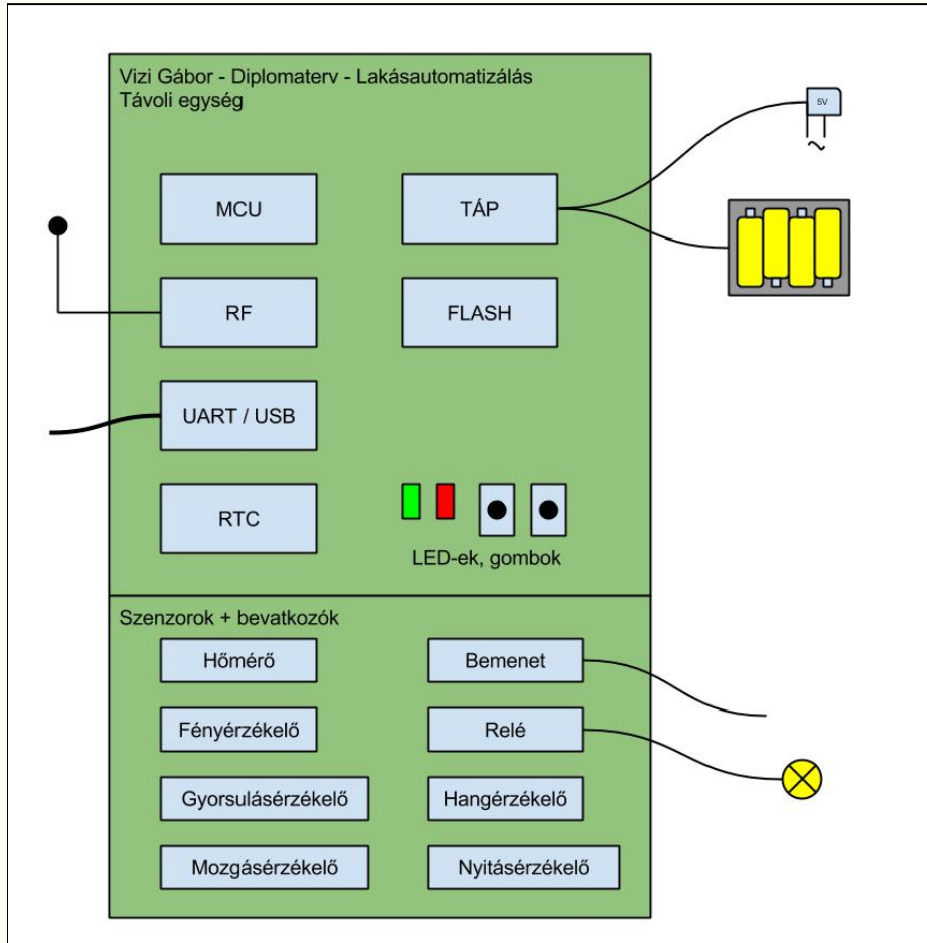


Blockdiagram - NodeMedium

[Blockdiagram link \(Google Drive\)](#)



Title			Lakásautomatizálás		
Size	Number	Revision		v1	
A4					
Date:	2015.12.11.	Sheet of	Blockdiagram - NodeMedium		
File:	C:\Users\... \Sheet	Blockdiagram	NodeMedium	Víz Gábor	

MCU - L1

V_LCD -vel mi legyen?

- IT:
- PA0 - USER_BUTTON_0
 - PA1 - USER_BUTTON_1
 - USER_BUTTON_2
 - USER_BUTTON_3
 - SENSOR_MOTION
 - SENSOR_TEMP_OS
 - SENSOR_OPENCLOSE
 - SENSOR_SOUNDIMPACT
 - SENSOR_ACC_INT1
 - SENSOR_ACC_INT2
 - DIGITALINPUT_1
 - DIGITALINPUT_2

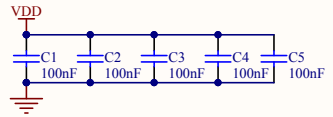
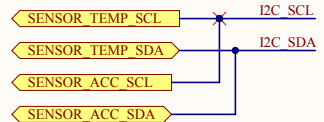
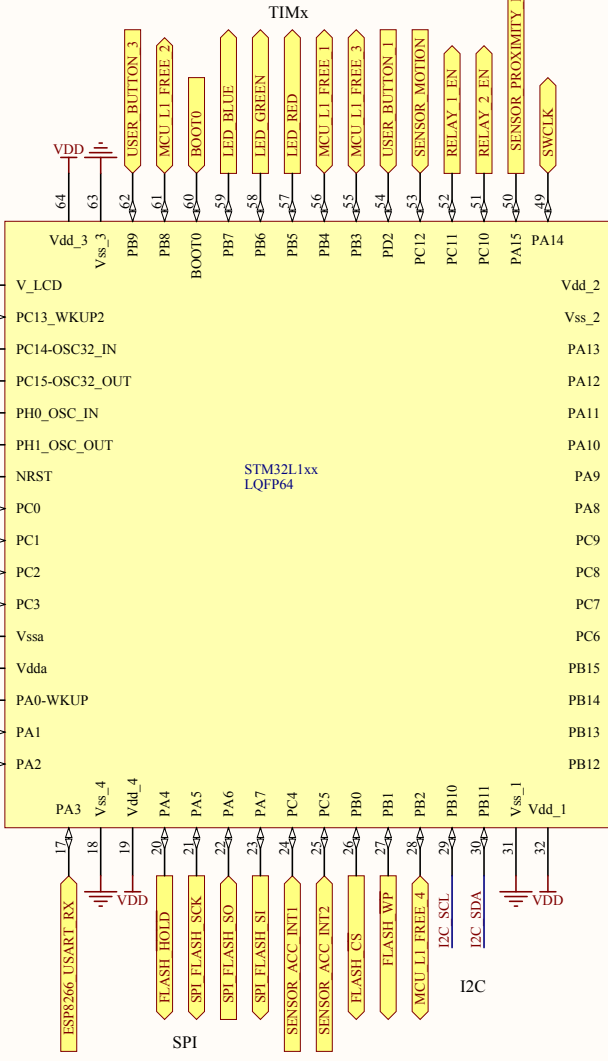
FREE pins

- MCU LI FREE 1
- MCU LI FREE 2
- MCU LI FREE 3
- MCU LI FREE 4
- MCU LI FREE 5

ADC

- SENSOR LIGHT ADC
- SENSOR MICROPHONE ADC
- SENSOR PROXIMITY ADC

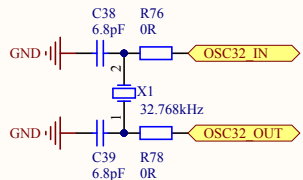
- ESP8266_RST
- Vssa
- Vdda
- USER_BUTTON_0
- ESP8266_GPIO0
- ESP8266_USART_TX



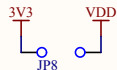
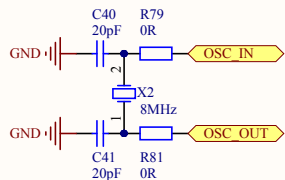
Title			
Lakásautomatizálás			
Size	Number	Revision	
A4		v1	
Date:	2015.12.11.	Sheet of	MCU - L1
File:	C:\Users\... \Sheet	MCU L1.SchDoc	Drawn By: Vizi Gábor

