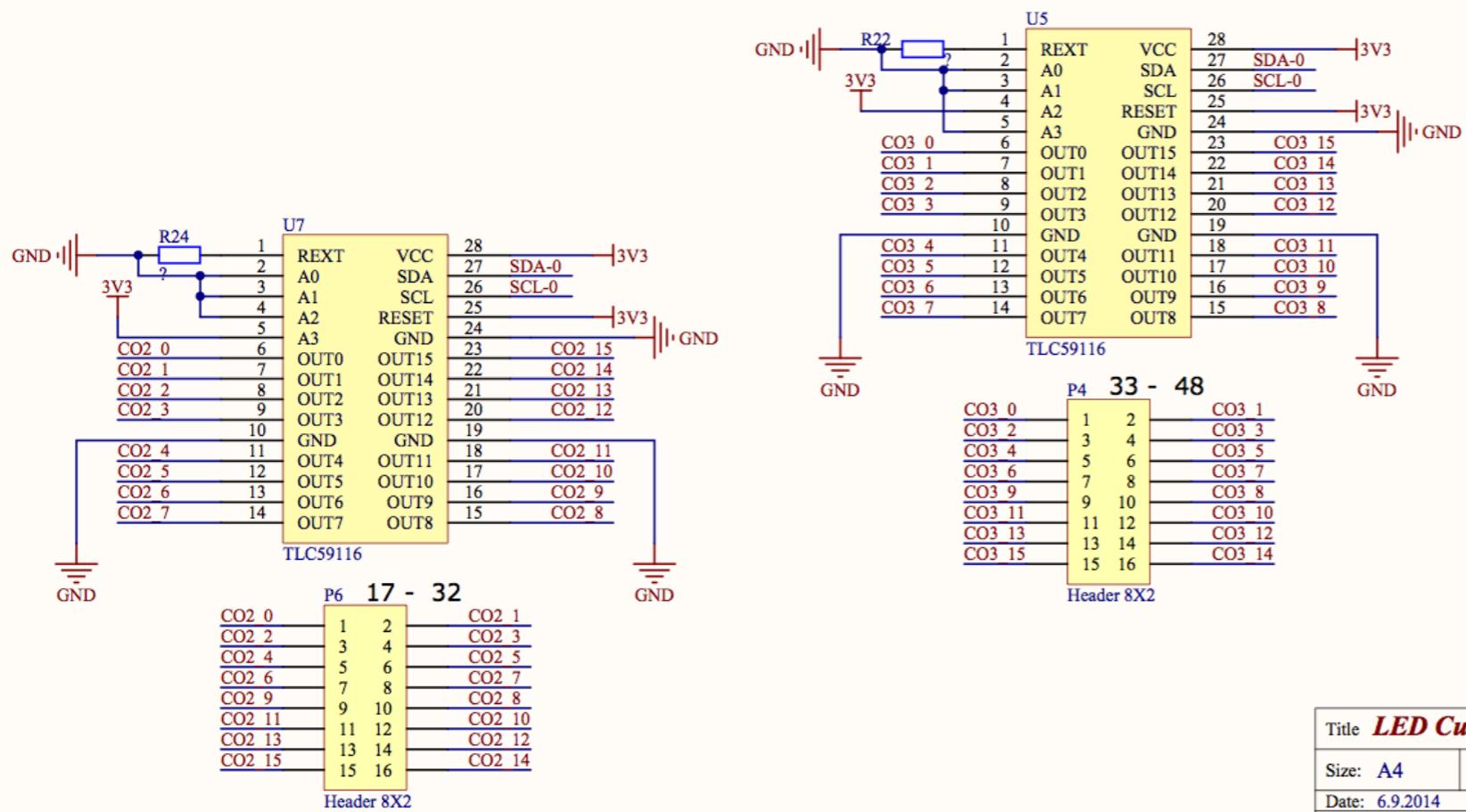
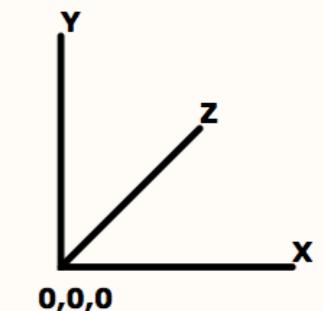
17 18 19 20 21 22 23 24

09 10 11 12 13 14 15 16

01 02 03 04 05 06 07 08

Layer drive (Y axis) output

LED arrangement



Title **LED Cube 8x8x8 - LED**

Size: **A4** Number: **3** Revision: **3.0.1**

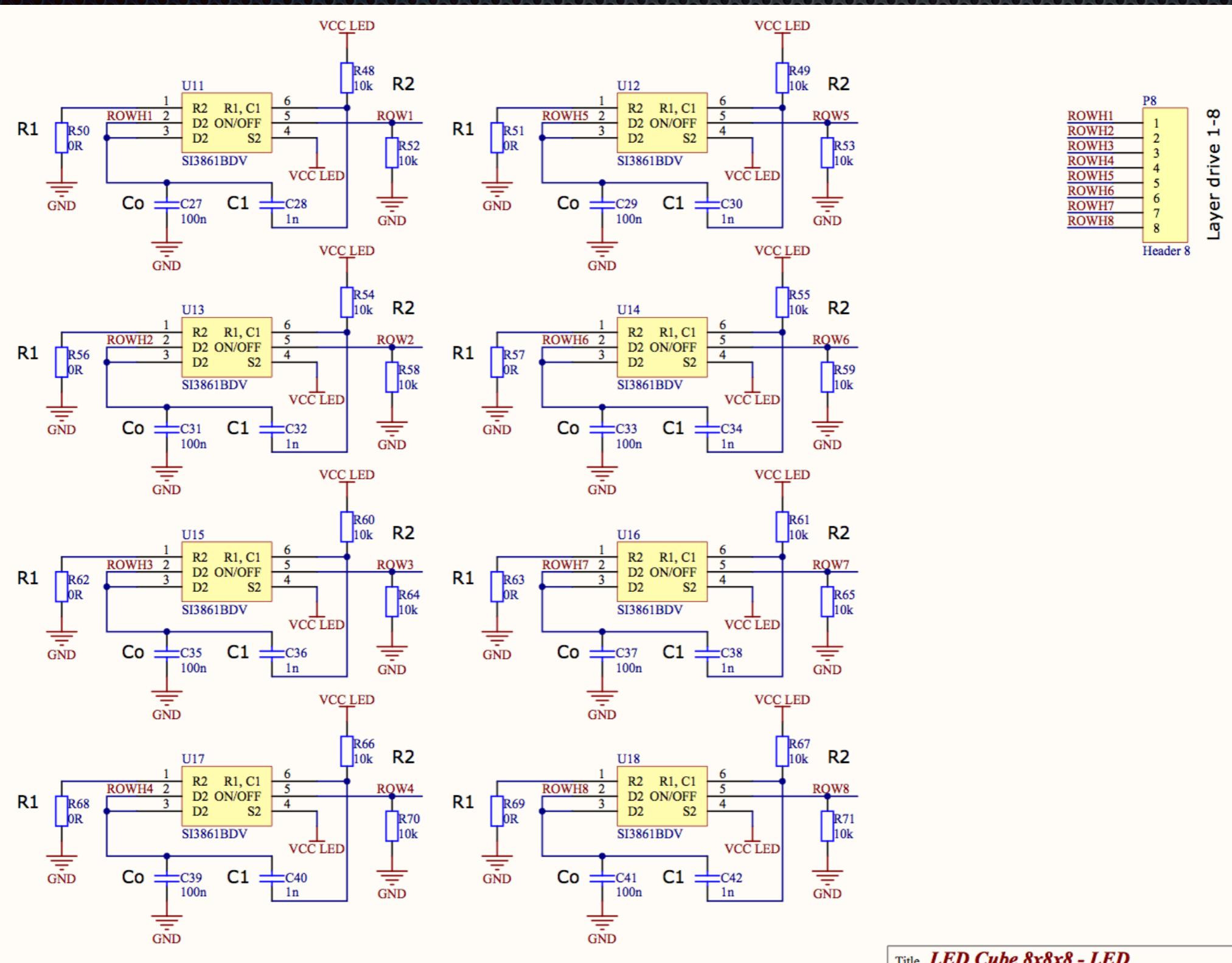
Date: **6.9.2014** Time: **12:31:54** Sheet **3** of **5**

