Pablo Slavkin

Resume

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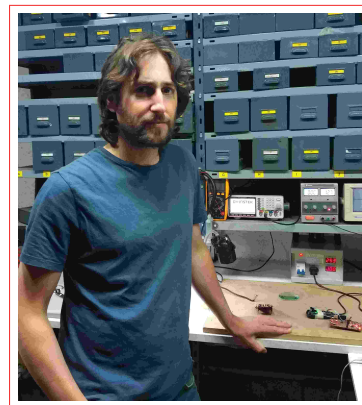Valencia, España
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13/12/1976

"In the tools, as in the instruments, what matters is the artist"

▬▬▬ Presentation

I am an electronic engineer from School of Engineering and Technology ITBA, recently graduate as Specialist in Embedded Systems and studying a Master in Embedded Systems from University of Buenos Aires, UBA.

I developed my career working in product development area of several national companies and in research in state institutions.

I was in charge of an electronic engineering studio offering electronic design and production services and I am currently working as a freelance electronic developer.

I work daily designing embedded electronic equipment executing tasks such as:

- Taking requirements and planning acceptance tests of hard and soft.
- Schematic design, PCB, simulations, assembly, 3D modeling and machining.
- Coding for real time in C / C ++ in bare metal or over RTOS.
- Codification and execution of the unit tests and management of continuous integration tools.
- Assembly and start-up of prototypes and assembly line documentation.

I am very pragmatic, committed and enjoy solving complex problems in a creative way by exchanging ideas with my peers I prefer down-top developments using Agile concepts to keep the product functional from the beginning.

I have an electronics workshop with tools such as:

- Assembly line of SMD and TH plates, pasta stencil, pick and place, reflow oven and wave soldering machine.
- Reworking and manual welding tools.
- Stock of SMD and TH materials of current and specific use.
- CNC machining center.
- Machine for cutting and laser engraving.
- Several machines for 3D printing.
- Generators, Oscilloscopes and Advanced Instrumentation for measurement and diagnosis.
- Electronic tools for firmware development.

These tools, my experience, technical ability and frequent academic updating allow me to unwrap in most instances of the development of a professional embedded electronic equipment.

▬▬▬ Education

2019–present   **Master's degree in Embedded Systems** , *UBA - University of Buenos Aires* , Buenos Aires , *In course* .
 Ver Programa

2018–2018   **Specialization in Embedded Systems** , *FIUBA - University of Engineering of Buenos Aires* , Buenos Aires , *Average 9.33* .
 See program

2007–2016 **Doctorate in Engineering** , *UTN - National Technological University FRBA* , Buenos Aires , *Average 10 on 3 approved subjects + 3 late due* .
Mention Digital processing of images and signals. Suspended by moving to another city.   See program

1996–2005 **Electronic Engineering** , *ITBA - Technological Institute of Buenos Aires* , Buenos Aires , *Average 6.5* .
 See program

1990–1995 **Electro Mechanical Technician** , *ENET Nº1 Brigadier General Pascual Echagüe* , Concordia, Entre Ríos , *Average 8.5* .

1982–1989 **Primary School** , *Velez Sarsfield School* , Concordia, Entre Ríos , *Average 8.5* .

Experience

Professional

2019–Present **Freelance Electronic Engineer** , , , .
Personal entrepreneurship Electronic design services, hardware, firmware and electronic equipment.

2019–Present **Development of a PMSM servomotor controller**, *Sergei Co., Moldavia* , , .
For a company in the industrial machinery field, I work in the development of an integrated servo controller for a permanent magnet synchronous motor. It'll be used for the improvement of the actual machinery.

2019–2019 **Consultant and CNC software development**, *Wolfcut* , Valencia, España , .
I worked in the implementation of a production line management software tool. I've also developed a plugin for improve the capabilities of the CNC software, adding an automatic tool changer, an automatic tool measurement, and others features.

2011–Presente **Development and production of electronic equipment**, *Grupo Noto* , , .
I develop and manufacture a whole line of aesthetic electromedicine electronics equipment, hardware, firmware and production.   See portfolio.

