Appendix A
Graphs from data logging

Please note on some graphs the time is wrong since the circuit did not have a battery to keep the time

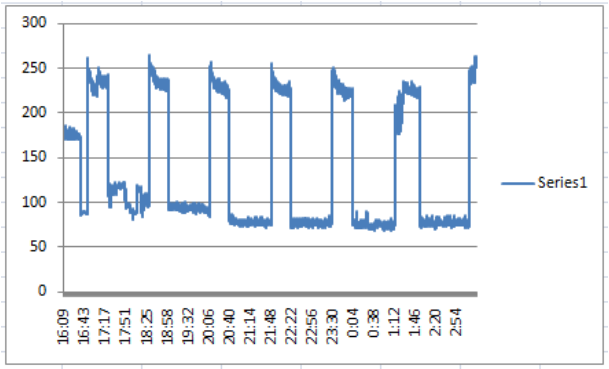


Figure 1 Fridge turning ON/OFF intervals

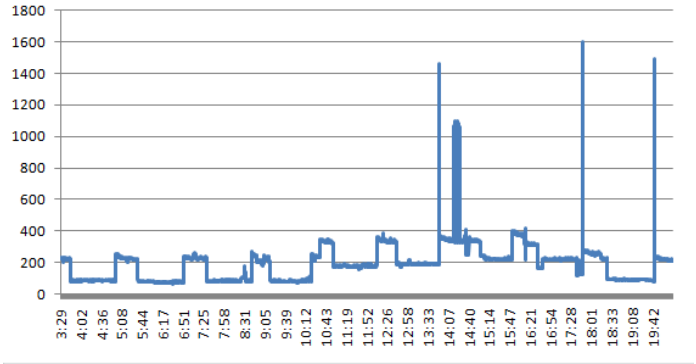


Figure 2 One day usage in spring

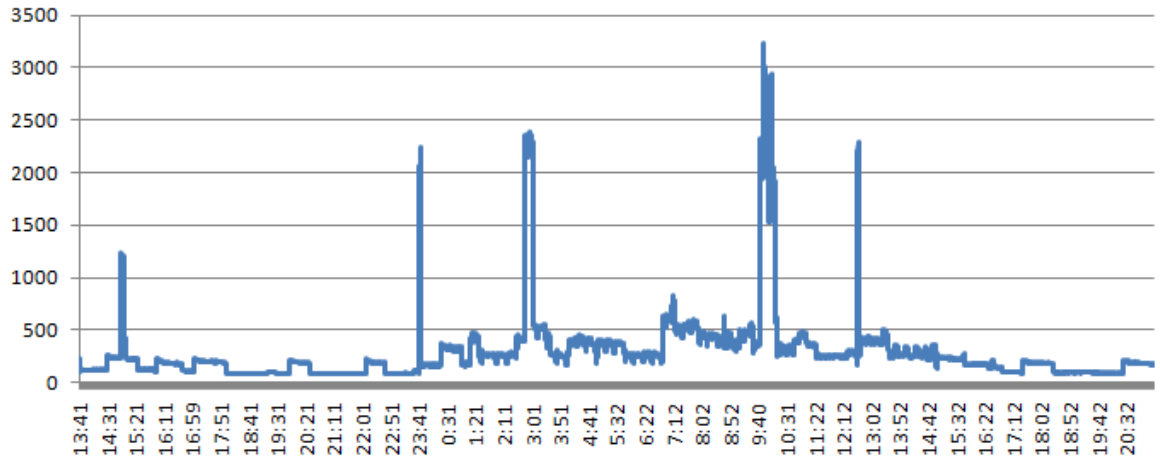


Figure 5 Winter one day usage. High Spikes represent the oven. Middle one is the kettle, the little square wave is the refrigerator