Core

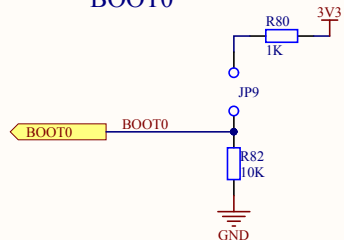
X1 crystal for RTC



X2



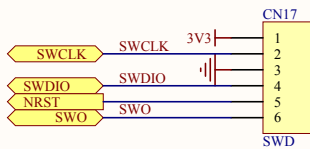
BOOT0



Allítható Boot0

SWD

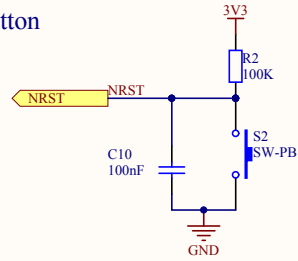
SWD:
SWCLK &
SWDIO kell
csak
jumper a
3V3-ra?



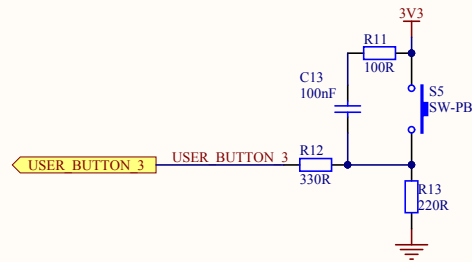
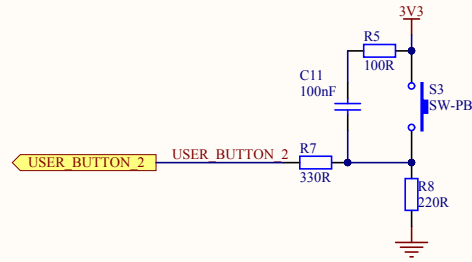
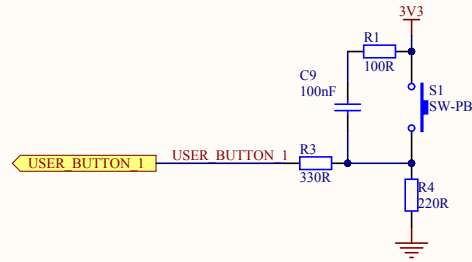
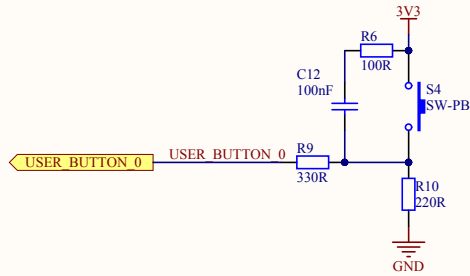
Title		
Lakásautomatizálás		
Size	Number	Revision
A4		v1
Date:	2015.12.11.	Sheet of Core
File:	C:\Users\...Sheet_Core_NodeMedium.Sch	Drawn By: Vizi Gábor

Button

RESET Button

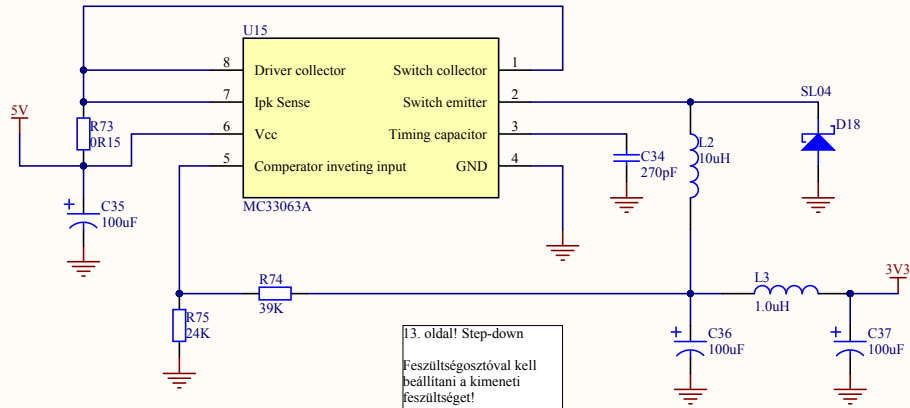


USER & WAKE-UP Button



Title			
Lakásautomatizálás			
Size	Number	Revision	
A4		v1	
Date:	2015.12.11.	Sheet of	Button
File:	C:\Users\...\Sheet Button.SchDoc	Drawn By:	Vizi Gábor

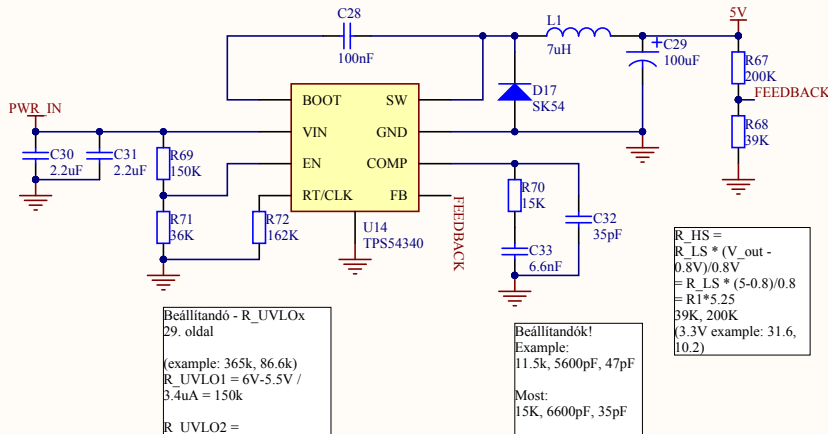
DC-DC-3V3



l3. oldal! Step-down
 Feszültségosztóval kell
 beállítani a kimeneti
 feszültséget!
 $V_{out} = 1,25 * (1 + R2/R1)$
 $R2 = \text{fenti}$

Title			Lakásautomatizálás		
Size	Number		Revision		
A4			v1		
Date:	2015.12.11.	Sheet of	DC-DC-3V3		
File:	C:\Users\...Sheet DC-DC-3V3.SchDoc	Drawn By:	Vizi Gábor		