File: **T:\lp-led-cube-8x8x8-project\LP LED CUBE 8x8x8 PCB\ver 3.0.1\LED.SchDoc**

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Software & Hardware
Development

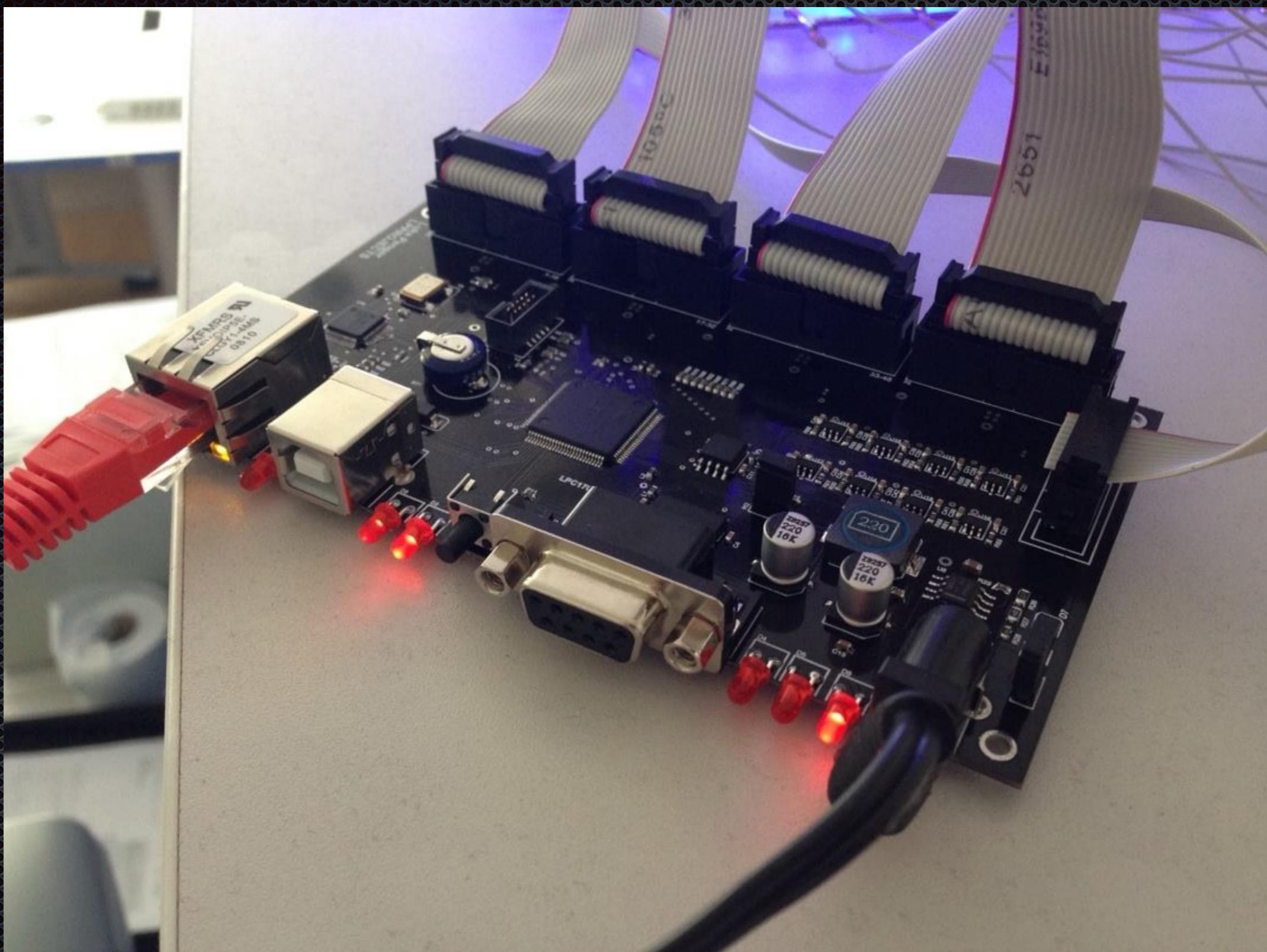


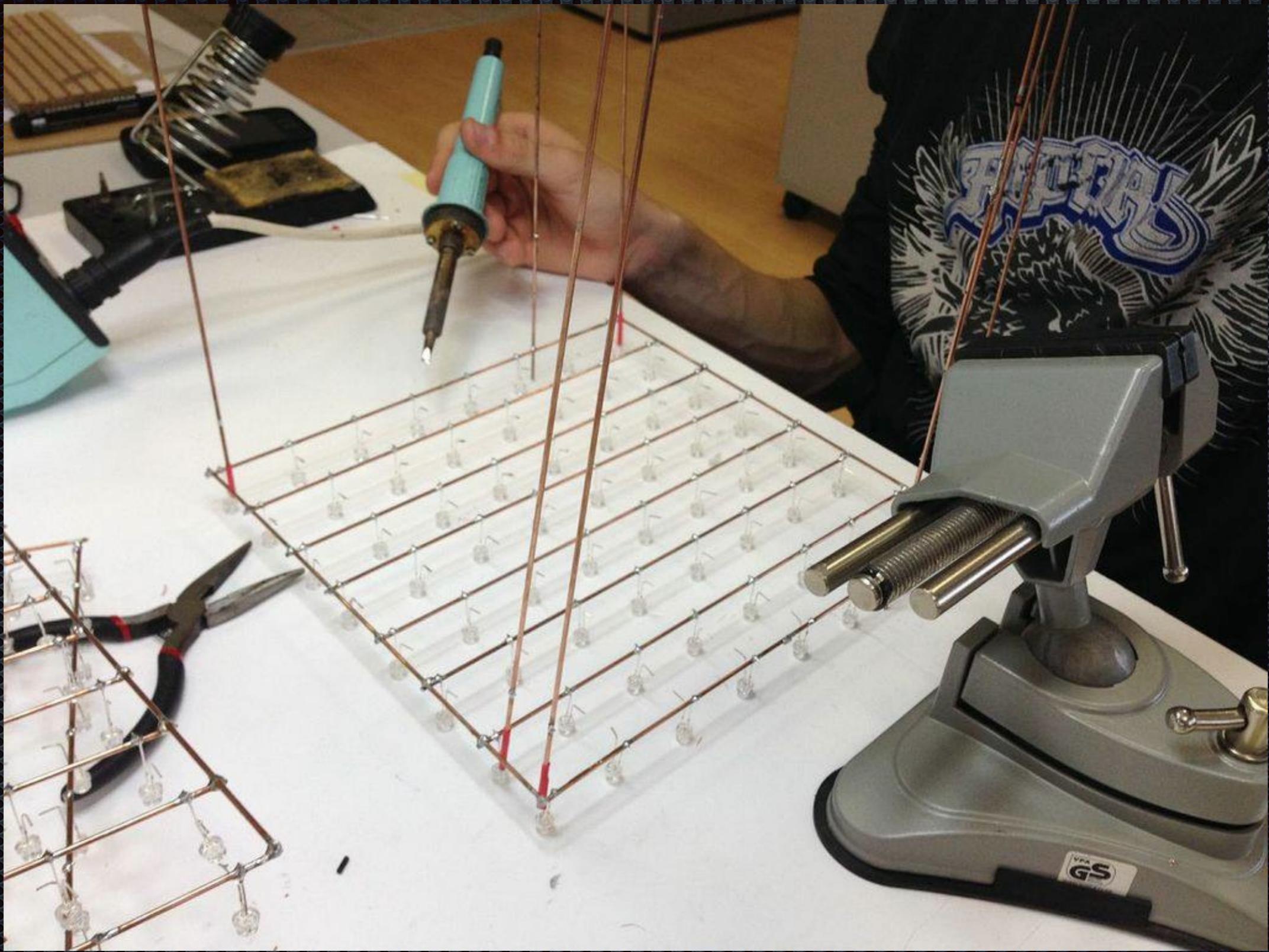