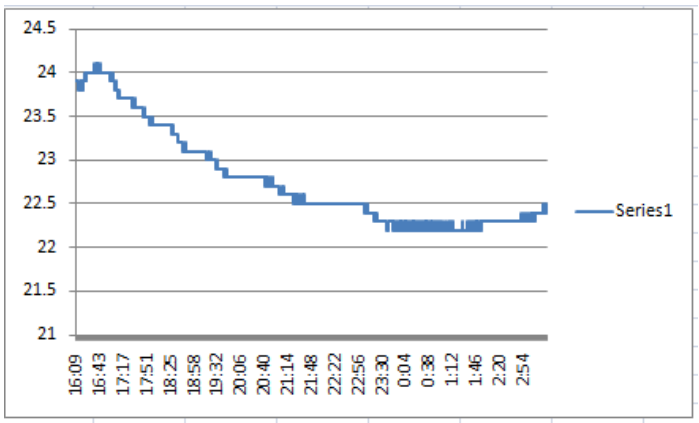


Figure 4 Temperature in Spring 22-24

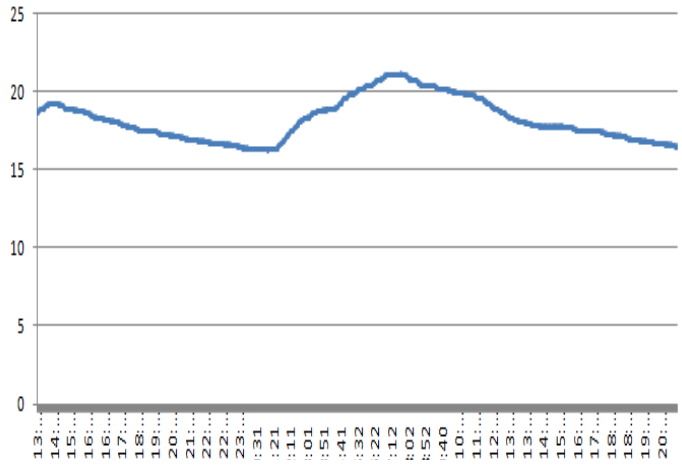


Figure 3 Temperature in winter 16 - 21

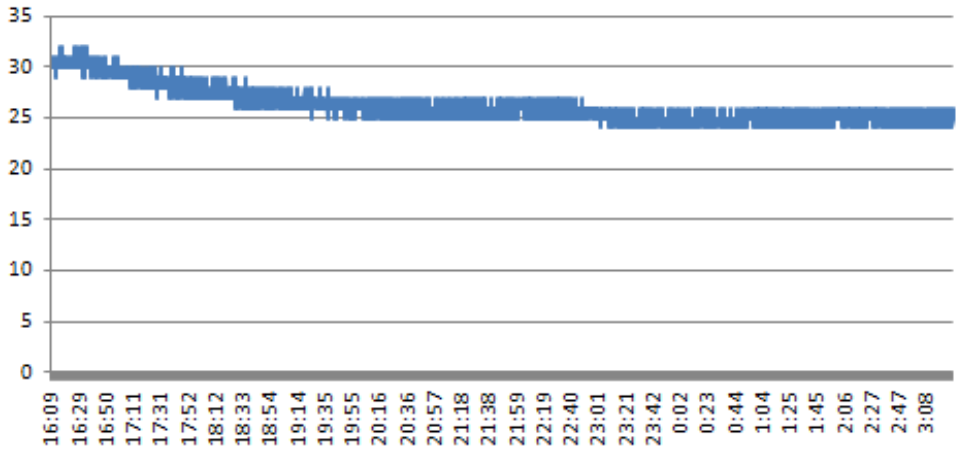


Figure 9 Alcohol levels in atmosphere on Sunday