2012–Presente **Development and production of electronic equipment**, *Piscina Natural* , , .
In conjunction with the company was developed a system for the generation of chlorine from saline water was developed to keep the pools clean.   See portfolio.

2011–2016 **Consultant and developer of electronic equipment** , *Softron* , , .
Consulting and development of electronic equipment and solutions for energy measurement and monitoring using Zigbee wireless and GSM technologies.   See portfolio.

2011–2017 **Consultant and developer of electronic equipment** , *Grupo Koner* , , .
Consulting and development of equipment and electronic solutions for the automatic vehicle location, AVL. I worked mainly in the development and integration of an RFID card reader for drivers registration.   See portfolio.

2005–2019 **Director in engineering company** , *disenioconingenio* , , .
Personal entrepreneurship Engineering study that offers electronic design services to companies, with ability to develop and manufacture electronic equipment, hardware, firmware, software, mechanics, PCB routing, assembly of PCB's SMD and TH, 3D printing, CNC machining, laser cutting and engraving and commercialization of equipment for access control RFID, monitoring of Ethernet temperature, automation of machines, converters of protocols, etc. See portfolio.

2011–2014 **Consultant and developer of electronic equipment** , *Seconsat* , , .
Consulting and development of electronic accessories for the AVL business. I work mainly in a new multi sensor wireless dongle for AVL integration. See portfolio.

2003–2005 **Electronic equipment developer** , *Digicard* , , .
Company referring to the national level in the area of access control. Work was done on the development of an RFID reader of 125khz for the line of access controllers. I participated in all the stages since the requirements request, schematic design, PCB layout, prototype, start-up, firmware, and production documentation The reader is actively actively marketed by the company. See portfolio.

2002–2003 **Firmware developer for microcontrollers** , *Pump-Control* , , .
Company dedicated mainly to the design, development and production of electronic controllers for the distribution of hydrocarbons. Work was done in the area of firmware development for 8bit microcontrollers of the Atmel line, implementing 1-Wire communication protocols, access control and dispenser control fuel.

Teaching

2017–2017 **Introduction to robotics** , *Siglo XXI School* , , .
A day of introduction to robotics was given for students from the third to fifth year, showing the history, basic concepts and culminating with a practice in different commercial platforms See certificate.

2004–2004 **Altera FPGA programming intensive course using Quartus II** , *ITBA* , , .
An introductory course with practical activities was carried out using an Altera evaluation board. See material.

Research

2015–2016 **Scholar in the National Atomic Energy Commission** , *CNEA* , , .
I worked as a fellow in the completion of a fully developed PET (Positron Emission Tomography) in the center on which the doctoral thesis plan is developed. Particularly, work is done in the area of acquisition and processing of digital signals on high performance FPGA. The scholarship is terminated doubt as a move to another city. See portfolio, see material 2015 , see material 2016.

2009–2009 **Assistant in the Research Center of Lasers and Applications** , *CITEDEF* , , .
He worked as an assistant of Dr. Jorge Codnia and Lic. Laura Azcárate in the assembly of a flow condenser, which with the help of a laser produces isotopes of interest, and the first advances in a new mass spectrometer of flight time. See material.

Courses and seminars

2018 **LATAM 2018 Entrepreneur Competition**, *MIT - ITBA* , 8hs , I participated as a jury of the LATAM 2018 contest, organized between MIT and ITBA. I analyzed innovation and entrepreneurship projects from Latin America. See certificate See details .

2017 **LASCAS 2017 Tutorials: Dependable Digital Systems and Fault Tolerant FPGA Design** , *INVAP, Bariloche* , 8hs , .

2017 **SASE 2017, Argentine Symposium of Embedded Systems** , *UBA* , 8hs , See certificate .

2016 **SASE 2016, Argentine Symposium of Embedded Systems** , *UBA* , 8hs , See certificate .

2015 **Doctorate PSI Meeting: Models, Simulation and Fabrics Engineering** , *Favaloro, GIBIO 2015*, 8hs , See certificate .

2015 **SASE 2015, Argentine Symposium of Embedded Systems** , *UBA* , 6hs , See certificate .

2015 **Advanced techniques of digital design** , *UNICEN* , 40hs , Advanced virtual course of techniques of digital design by engineer Guillermo Jaquenod .