Močnostni del krmilnika LED

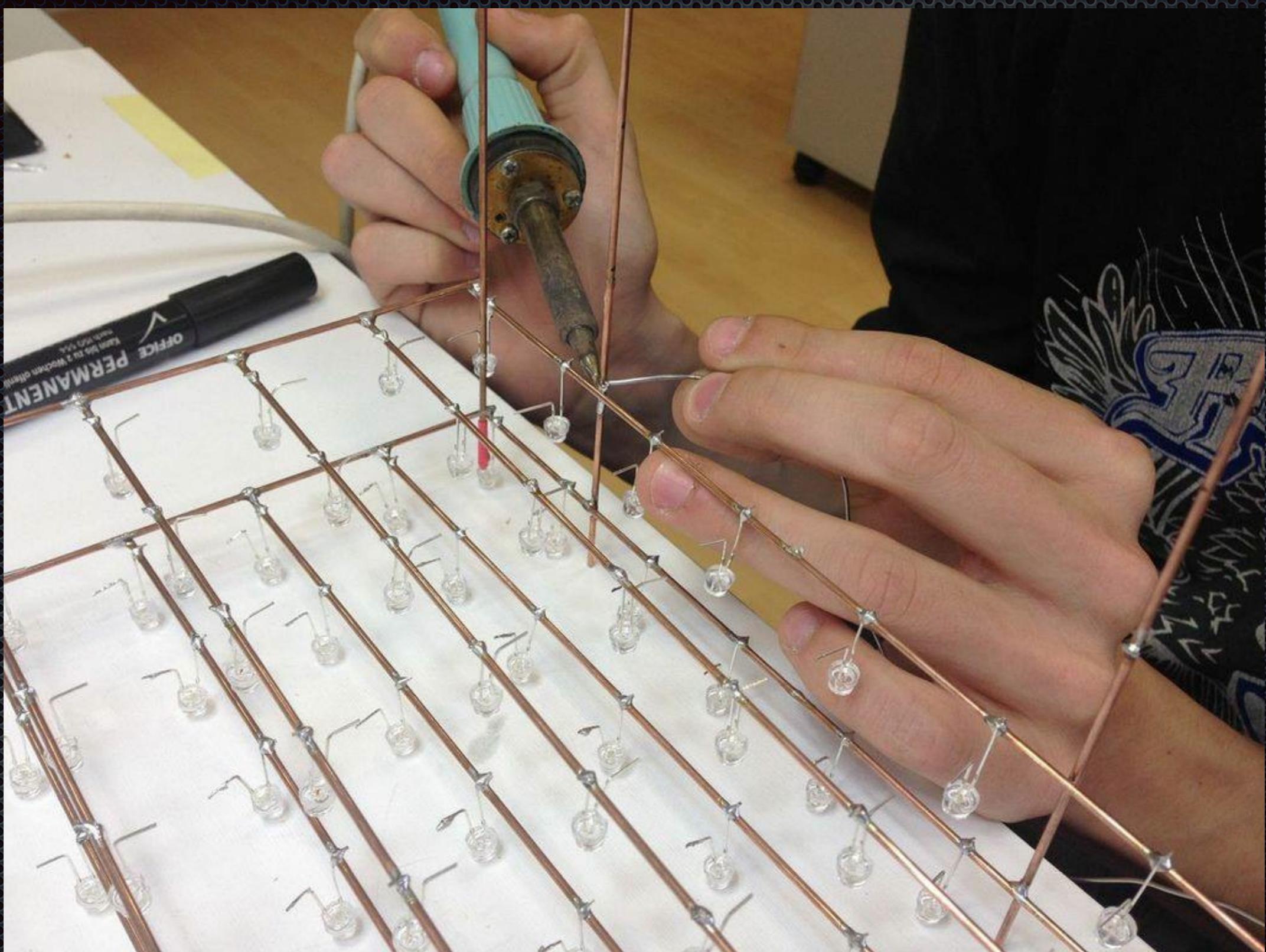


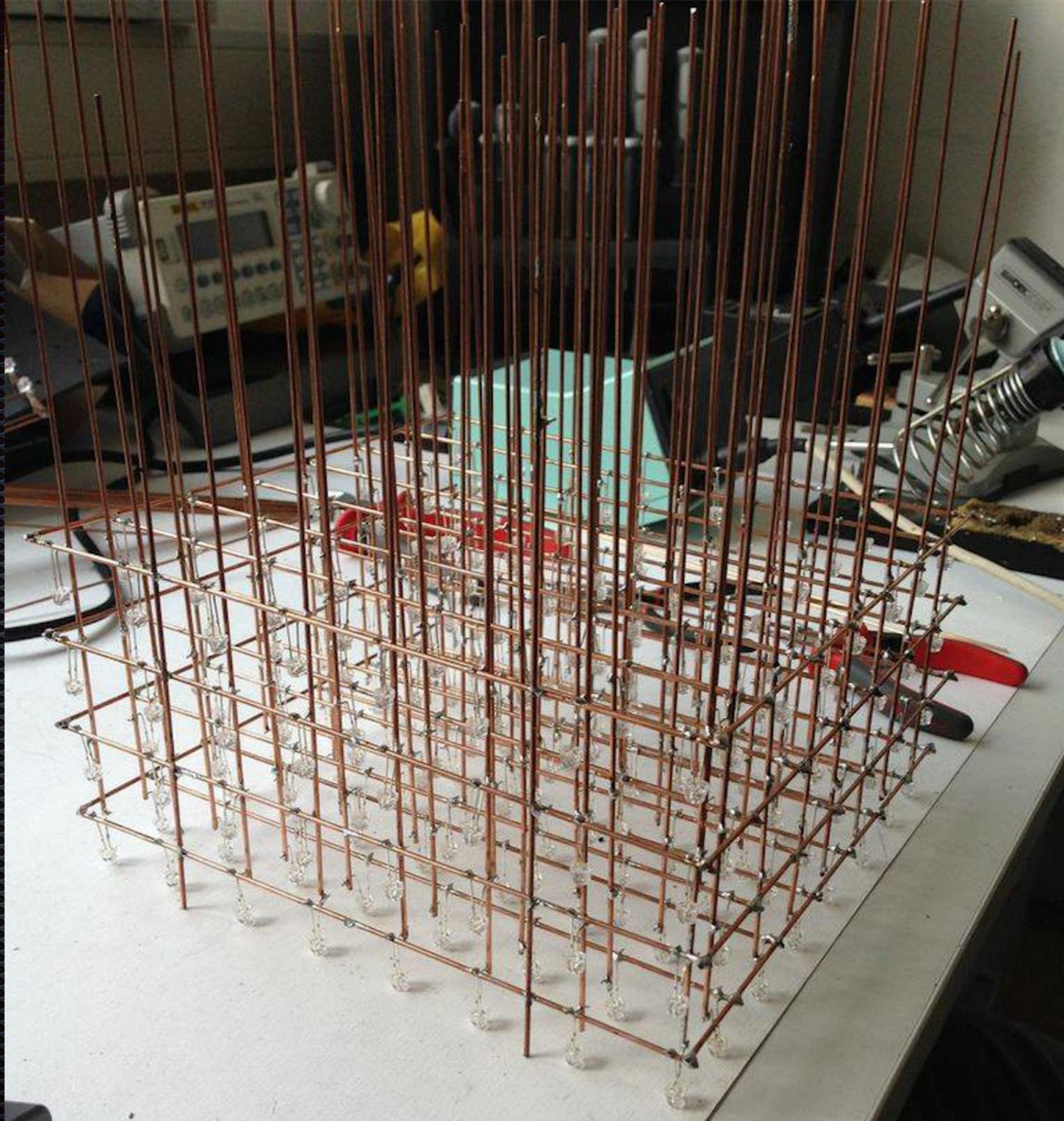
Verzija 1.0.0





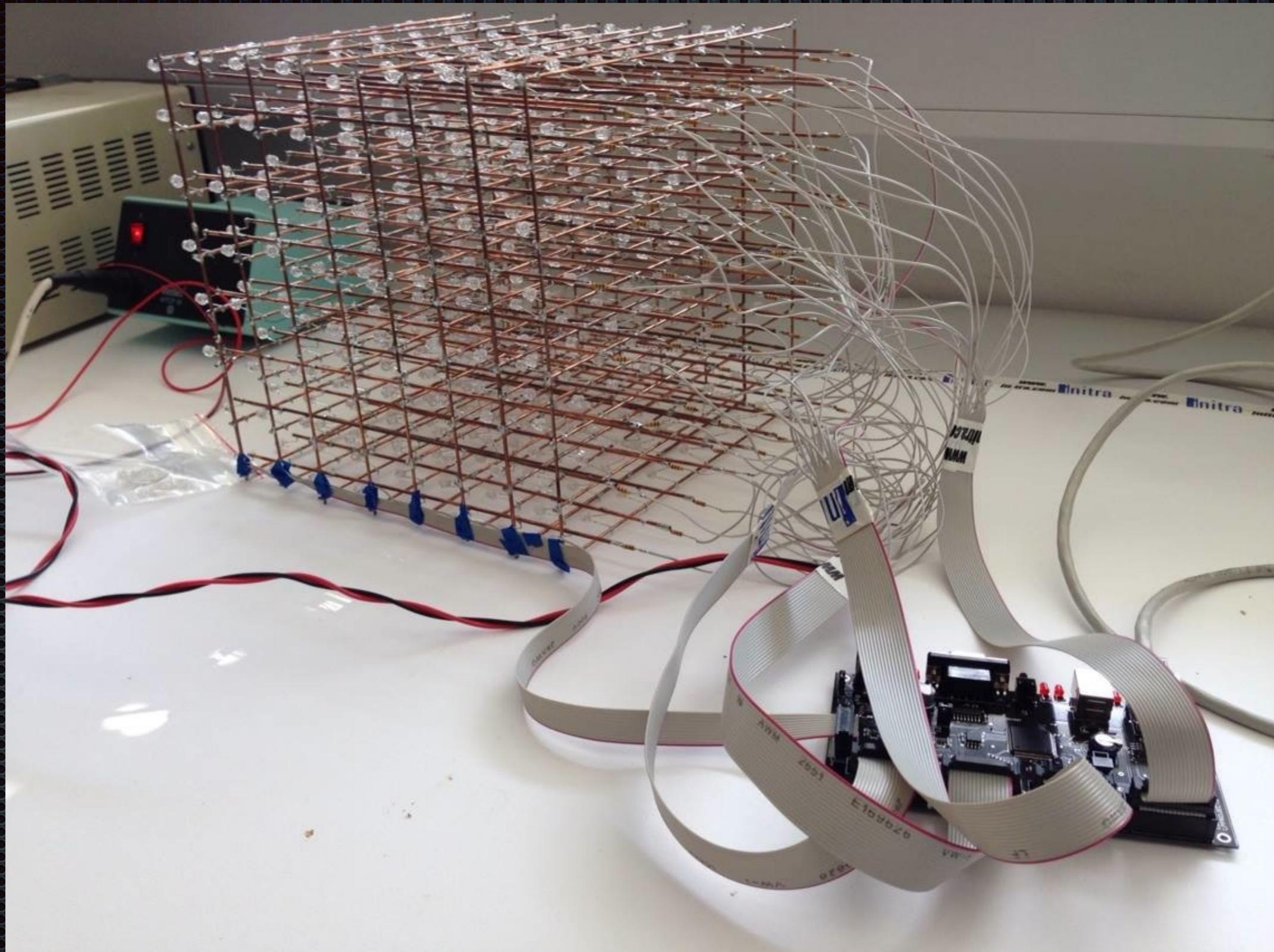






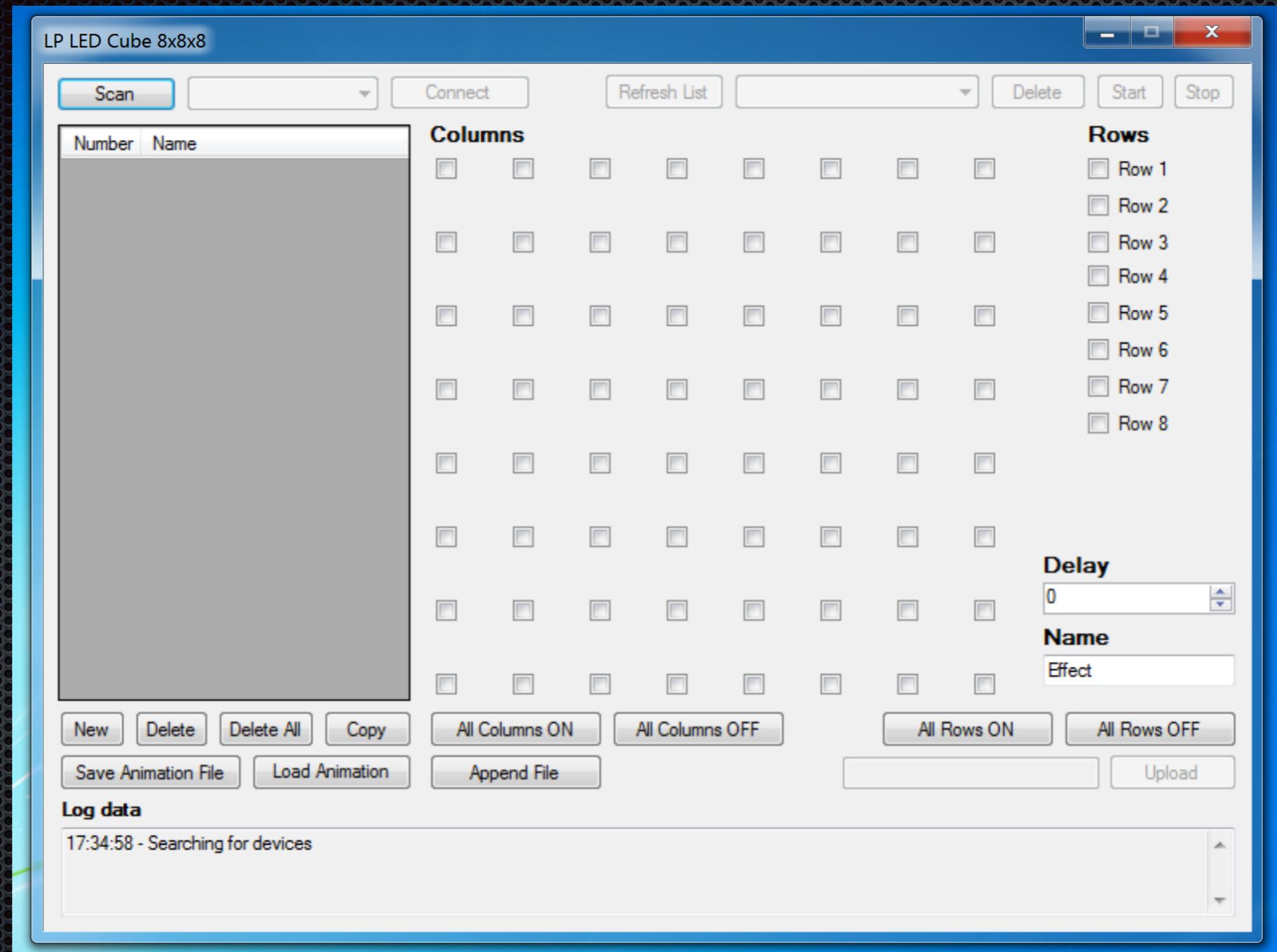


FLUTTIN