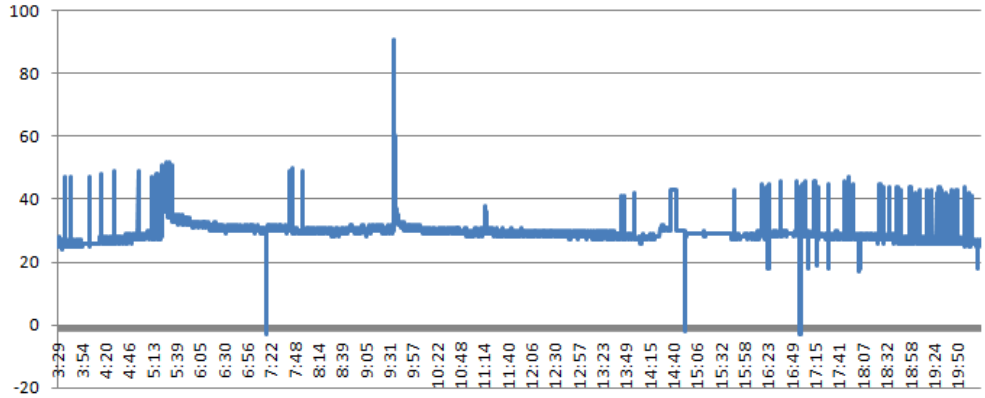


Figure 8 Alcohol levels in atmosphere on Saturday

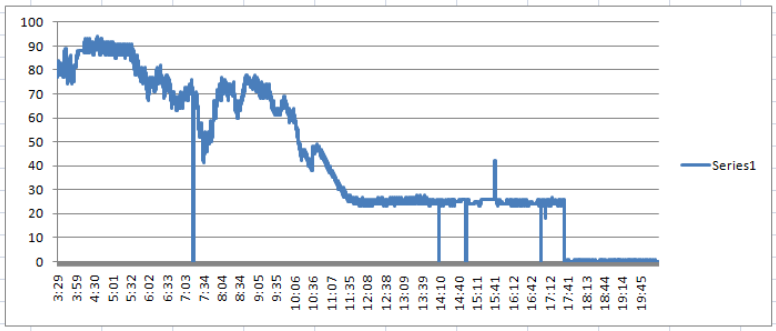


Figure 7 Light levels outside

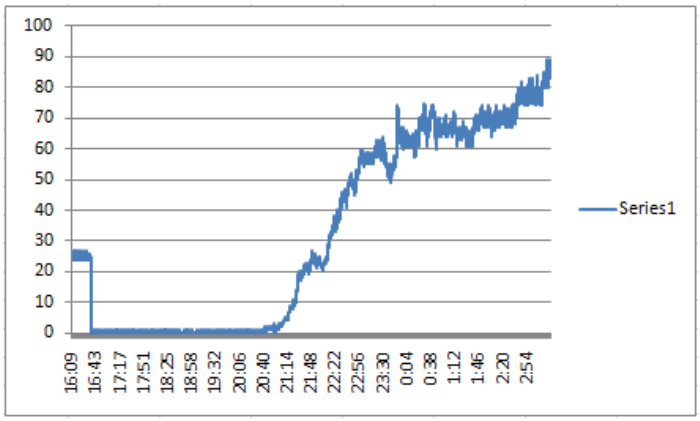
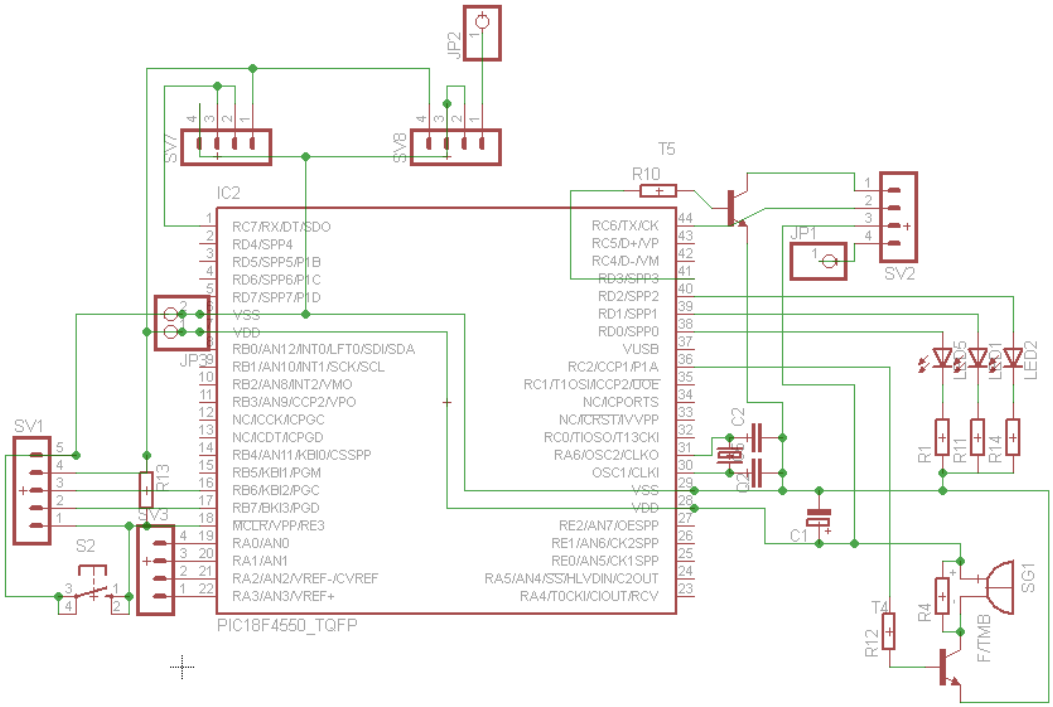