2013 **SASE 2013, Argentine Symposium of Embedded Systems** , *UBA* , 18hs , .

2012 **Introduction to Latex**, *UP Palermo University, IEEE-UP Student Branch*, 2hs , Ver certificado .

2012 **First days of signal and image processing** , *UTN, GIBIO 2012*, 8hs , See certificate .

2012 **SASE 2012, Argentine Symposium of Embedded Systems** , *UBA* , 18hs , .

2011 **SASE 2011, Argentine Symposium of Embedded Systems** , *UBA* , 18hs , .

2010 **SASE 2010, Argentine Symposium of Embedded Systems** , *UBA* , 18hs , .

2008 **Conference on wireless technologies of Digi RF** , *EDE2008 Electronic Design Expo* , 6hs , See certificate .

2007 **Practical theoretical course of screen printing oriented to the manufacture of PCBs** , *32hs* , See certificate , .

2007 **Analog performance seminar using Silabs microcontrollers** , *8hs* , See certificate , .

2006 **Launch of Freescale RS08KA microcontrollers, accelerometers and sensors** , *8hs* , See certificate , .

2006 **Releases Freescale Coldfire microcontrollers 32 bits** , *10hs* , See certificate , .

2004 **Rabbit microprocessors and Dynamic C** , *24hs* , See certificate , .

2002 **Practical theoretical course IA, Artificial Intelligence** , *ITBA* , 18hs , See certificate .

1995 **Amateur radio course with licensing LU9JGM** , *Radio Club Concordia (LU9JJ)* , 48hs , See certificate .

Awards

2002 **Initiation in research and development I+D ITBA** , *1 th prize* , , .
Design and Simulation of a pipeline-structured Floating Point Unit for high performance general purpose processors See material.

2001 **Battle Tek robots championship, ITBA** *Ingenio en Acción* , *3 th prize* , , .
Discotech Robot A fight robot was designed and manufactured based on a high speed rotating disk with 2 protruding edges that impact against the adversary and a pneumatic ramp. See certificate , see news.

Works and Publications

2018 **Three Axis CNC Machine Controller** , *Specialization in embedded systems* , , .
Final work of the specialization course in embedded systems, Director: Ing. Juan Manuel Cruz see material , see presentation , see public defense , see videos .

2010 **Smoothing of images by inhomogeneous diffusion** , *Biomedical image processing, UTN* , , .
Final work Processing of biomedical images, Tutor: Dr. Castro See material .

2008 **Study of photo thermal techniques applied to the measurement of gas flow.** , *CITEDEF* , , .
I was presented under the tutelage of Dr. Francisco Manzano and as goal of approval of Optoelectronics II. See material .

2004 **Design and implementation of a dynamic screen based on 3200 filament lamps with 16 gray scales and 20fps updatable by ftp.** , *LampMatrix, Thesis, ITBA* , , .
Under the tutelage of Professor Villamil, an advertising screen based on filament lamps was designed and manufactured entirely. See video , See material .

2003 **Design and Simulation of a pipeline-structured Floating Point Unit for high performance general purpose processors** , *JAIIO 32 th Argentine Conference on Informatics and Operational Research* , , .
See material .

2003 **Selection of the Optimum Stage Number in Pipelined Floating-Point Units** , *CACIC, Argentine Congress of Computer Science* , , .
See material

Technologies Experience

Programming Languages

| Advanced | C, C++, ASM assembler, Verilog, VHDL, Octave |
| Medium | Python, C#, Pascal, bash, makefiles, openHab |
| Basic | Java, Javascript, HTML |

Operating Systems

Advanced	Linux (Debian, Crunchbang, Bunsenlabs, Ubuntu, Slackware), FreeRTOS, Windows(XP, Seven, Server2003, Office2000)
Medium	FreeBSD
Básic	OSEK