DC-DC-5V



Beállítandó - R_UVLOx
29. oldal

 (example: 365k, 86.6k)
 $R_{UVLO1} = 6V - 5.5V / 3.4uA = 150k$

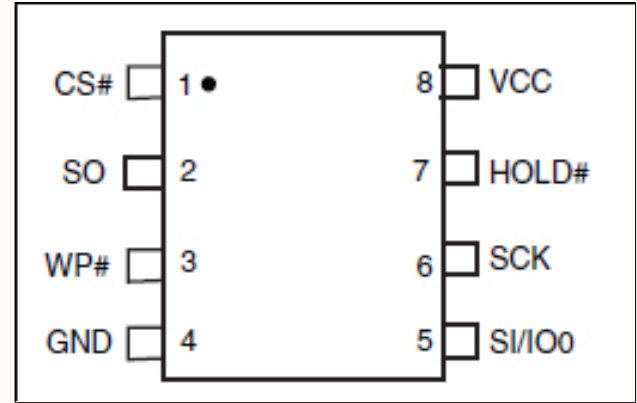
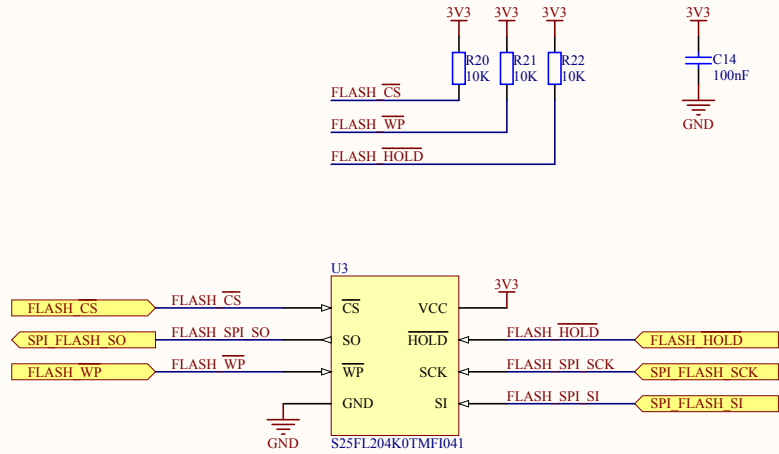
 $R_{UVLO2} = 1.2 / ((6 - 1.2) / (150 * 10^{-3}) + 1.2 * 10^{-6}) = 36k$

Beállítandók!
 Example:
 11.5k, 5600pF, 47pF
 Most:
 15k, 6600pF, 35pF

$R_{HS} =$
 $R_{LS} * (V_{out} - 0.8V) / 0.8V$
 $= R_{LS} * (5 - 0.8) / 0.8$
 $= R1 * 5.25$
 39k, 200k
 (3.3V example: 31.6, 10.2)

Title Lakásautomatizálás		
Size A4	Number	Revision v1
Date: 2015.12.11.	Sheet of DC-DC-5V	Drawn By: Vizi Gábor
File: C:\Users\...\Sheet DC-DC-5V.SchDoc		

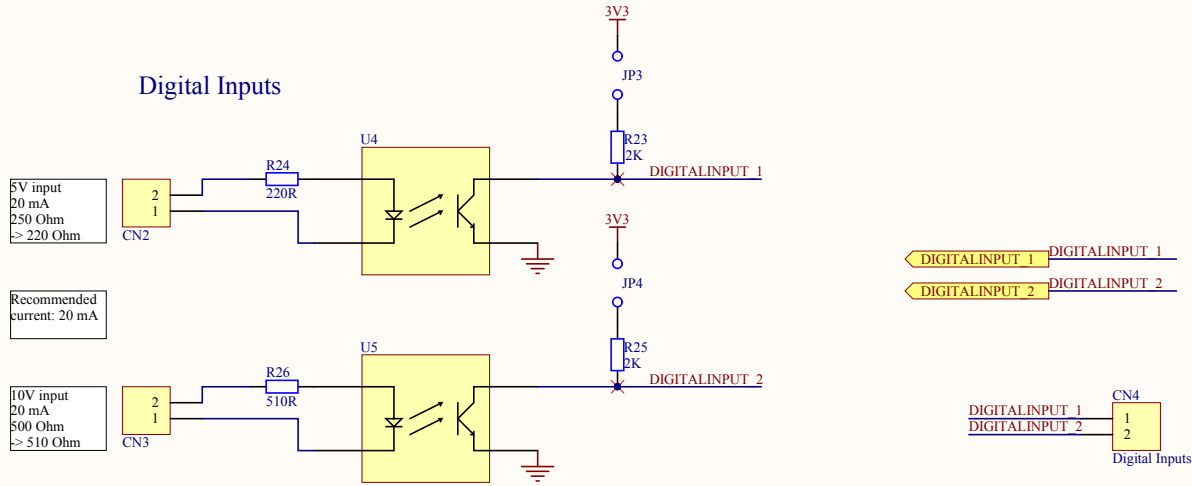
Flash



Title			Lakásautomatizálás		
Size	Number		Revision		v1
A4					
Date:	2015.12.11.		Sheet of		Flash
File:	C:\Users\...\Sheet Flash.SchDoc		Drawn By:		Vizi Gábor

Digital Input

Digital Inputs

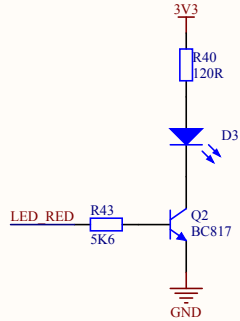


Title Lakásautomatizálás		
Size A4	Number	Revision v1
Date: 2015.12.11.	Sheet of	Digital Input
File: C:\Users\...\Sheet_InputOpto.SchDoc	Drawn By: Vizi Gábor	

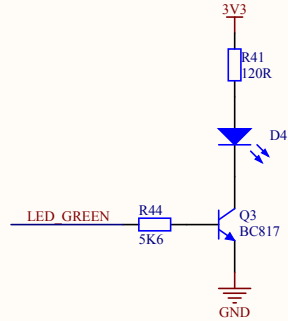
LED

LEDs

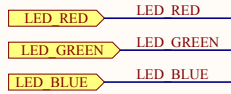
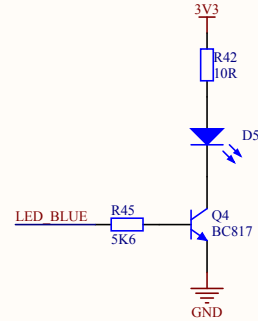
Alarm LED
Red
2,1V -> 10mA
3,3V-2,1V = 1,2V
1,2V / 10mA = 120 Ohm



All Right LED
Green
2,1V -> 10mA
3,3V-2,1V = 1,2V
1,2V / 10mA = 120 Ohm

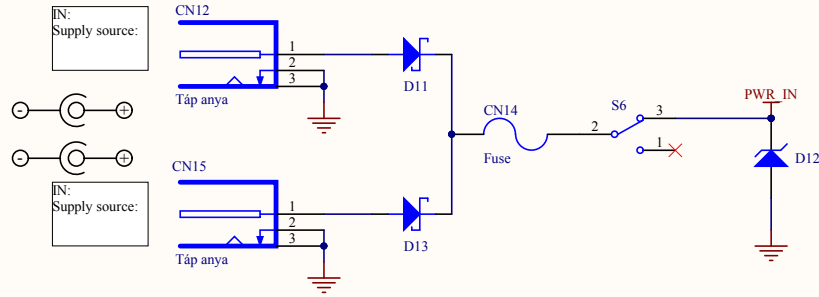


Power LED
Blue
3,4V -> 10mA
00hm

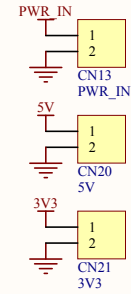


Title			Lakásautomatizálás		
Size	Number		Revision		v1
A4			Sheet of		LED
Date:	2015.12.11.		Sheet of		LED
File:	C:\Users\...Sheet_LED.SchDoc		Drawn By:		Vizi Gábor