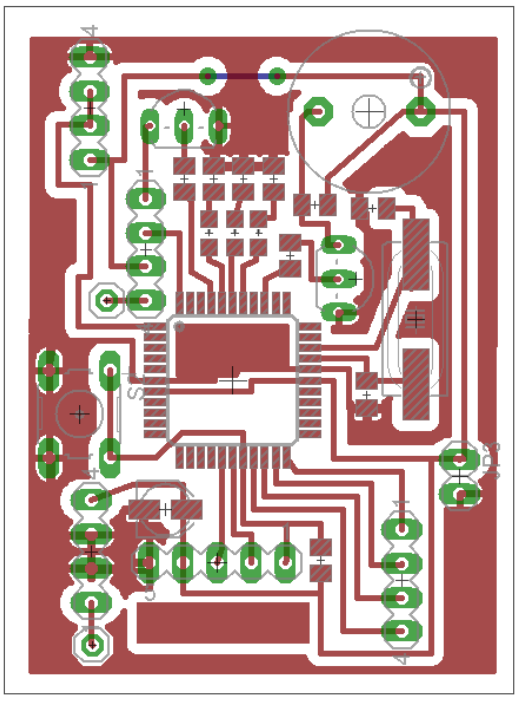
Figure 6 Light intensity values

Appendix B

Schematics

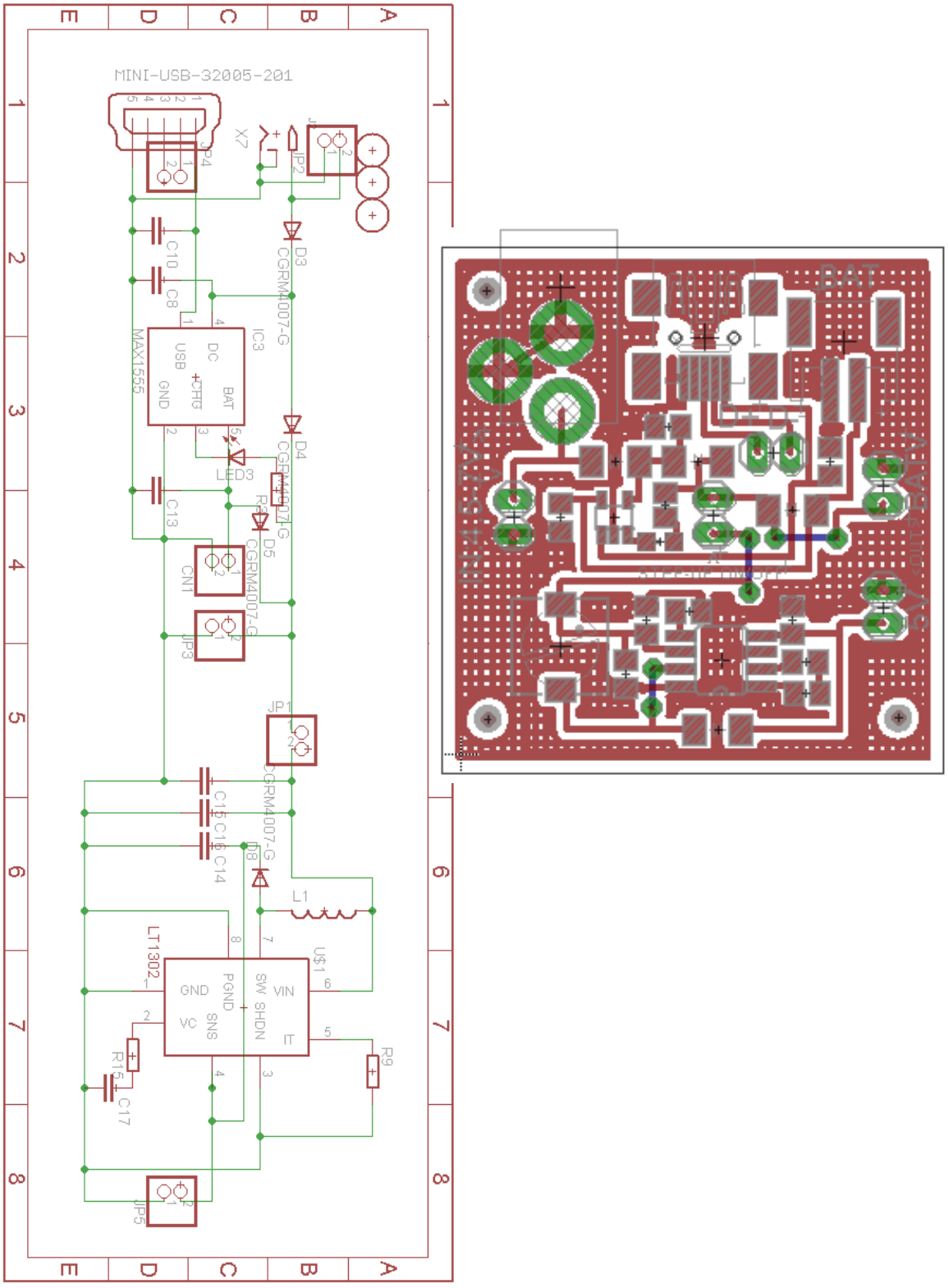
Wireless nodes basic SMD circuit