Outstanding Computer Software

Advanced — crypsetup, vim, mutt, git, mercurial, gnumeric, ssh, bash, screen, tmux, pass, Allegro PCB Router, Slic3r, Pronterface, Mach3, LinuxCNC, Rhinoceros, RhinoCam, Orcad16 (Design CIS,Layout,Pspice), Flash MX, Borland C++ Builder, Octave, Wireshark, gcc, Xilinx (ISE y Vivado), Microsoft Visual Studio, VirtualBox, gdb, openocd, redmine, cups, Swat, Samba, Cura, Freecad, ceedling, anaconda, jupyther, ipython, gnuplot, ncurses, cdk, Kicad, LATEX, gtkwave, icarus, ghdl, cocotb

Medium — OpenOffice, LibreOffice, Eclipse, Matlab, Jenkyns, pyfda, Mathcad, quemu, Arduino, svn, ffmpeg, Openscam, Webadmin, SonarQube

Basic — Quartus II, Delphi, Blender

Microcontrollers, microprocessors and FPGA experience

Colors   8 bits ● 16 bits ● 32 bits ● Fpga ●
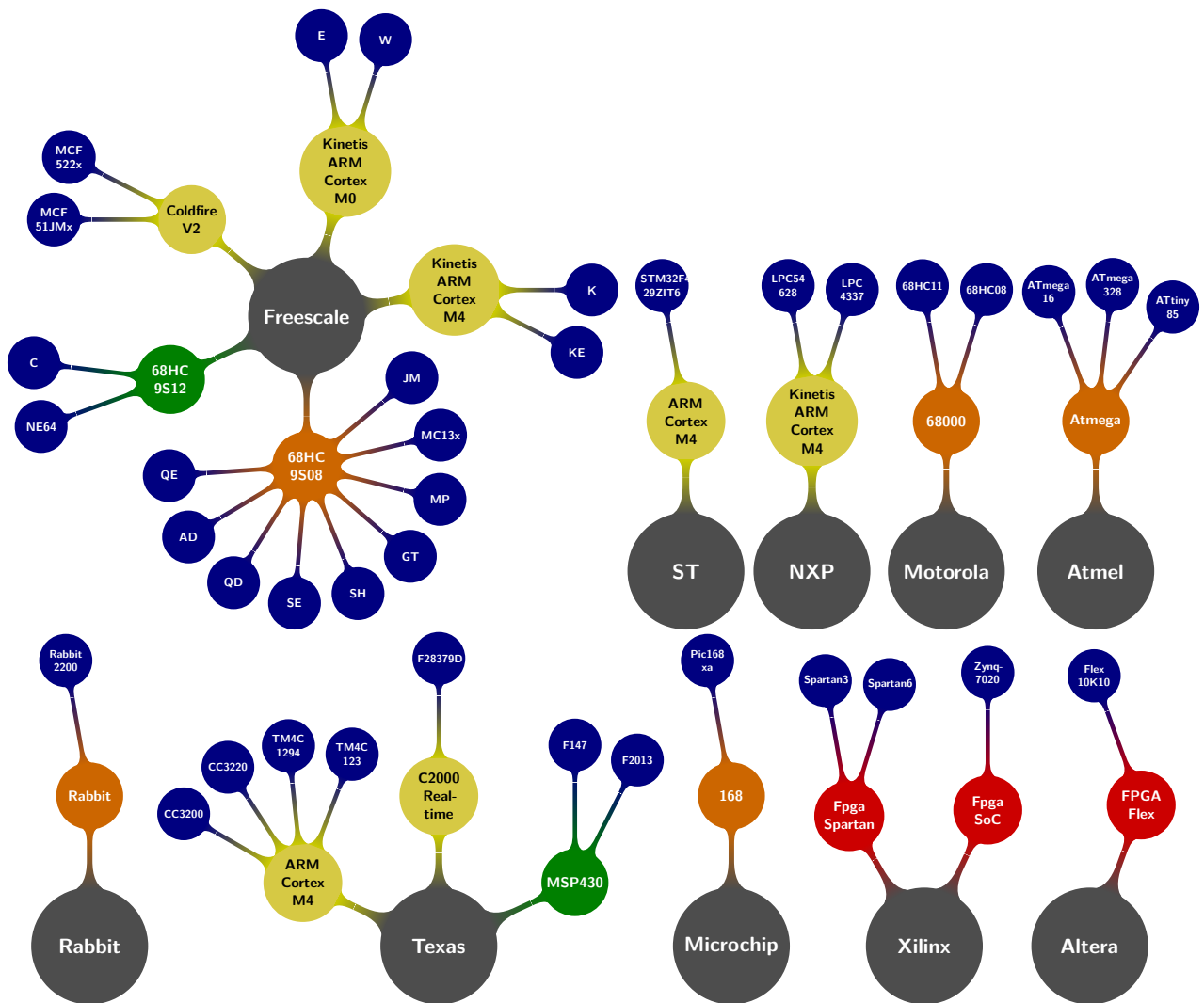
Communications protocols and digital techniques