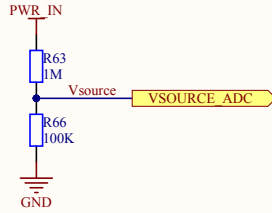
Power



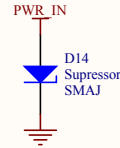
Feszültségzintek kivételése



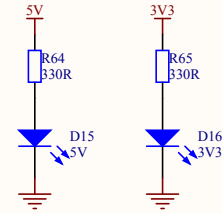
Feszültségforrás feszültségének mérésére



Szupresszor

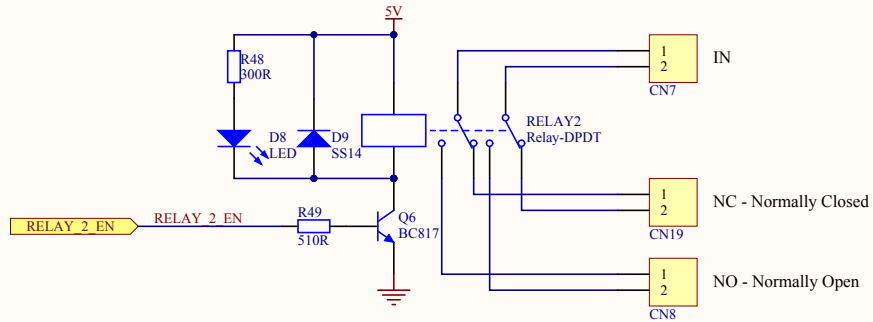
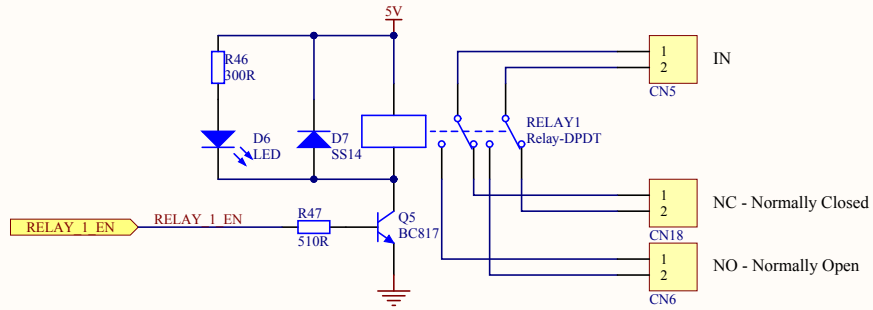


Tápljelző LED-ek.



Title			Lakásautomatizálás		
Size	Number		Revision		v1
A4			Sheet of		Power
Date:	2015.12.11.	File:	C:\Users\...Sheet Power.SchDoc	Drawn By:	Vizi Gábor

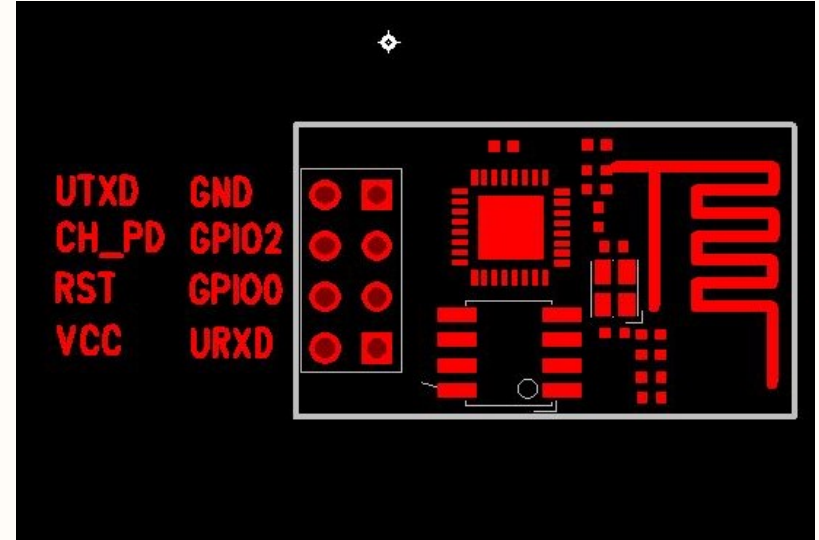
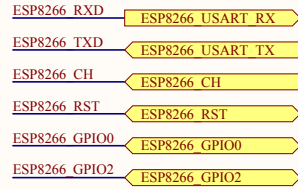
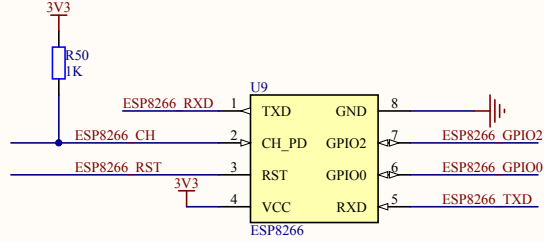
Relay



Title Lakásautomatizálás		
Size A4	Number	Revision v1
Date: 2015.12.11.	Sheet of Relay	Drawn By: Vizi Gábor
File: C:\Users\...\Sheet Relay.SchDoc		

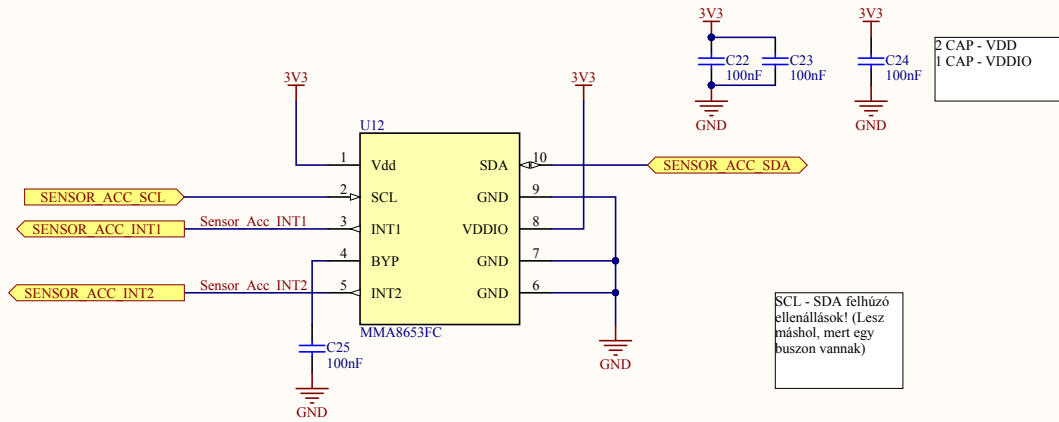
RF

ESP8266
[Link: nurdspace - ESP8266](#)



Title			Lakásautomatizálás		
Size	Number		Revision		
A4			v1		
Date:	2015.12.11.		Sheet of	RF	
File:	C:\Users\...\Sheet RF.SchDoc		Drawn By:	Vizi Gábor	