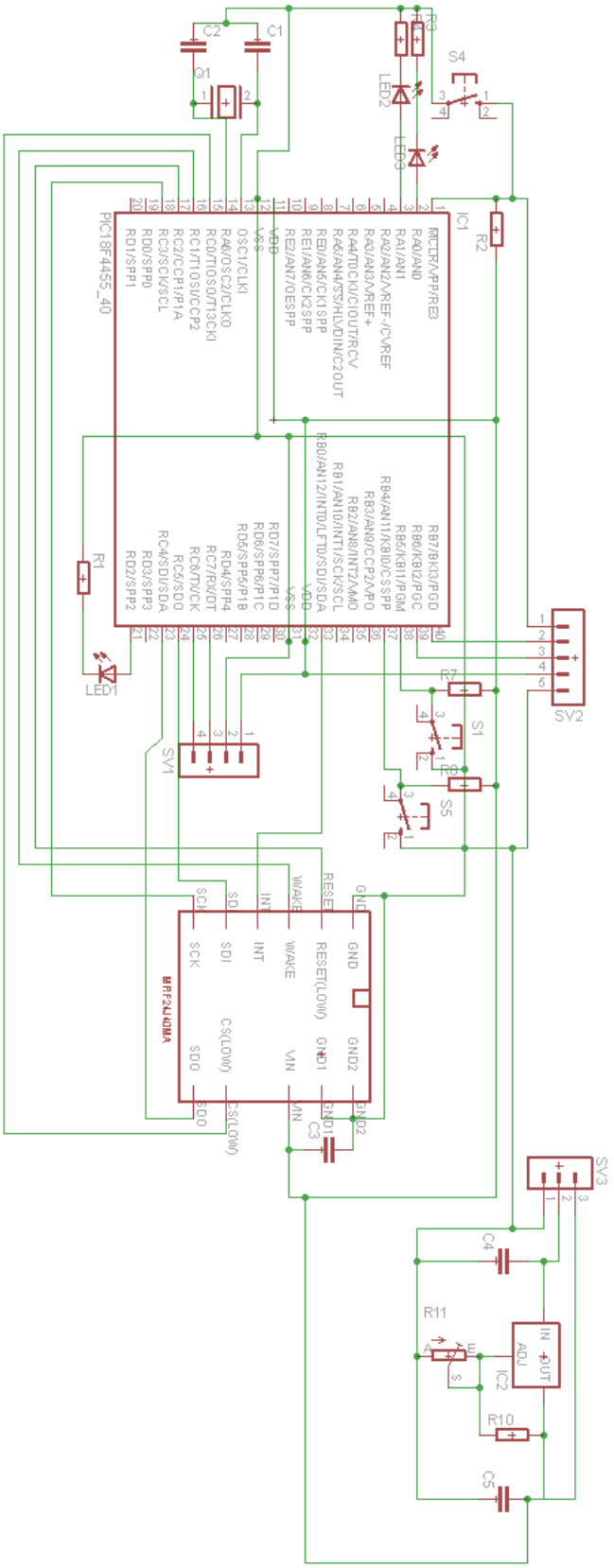


Appendix B

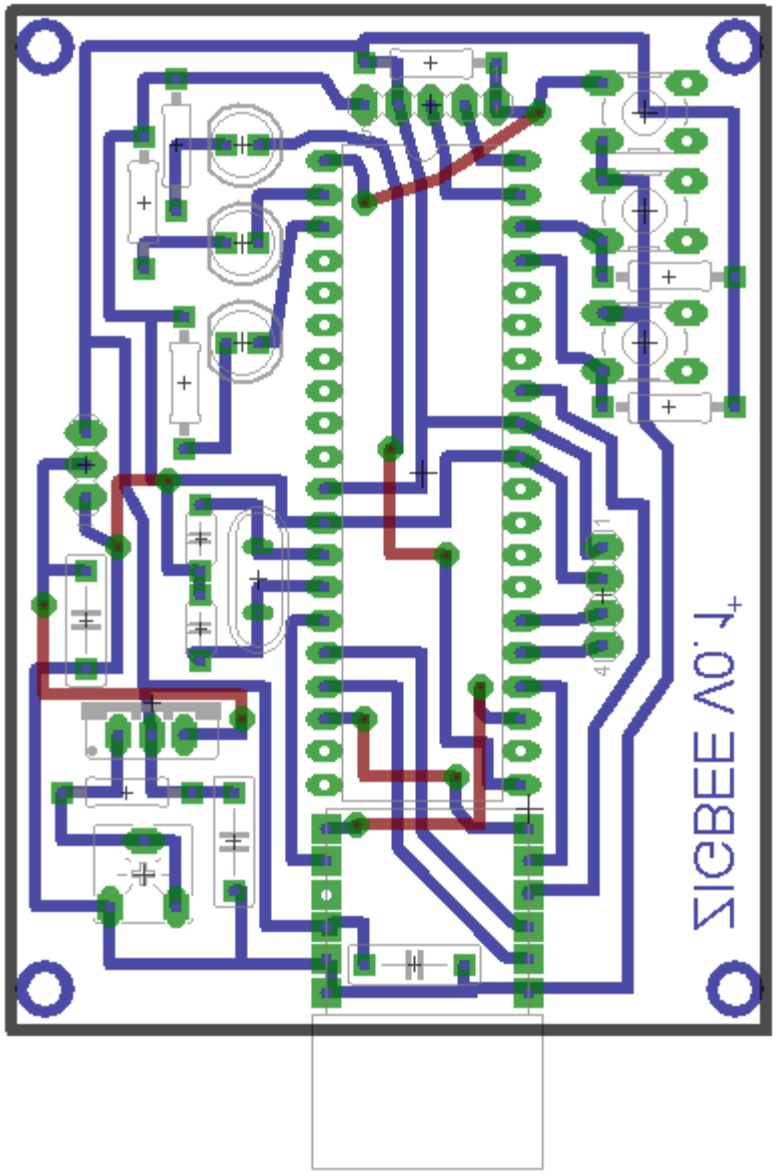
Charger Circuit. Charges Li-x batteries from variable sources and produces stable 5V