S. Sireca 9037
Lot: J04308
Item: 11474
Made in the





Program za testiranje LED kocko, narejen v Visual



Programiranje mikrokontrolnika LP1769 v KEIL

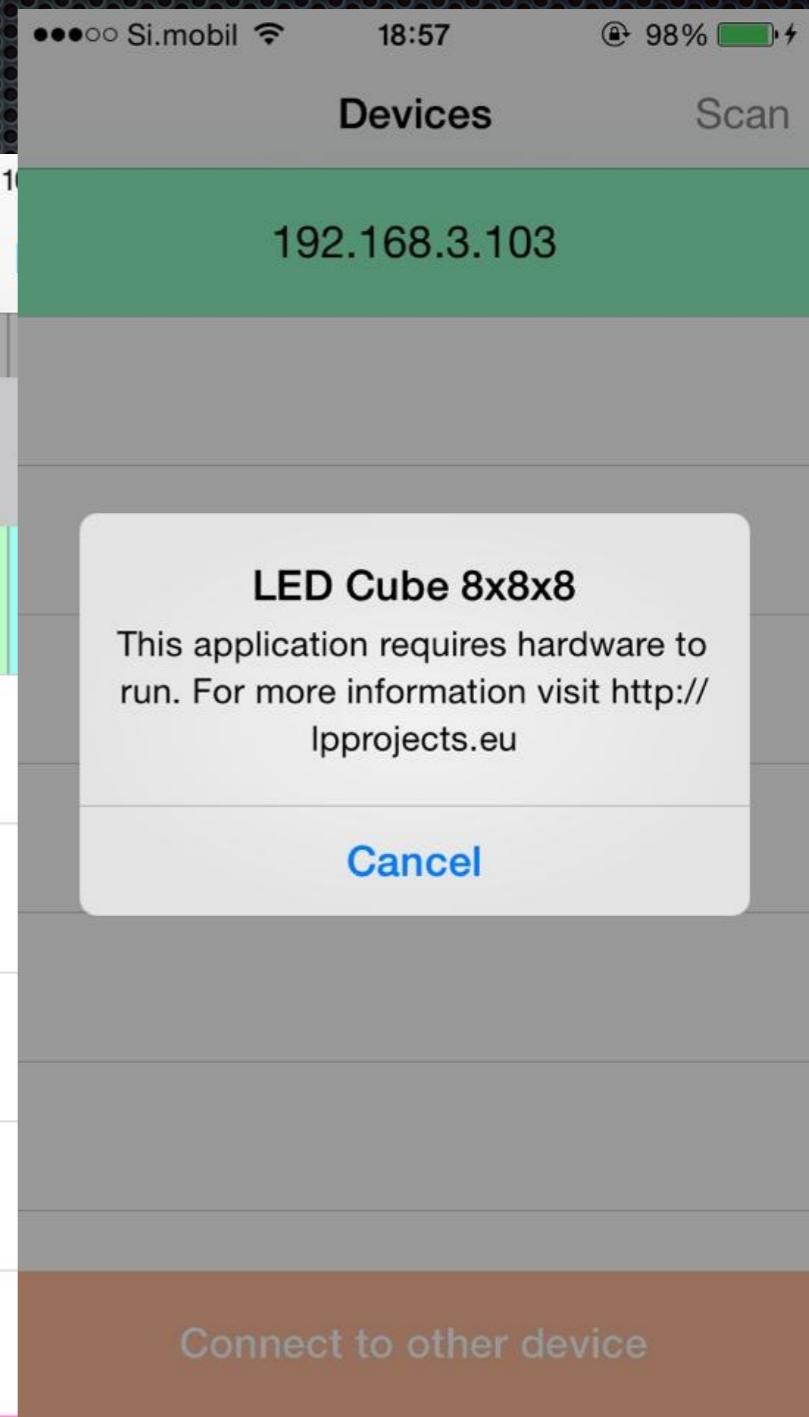
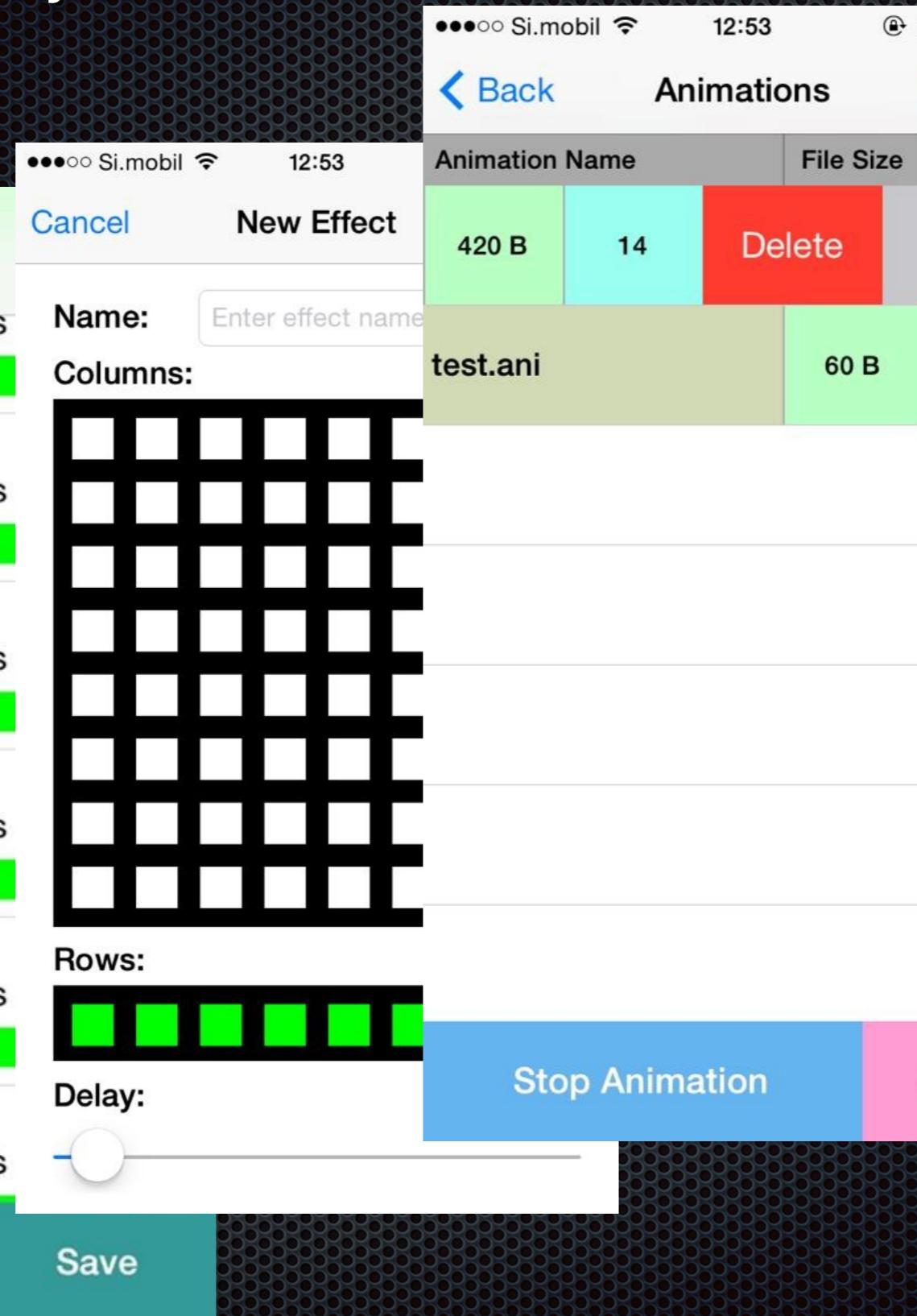