Accelerometer

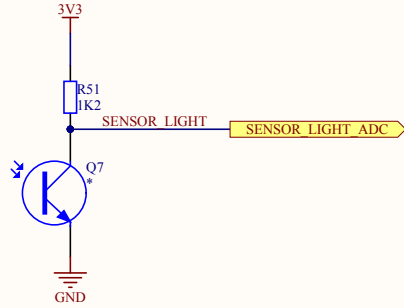


2 CAP - VDD
1 CAP - VDDIO

SCL - SDA felhúzó ellenállások! (Lesz máshol, mert egy buszon vannak)

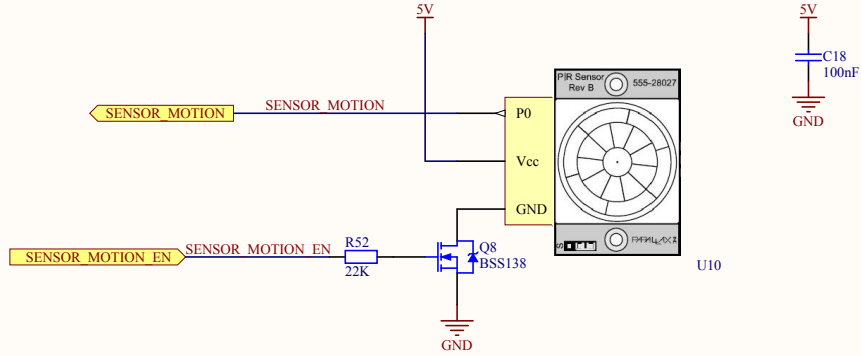
Title			Lakásautomatizálás		
Size	Number		Revision		v1
A4					
Date:	2015.12.11.		Sheet of	Accelerometer	
File:	C:\Users\...Sheet SensorAccelerometer.SchDoc		Drawn By:	Vizi Gábor	

Light Sensor



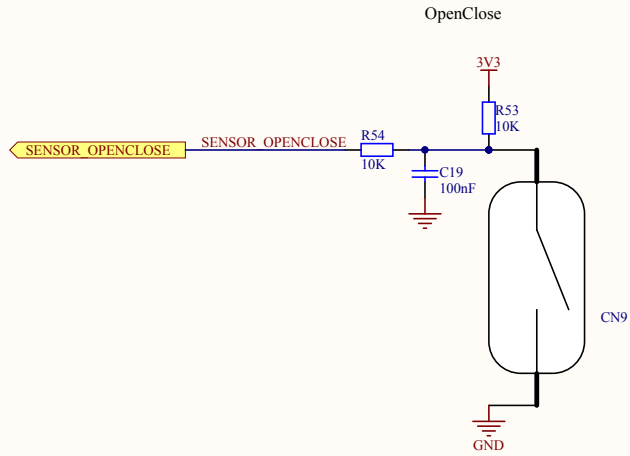
Title			Lakásautomatizálás		
Size	Number		Revision		
A4			v1		
Date:	2015.12.11.		Sheet of	Light Sensor	
File:	C:\Users\...Sheet_SensorLight.SchDoc		Drawn By:	Vizi Gábor	

Motion sensor



Title			Lakásautomatizálás		
Size	Number		Revision		v1
A4			Sheet of		Motion sensor
Date:	2015.12.11.		Drawn By:		Vizi Gábor
File:	C:\Users\...Sheet_SensorMotion.SchDoc				

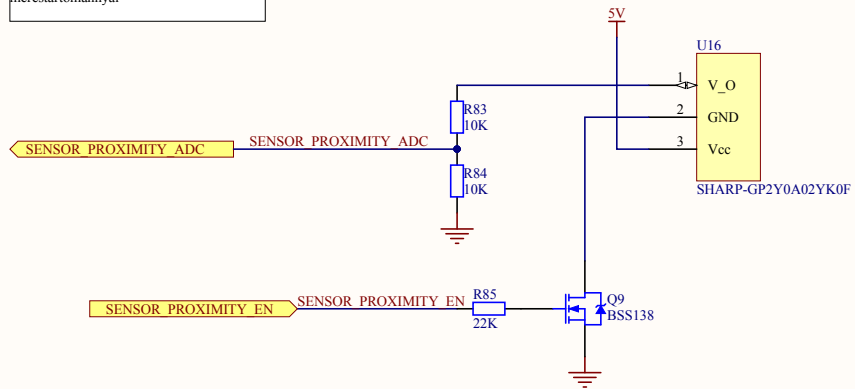
OpenClose Sensor



Title			Lakásautomatizálás		
Size	Number		Revision		v1
A4					
Date:	2015.12.11.	Sheet of	OpenClose Sensor		
File:	C:\Users\...Sheet_SensorOpenClose.SchDoc	Drawn By:	Vizi Gábor		

Sensor - Proximity

SHARP GP2Y0A02YK0F infravörös analóg távolságszenzor 20–150cm-es méréstartománnyal



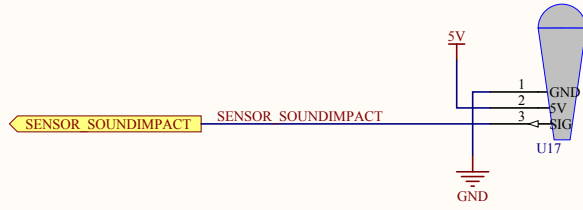
Title			Lakásautomatizálás
Size	Number	Revision	v1
A4			
Date:	2015.12.11.	Sheet of	Sensor - Proximity
File:	C:\Users\...Sheet_SensorProximity.SchDoc	Drawn By:	Vizi Gábor

Sound sensor



Title			Lakásautomatizálás		
Size	Number		Revision		
A4			v1		
Date:	2015.12.11.		Sheet of		Sound sensor
File:	C:\Users\...\Sheet_SensorSound.SchDoc		Drawn By:		Vizi Gábor

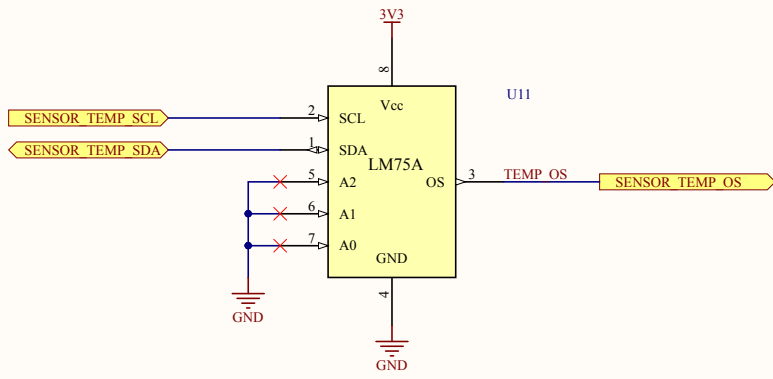
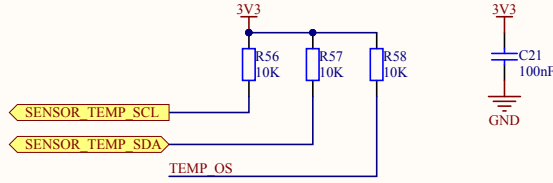
Sound impact sensor