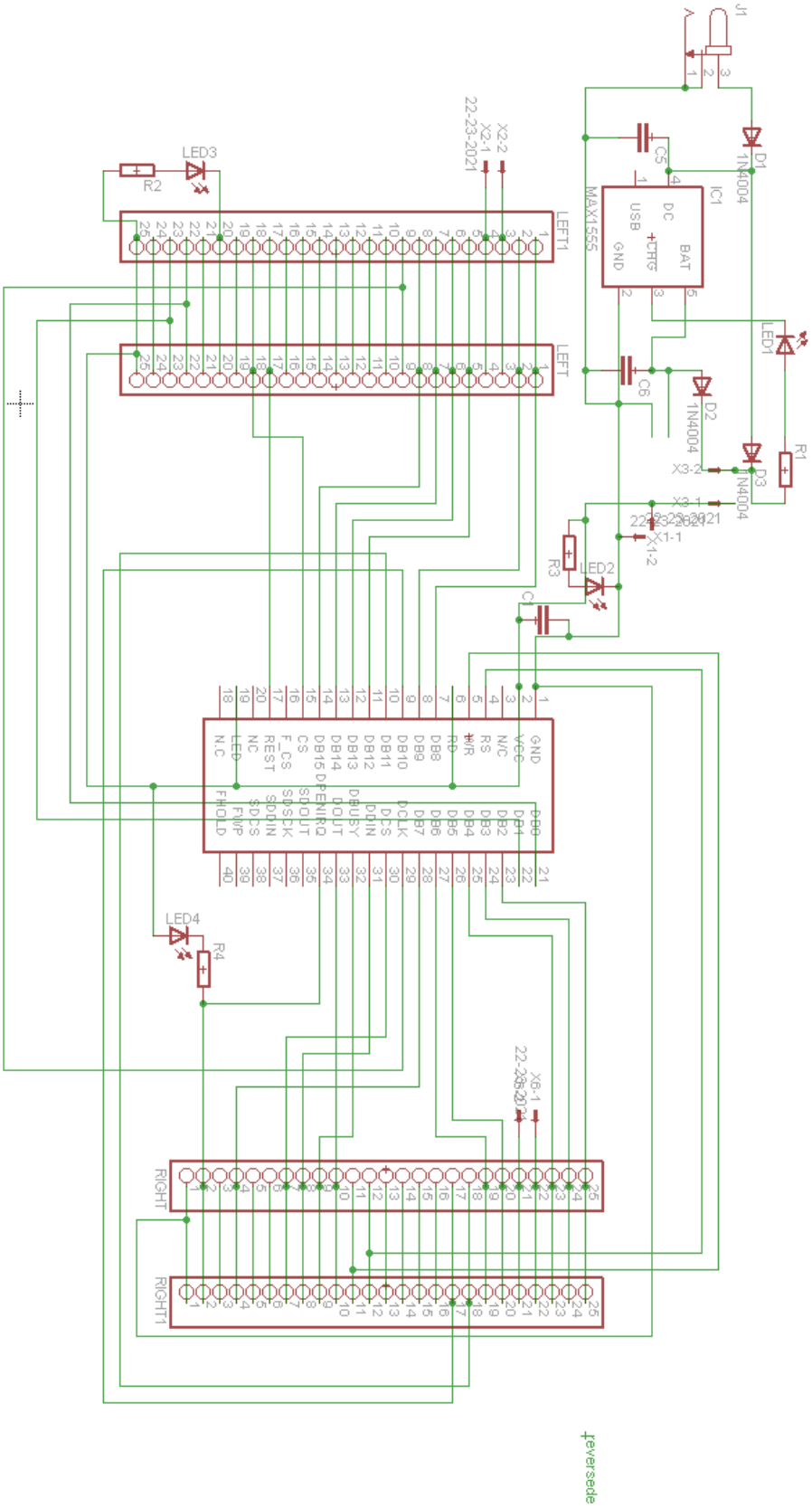
Appendix B
PICDEM-Z Microchip Development board CLONE
Used to test microchip wireless stack