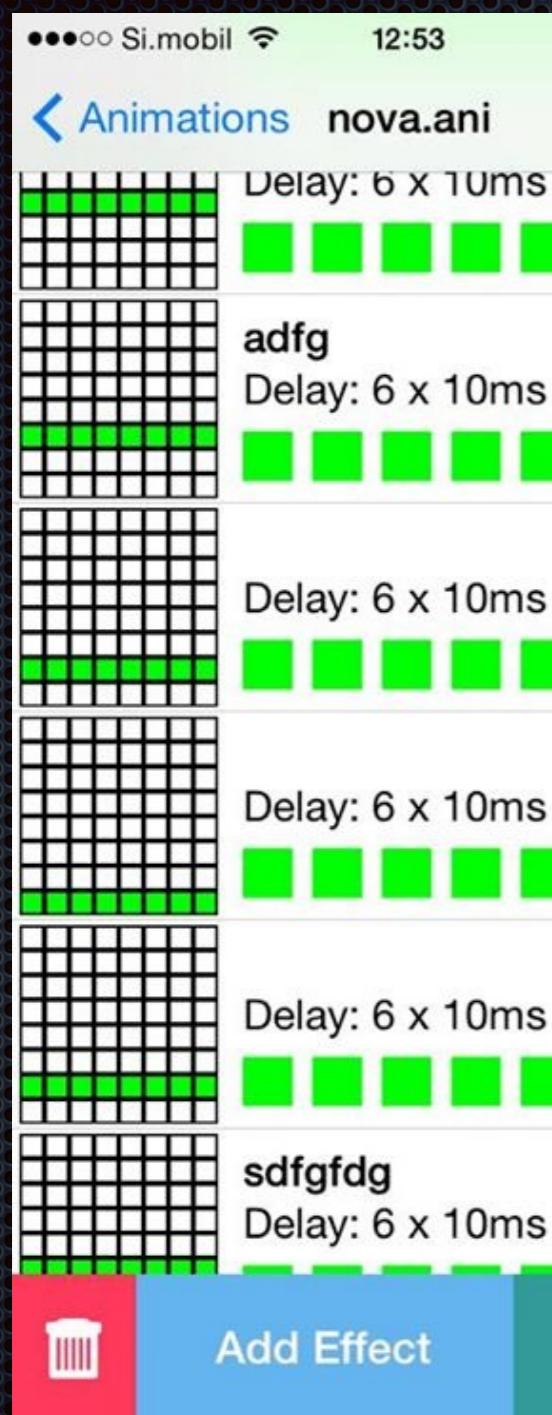
The screenshot shows the KEIL µVision 4 IDE interface. The title bar indicates the project is 'V:\lp-led-cube-8x8x8-project\LP_LED_CUBE_8x8x8_LPC176X\3.0.1\LP_LED_CUBE_8x8x8_LPC176X\Http_upload.uvproj - µVision4'. The menu bar includes File, Edit, View, Project, Flash, Debug, Peripherals, Tools, SVCS, Window, and Help. The toolbar contains various icons for file operations and project management. The Project Explorer on the left lists the project structure:

- LP LED CUBE 8x8x8
 - HTTP Files
 - Web.inp
 - admins.cgi
 - directory.cgi
 - index.cgi
 - javascript.js
 - network.cgi
 - status_led_blue.png
 - status_led_green.png
 - status_led_red.png
 - status_led_yellow.png
 - style.css
 - time.cgi
 - users.cgi
 - Source Files
 - MAIN.c
 - HTTP_CGI.c
 - WEB.C
 - FTP_uif.c
 - HTTP_err.c
 - HTTP_uif.c
 - LED_CUBE_8x8x8.c
 - PROTOCOL.c
 - TCP_USERS.c
 - Configuration Files
 - Net_Config.c
 - File_Config.c
 - startup_LPC17xx.s
 - FS_SPI_FlashPrg.c
 - Retarget.c
 - Libraries
 - TCP_CM3.lib
 - FS_CM3.lib
 - ADC.c
 - ...

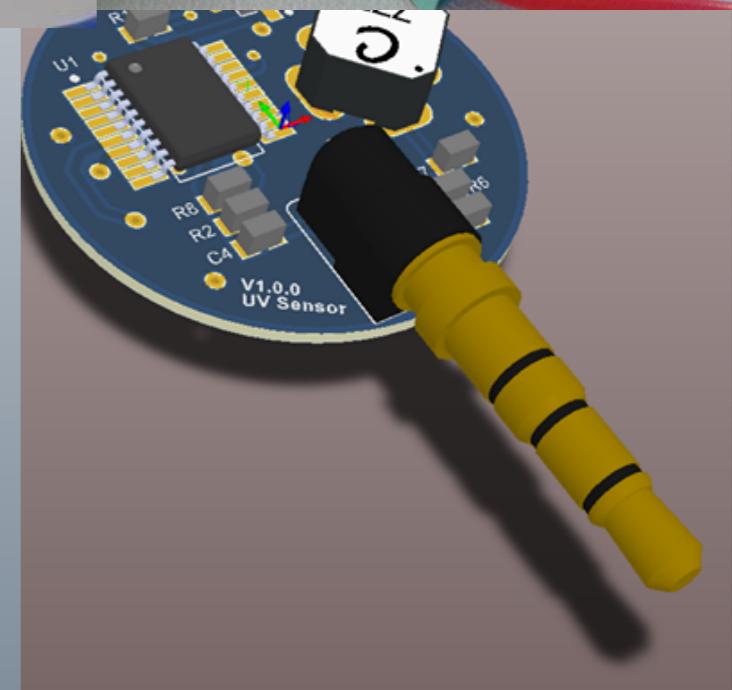
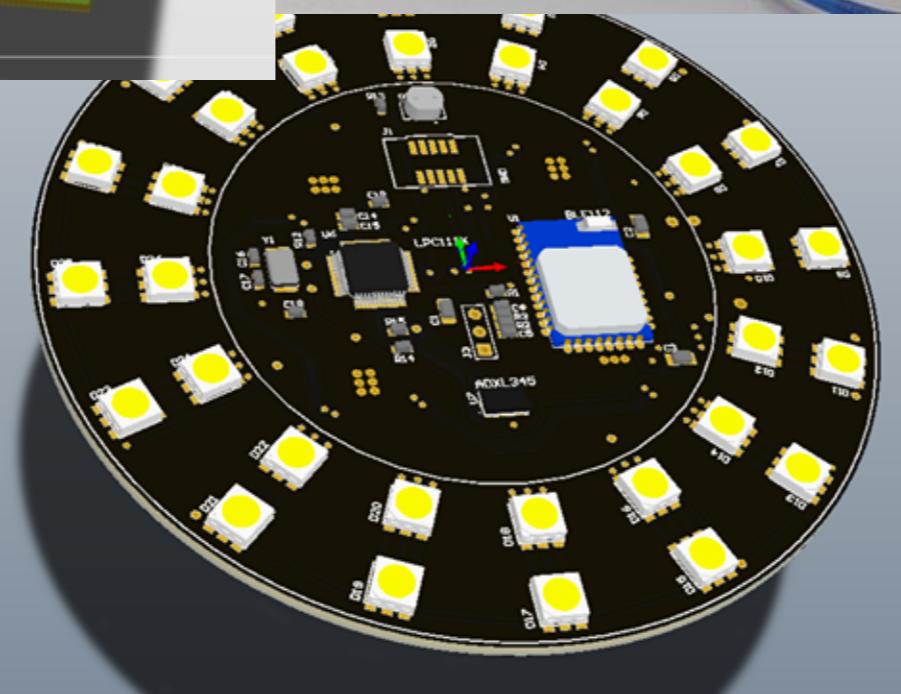
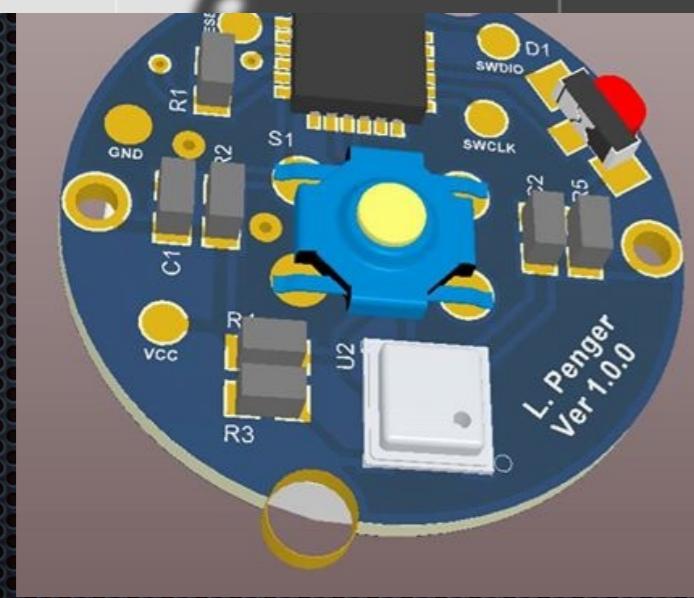
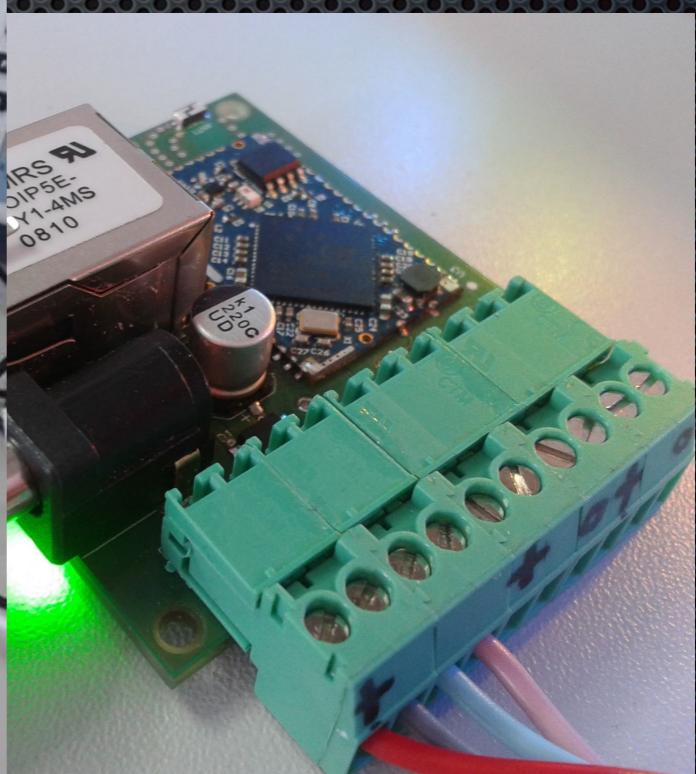
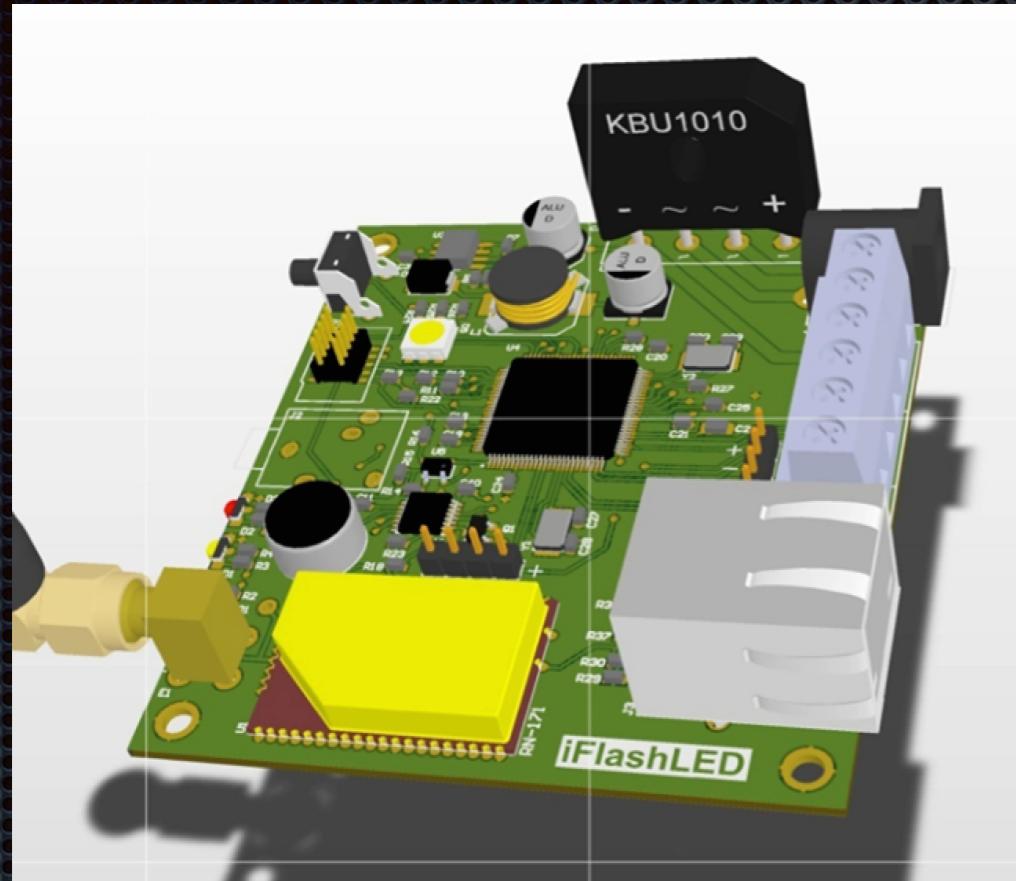
The code editor window shows the 'MAIN.c' file with the following content:

```
235 void Animation_Read_Effect (void) {
236     FILE *file;
237
238     if (CurrentAnimationEffect <= AnimationEffectsCount) {
239         file = fopen(AnimationFileName,"r");
240
241         if (file != NULL) {
242             fseek(file, (sizeof(LED_CUBE_Effect) * CurrentAnimationEffect), SEEK_SET);
243             fread(&currentEffect, 1, sizeof(LED_CUBE_Effect), file);
244
245             LED_CUBE_Rows_Set(currentEffect.rows);