Title			Lakásautomatizálás		
Size	Number		Revision		v1
A4					
Date:	2015.12.11.	Sheet of	Sound impact sensor		
File:	C:\Users\... \Sheet_SensorSoundImpact.Sch	Drawn By:	Vizi Gábor		

Temperature sensor

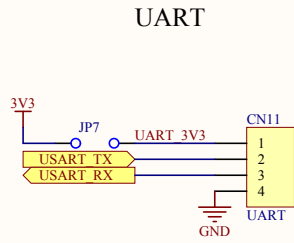
Address:
0b000



Title			Lakásautomatizálás		
Size	Number		Revision		v1
A4					
Date:	2015.12.11.		Sheet of	Temperature sensor	
File:	C:\Users\...\Sheet_SensorTemp.SchDoc		Drawn By:	Vizi Gábor	

UART

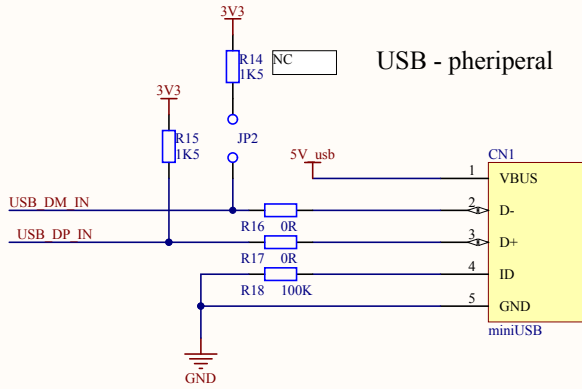
Recommended
converter:
USB 2.0 - UART
TTL 3.3V / 5V
Serial converter
CP2102



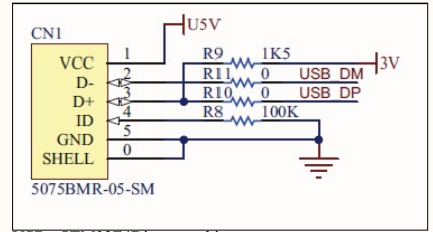
Title			Lakásautomatizálás		
Size	Number		Revision		
A4			v1		
Date:	2015.12.11.		Sheet of		UART
File:	C:\Users\...\Sheet UART.SchDoc		Drawn By:		Vizi Gábor

USB

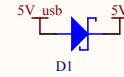
STM32L100-on csak az USB DM+DP jelek kezelhetők



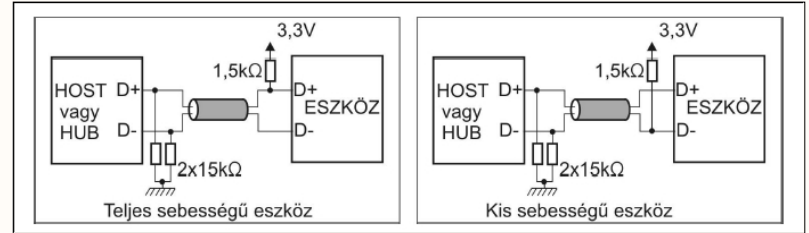
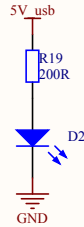
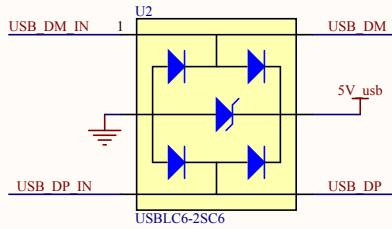
USB - peripherál



USB - STM32F4Discovery kit

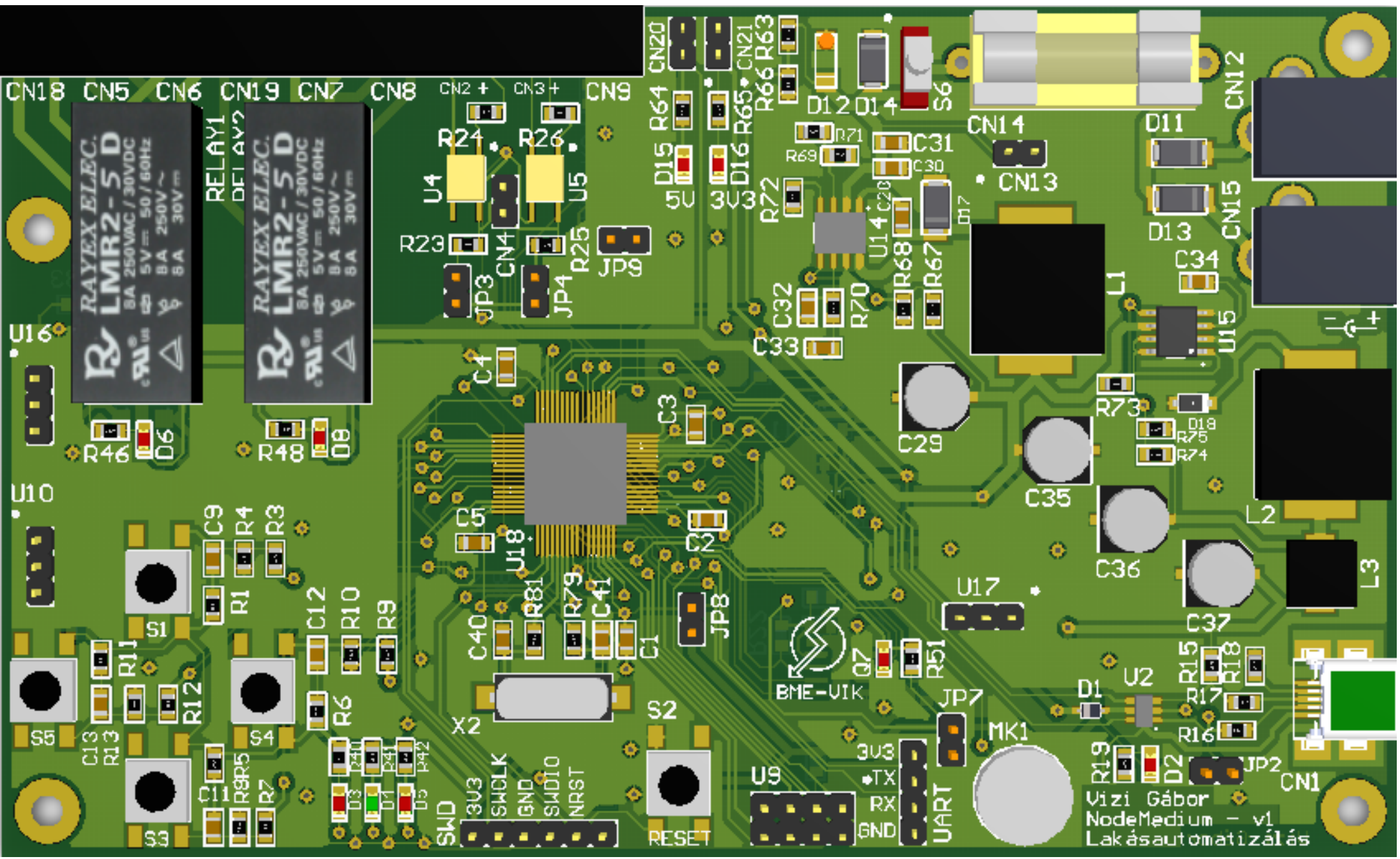


USB-n keresztül ellátható az áramkör, de vigyázni kell a terhelésre! Az USB-k maximum 1A-t szoktak kiadni!!!!