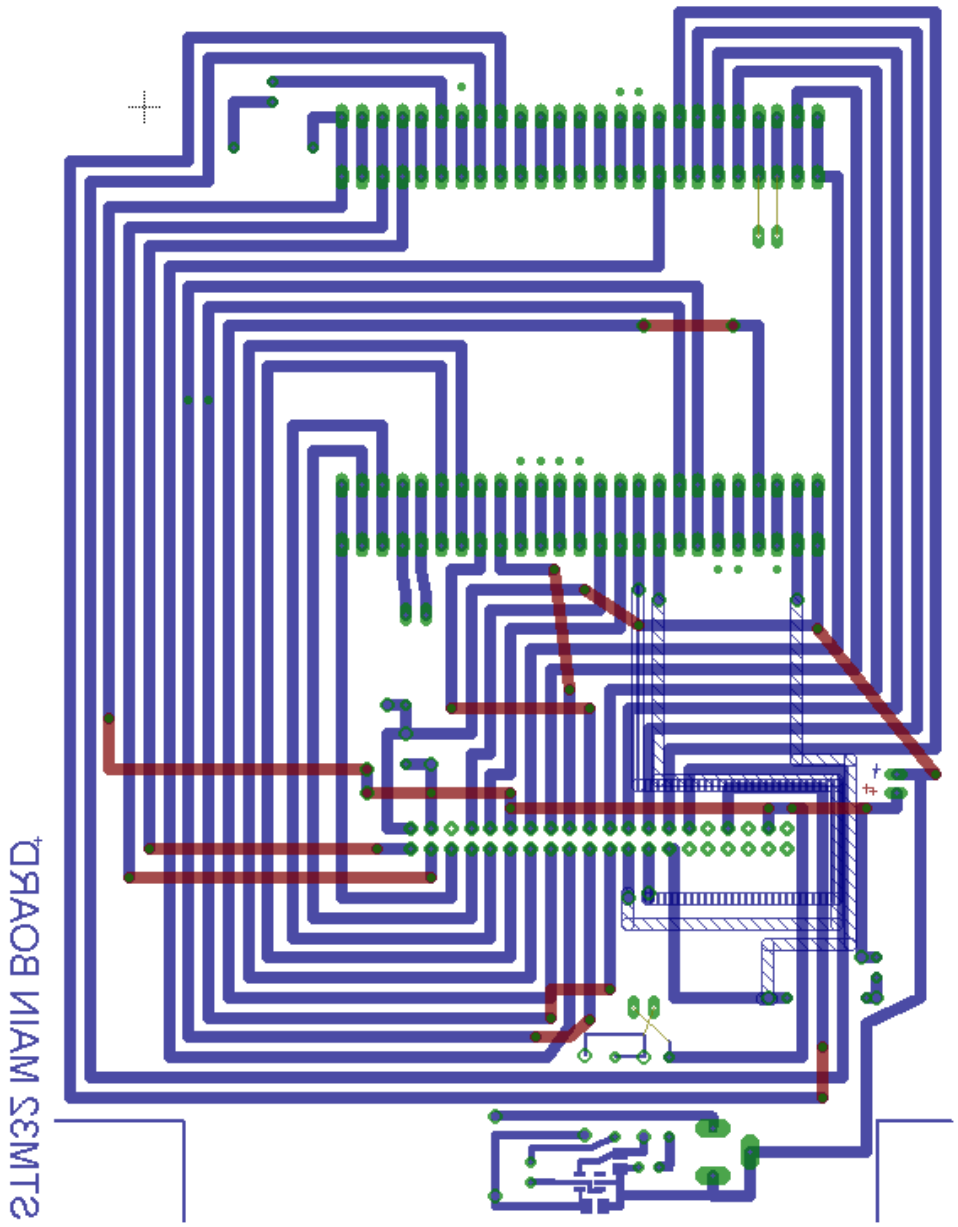
Appendix B
PICDEM-Z PCB LAYOUT



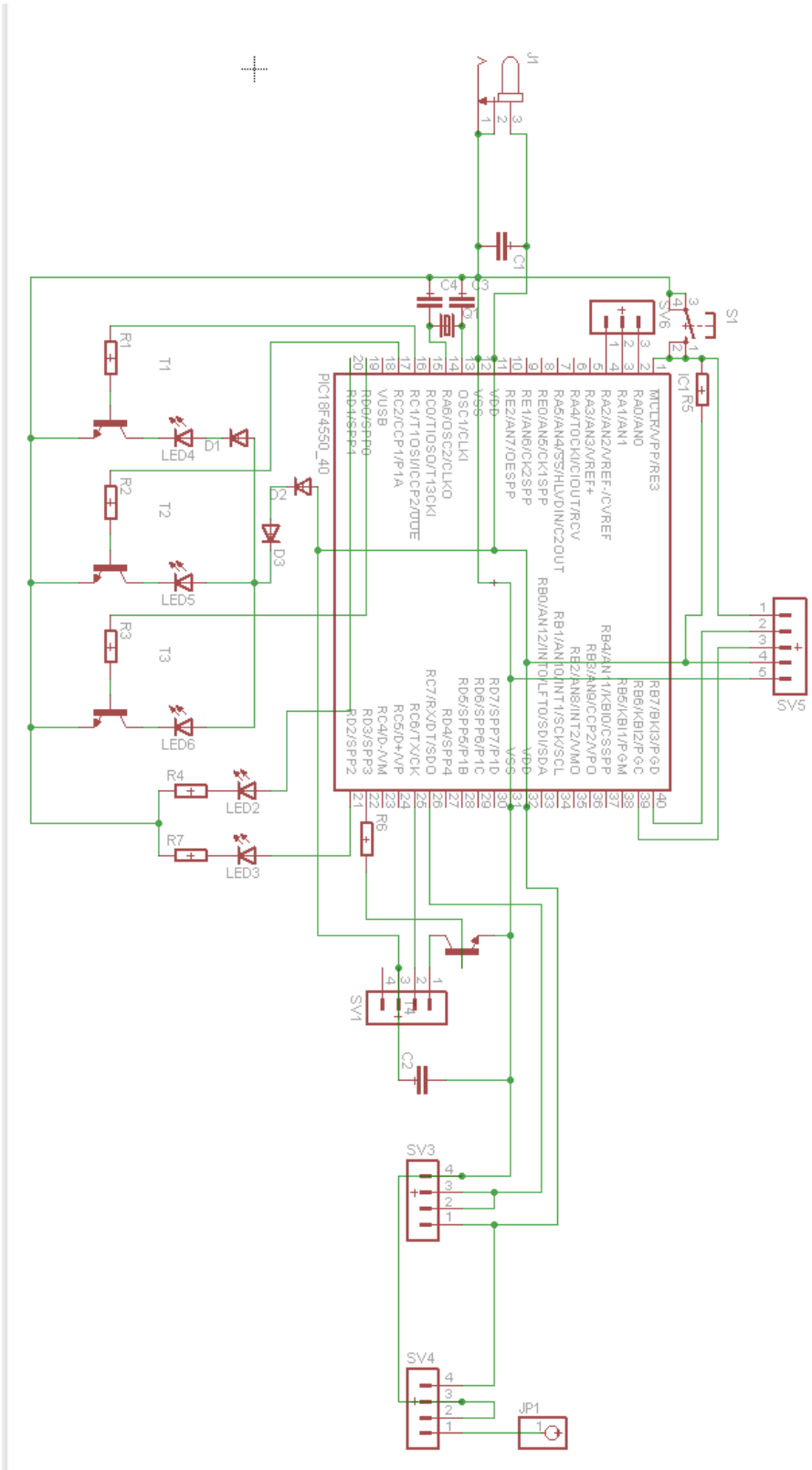
Appendix B
Main Panel Schematic + Charger