246             LED_CUBE_Columns_Set(currentEffect.columns[0], currentEffect.columns[1], currentEffect.columns[2]);
247
248             fclose(file);
249         }
250     }
251 }
252
253
254 void Animation_Start (void) {
255     FILE *file = fopen(AnimationFileName,"r");
256     FINFO file_info;
257     file_info.fileID = 0;
258
259     CurrentAnimationEffect = 0;
260     DelayValue = 0;
261
262     if (file != NULL) {
263         if (ffind(AnimationFileName, &file_info) == 0) {
264             AnimationFileSize = file_info.size;
265
266             if (AnimationFileSize >= sizeof(LED_CUBE_Effect)) {
267                 ANIMATION_PLAY = TRUE;
268
269                 AnimationEffectsCount = (AnimationFileSize / sizeof(LED_CUBE_Effect));
270
271                 Animation_Read_Effect();
272             } else {
273                 ANIMATION_PLAY = FALSE;
274                 AnimationFileName = "";
275             }
276         }
277     }
278 }
```

iOS Aplikacija



Več o projektu na <http://lpprojects.eu>



LPPProjects sponzorji

Mogoče se nekateri ljudje ne zavedajo, koliko denarja porabim za razvoj takih projektov, kaj šele časa, ki ga je vedno manj. Zato se zahvalujem svojim sponzorjem, ki mi finančno pomagajo pri mojih projektih.