Title		
Lakásautomatizálás		
Size	Number	Revision
A4		v1
Date:	2015.12.11.	Sheet of
File:	C:\Users\...Sheet USB.SchDoc	USB
	Drawn By:	Vizi Gábor

Comment	Description	Designator	Footprint	LibRef	Quantity
100nF	Capacitor	C1, C2, C3, C4, C5, C9, C10, C11, C12, C13, C14, C18, C19, C21, C22, C23, C24, C25, C28	FP_0805_CAP_085	CAP	19
10uF	Capacitor	C20	FP_0805_CAP_085	CAP	1
100uF	CAP - ELECT	C29, C35, C36, C37	FP_CAP_ELKO_6.3X6.3	CAP - ELECT	4
2.2uF	Capacitor	C30, C31	FP_0805_CAP_085	CAP	2
35pF	Capacitor	C32	FP_0805_CAP_085	CAP	1
6.6nF	Capacitor	C33	FP_0805_CAP_085	CAP	1
270pF	Capacitor	C34	FP_0805_CAP_085	CAP	1
6.8pF	Capacitor	C38, C39	FP_0805_CAP_085	CAP	2
20pF	Capacitor	C40, C41	FP_0805_CAP_085	CAP	2
miniUSB	miniUSB connector	CN1	FP_USB_MINIB	miniUSB	1
Connector-2	Connector, 2-Pin	CN2, CN3, CN5, CN6, CN7, CN8, CN18, CN19	FP_CONN2_TL001	Connector 2	8
Digital Inputs	Header, 2-Pin	CN4	FP_HEADER_1X2_CIRCL ED	Header 2	1
FM-102 WH	Open/Close Sensor	CN9	FP_CONN2_TL001	Sensor_OpenClose	1
UART	Header, 4-Pin	CN11	FP_HEADER_1X4_CIRCL ED - duplicate	Header 4	1
Tap anya	2.xmm	CN12, CN15	FP_DC_TAP_ANYA	DC_TAP_ANYA	2
PWR_IN	Header, 2-Pin	CN13	FP_HEADER_1X2_CIRCL ED	Header 2	1
Fuse	Fuse	CN14	FP_FUSE	Fuse	1
SWD	Header, 6-Pin	CN17	FP_HEADER_1X6_CIRCL ED	Header 6	1
5V	Header, 2-Pin	CN20	FP_HEADER_1X2_CIRCL ED	Header 2	1
3V3	Header, 2-Pin	CN21	FP_HEADER_1X2_CIRCL ED	Header 2	1
SCHOTTKY	Schottky diode	D1	FP_SOD323-F	SCHOTTKY	1
USB	LED	D2	FP_0805_LED_RED	LED	1
LED	LED	D3, D5, D6, D8	FP_0805_LED_RED	LED	4
LED	LED	D4	FP_0805_LED_GREEN	LED	1
SS14	Diode	D7, D9	FP_SMA	Diode	2
SCHOTTKY	Schottky diode	D11, D13	FP_DO214AA	SCHOTTKY	2
ZENER	Zener Diode	D12	FP_SOD80-MINIMELF	ZENER	1
Supressor	Supressor	D14	FP_SMA	Supressor	1
5V	LED - Blue	D15	FP_0805_LED_RED	LED	1
3V3	LED - yellow	D16	FP_0805_LED_RED	LED	1
SK54	Default Diode	D17	FP_DO214AB - SMC	Diode	1
SL04	Schottky diode	D18	FP_DO-219AB	SCHOTTKY	1
JUMPER	Jumper Wire	JP2, JP3, JP4, JP7, JP8, JP9	FP_CONN2_TUSKE_254 MM	JUMPER	6
7uH	Inductor	L1	FP_IND_12.7-12.7mm	IND	1
10uH	Inductor	L2	FP_IND_12.7-12.7mm	IND	1
1.0uH	Inductor	L3	FP_IND_3.3uH_SS06043 R3MLB	IND	1
Supply polarity	Logo - Supply polarity	LOGO1	FP_LOGO_SUPPLY_POLARIT Y	LOGO_Supply-Polarity	1
LOGO - VIK	LOGO - VIK	LOGO2	FP_LOGO_VIK_v2_TOP-LAYER	LOGO_VIK	1
Supply polarity	Logo - Supply polarity	LOGO3	FP_LOGO_SUPPLY_POLARIT Y_Top-layer	LOGO_Supply-Polarity	1
LOGO - VIK	LOGO - VIK	LOGO4	FP_LOGO_VIK_v2	LOGO_VIK	1
BCM9767P4.5-40	Microphone	MK1	FP_MICROPHONE	Microphone	1
BC817	NPN General-purpose Transistor	Q2, Q3, Q4, Q5, Q6	FP_SOT23-3	BC817	5
	NPN Phototransistor	Q7	FP_0805_PHOTONPN	Photo NPN	1
BSS138	N-Channel Power MOSFET	Q8, Q9	FP_SOT23-3	NMOS-2	2
100R	Resistor	R1, R5, R6, R11	FP_0805_RES	RES	4
100K	Resistor	R2, R18, R66	FP_0805_RES	RES	3
330R	Resistor	R3, R7, R9, R12, R64, R65	FP_0805_RES	RES	6
220R	Resistor	R4, R8, R10, R13, R24	FP_0805_RES	RES	5
1K5	Resistor	R14, R15	FP_0805_RES	RES	2
0R	Resistor	R16, R17, R76, R78, R79, R81	FP_0805_RES	RES	6
200R	Resistor	R19	FP_0805_RES	RES	1
10K	Resistor	R20, R21, R22, R53, R54, R56, R57, R58, R82, R83, R84	FP_0805_RES	RES	11
2K	Resistor	R23, R25	FP_0805_RES	RES	2
510R	Resistor	R26, R47, R49	FP_0805_RES	RES	3
120R	Resistor	R40, R41	FP_0805_RES	RES	2
10R	Resistor	R42	FP_0805_RES	RES	1
5K6	Resistor	R43, R44, R45	FP_0805_RES	RES	3
300R	Resistor	R46, R48	FP_0805_RES	RES	2
1K	Resistor	R50, R55, R80	FP_0805_RES	RES	3
1K2	Resistor	R51	FP_0805_RES	RES	1
22K	Resistor	R52, R85	FP_0805_RES	RES	2
1M	Resistor	R63	FP_0805_RES	RES	1
200K	Resistor	R67	FP_0805_RES	RES	1
39K	Resistor	R68, R74	FP_0805_RES	RES	2
150K	Resistor	R69	FP_0805_RES	RES	1
15K	Resistor	R70	FP_0805_RES	RES	1
36K	Resistor	R71	FP_0805_RES	RES	1
162K	Resistor	R72	FP_0805_RES	RES	1
0R15	Resistor	R73	FP_0805_RES	RES	1
24K	Resistor	R75	FP_0805_RES	RES	1
Relay-DPDT	Dual-Pole Dual-Throw Relay	RELAY1, RELAY2	FP_RELAY_LM2	Relay-DPDT	2
SW-PB	Switch	S1, S2, S3, S4, S5	FP_FSMJ5MA_button	SW-PB	5
Switch	SW - SPDT	S6	FP_TSSM_3X1	SW-SPDT	1
USBLC6-25C6	USBLC6-2	U2	FP_SOT23-6L_SO79SP280X145-6N	USBLC6-2	1
S25FL204K0T0MFI041	FLASH - SPI - 8pin	U3	FP_SOIC_SOAO08_150m H	FLASH - SPI - 8pin	1
Photocoupler	Photocoupler - 4pin	U4, U5	FP_DIP4-TLP181	Photocoupler	2
ESP8266	Wifi module - ESP8266	U9	FP_ESP8266	WIFI-ESP8266	1
PARALLAX_555-28027	Sensor_Motion_PIR	U10	FP_HEADER_1X3_CIRCL ED	Sensor_Motion_PIR	1
LM75AD	Sensor - Temperature - digital	U11	FP_SO8	Sensor_TemperatureDi gital	1
MMA8653FC	Accelerometer - MMA8653FC - 10 pin - I2C	U12	FP_DFN_10PIN_2x2x1m m	ACCELEROMETER _MMA8653FC	1
TP554340	Voltage Converter	U14	FP_SO8_TP554339E	TP554340	1
MC33063A	MC33063A - power IC	U15	FP_SO8	MC33063A	1
SHARP-GP2Y0A02YK0F	Infrared sensor	U16	FP_HEADER_1X3_CIRCL ED	Sensor_InfradRed	1
Sound Impact Sensor (#29132)	Sensor - Sound Impact	U17	FP_HEADER_1X3_CIRCL ED	Sensor_SoundImpact	1
STM32L100RCT6	STM32L1 - LQFP64	U18	FP_LQFP64_QFP127P60 0-8N	STM32L1 - LQFP64	1
32.768KHz	Crystal Oscillator	X1	FP_CRYSTAL_91SMXR	XTAL	1
8MHz	Crystal Oscillator	X2	FP_CRYSTAL_HC49_SMD	XTAL	1