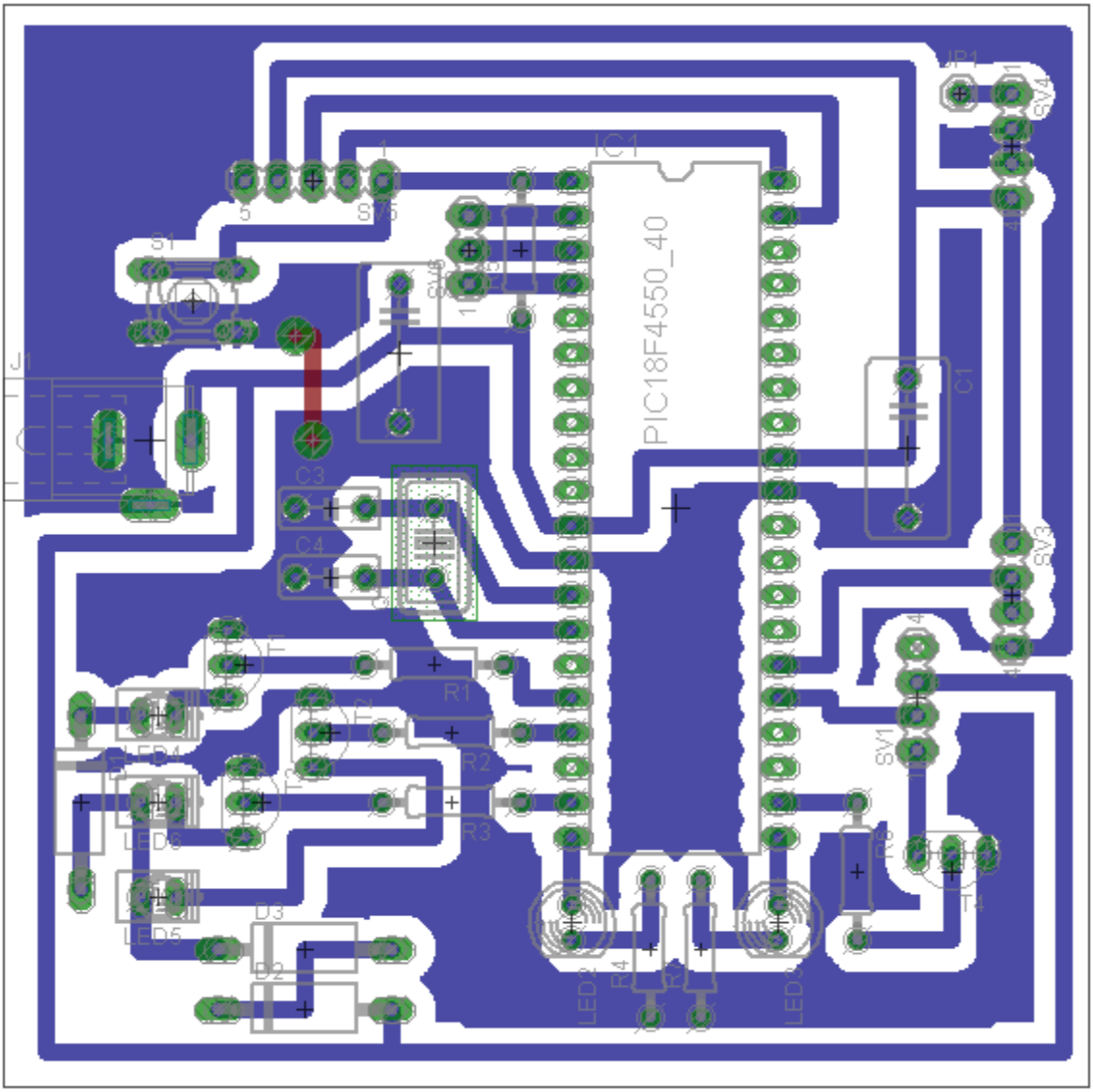
Appendix B
Main panel printed circuit board



Appendix B
IKEA high power RGB lamp circuit



Appendix B
IKEA high power RGB lamp circuit



Appendix C

Voice Bank for audible feedback. Owner Christina Vasili & Marios Georgiou

Hello	Wrong	Turn
Yes	Home Control Center	Checking
No	Main	0
It	Console	1
is	Terminal	2
do	Reading	3
not	Read	4
To	Temperature	5
The	Consumption	6
ON	Watts	7
OFF	Touch	8
Opening	Icon	9
Completed	Wireless	10
Command	Colour	11
Welcome	Red	12
Initialising	Green	13
Processing	Blue	14
Kill	Intensity	15
Killing	Changing	16
Process	Charged	17
Time	Battery	18
Acknowledged	Low	19
Admin	Medium	20
Administrator	High	30
Credentials	Level	40
Please	Connect	50
Please wait	Wall Outlet	60
Lock	Random	70
Locked	Lights	80
Unlock	Changed	90
Unlocked	Activating	100
Appropriate	Select	200
Code	Profile	300
Enter	User	400
System	Settings	500
Error	Voice recognition	600
Warning	Message	700
Authorised	Sent	800
Correct	Received	900
True	Dim	Hundred
False	Turned	Thousand

Appendix D Source Code

The source code was more than 20 pages and was moved to the CD.