RAYEX ELEC.
LMR2-5 D
8A 250VAC / 30VDC
5V ~ 50 / 60Hz
8A 250V ~
8A 30V ~

RELAY1
DF1 AV2

RAYEX ELEC.
LMR2-5 D
8A 250VAC / 30VDC
5V ~ 50 / 60Hz
8A 250V ~
8A 30V ~

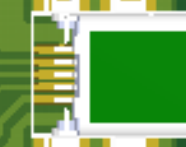


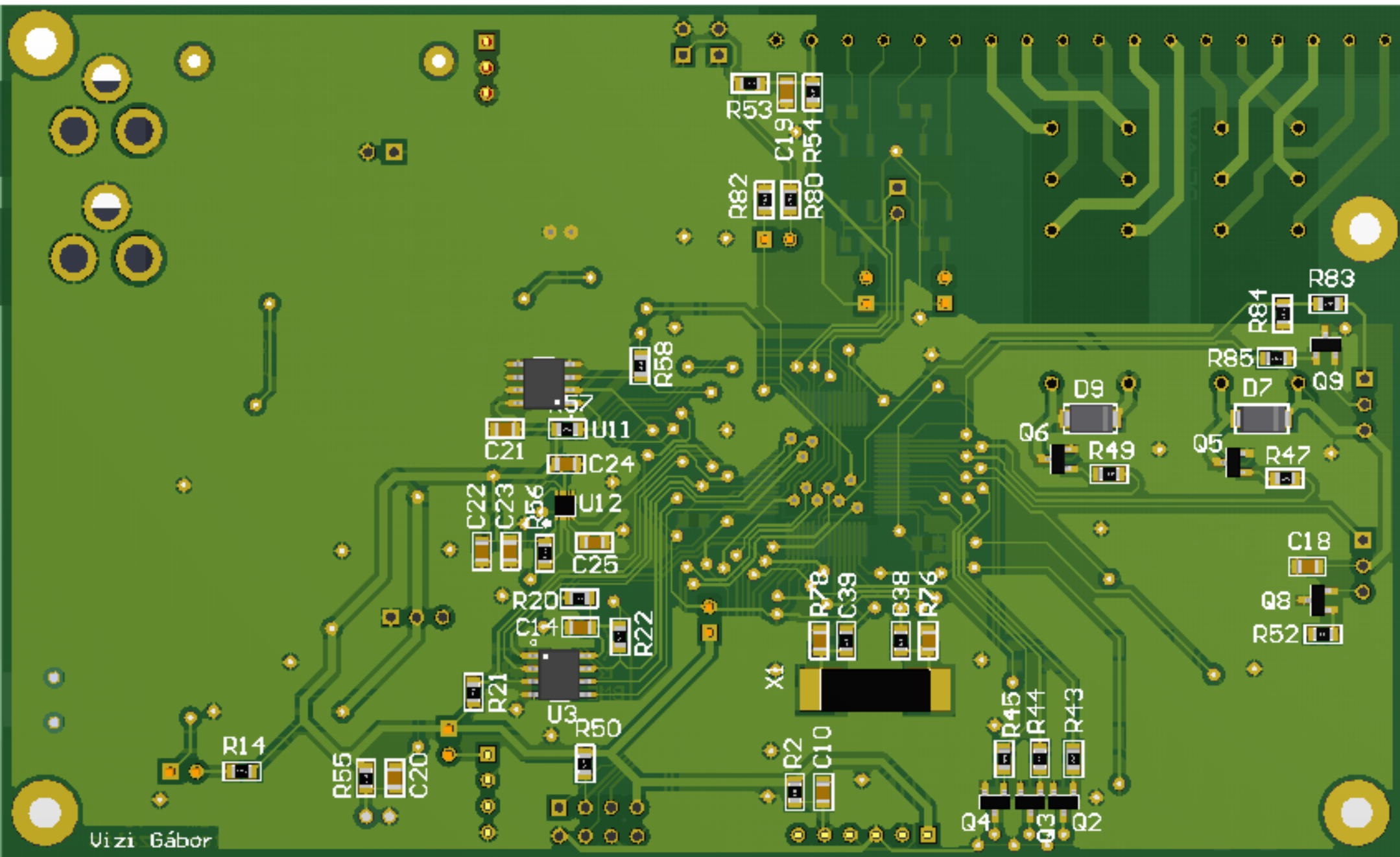
Vizi Gábor
NodeMedium - v1
Lakásautomatizálás

SWD
3V3
SWCLK
GND
SWDIO
NRST

UART
TX
RX
GND

RESET





Uzi Gábor