Advanced — Ethernet, TCP, IPv4, SNMP, SMTP, NTP, ARP, UDP, SCI, SPI, I2C, LVDS, USB FS/HS, Zigbee, RFID, PWM, ADC, DAC, 1-Wire, RS232, RS485, PoE+

Medium — IPv6, CAN, 6LoWPAN, IEEE 802.15.4, lwIP, I2S, Radius, Modbus

Basic — HTTP, Lora, MIPI

Other technologies of interest

Advanced — Handling of assembly line SMD, Manual PCB welding by furnace and wave, 3D FDM printing, screen printing on rigid, screen printing of PCB's, CNC machining, Handling of laser cutting machine, handling of machine tools.

Medium — Manufacture of PCB's, arc welding, metal turnery

Basic —

Idioms

Spanish	Oral/Reading/Writing Advanced	*Native tongue*
English	Reading Advanced Oral/Writing Medium	*TOEIC 2005–785 See certificate*
Hebrew	Reading Medium, Oral/Writing Basic	*Full Hebrew primary school*

Sports and recreational activities

2016–2017 **Basketball** , *Bariloche* , Nahuel sport club, facebook .
Training in the club's first division squad.

1983–1994 **Basketball** , *Concordia* , J.N.Bialik , .
Training from mosquito category to be part of the first division squad.

1995–2004	**Basketball** , *Buenos Aires* , University Basketball, ITBA .
	Training on the campus throughout the whole race.
1994–	**Cycling** , , , .
Presente	Competition in cross-country category sub-23, competition in category sub-30 trialbike, amateur cycling to the present.
2014–	**Guitar** , , , .
Presente	Amateur learning of electric guitar and music.

Other activities and interests

- Physics
- Astronomy
- Motorcycling

- History of science
- Philosophy
- Cycling

Portfolio

Noto Group S.A.

Para la empresa Noto Group S.A se desarrollan y se fabrican actualmente equipos electrónicos para electromedicina estética entre los que se destacan:

- Radiofrecuencia tripolar.
- Electroporador.
- Microdermoabrasión.
- Cavitador.
- Luminoterapia.
- Electroestimulador portátil.
- Fuentes de alimentación categoría medica.

En la figuras **??**, **??** y **??** se muestran algunos de los equipos desarrollados y fabricados:
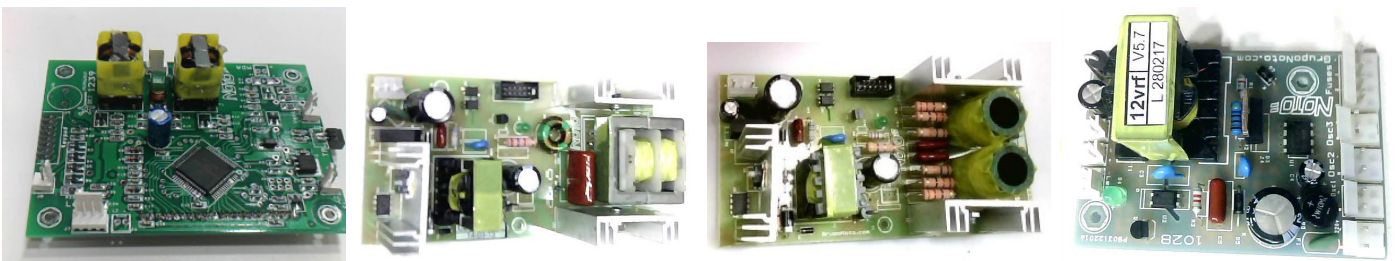
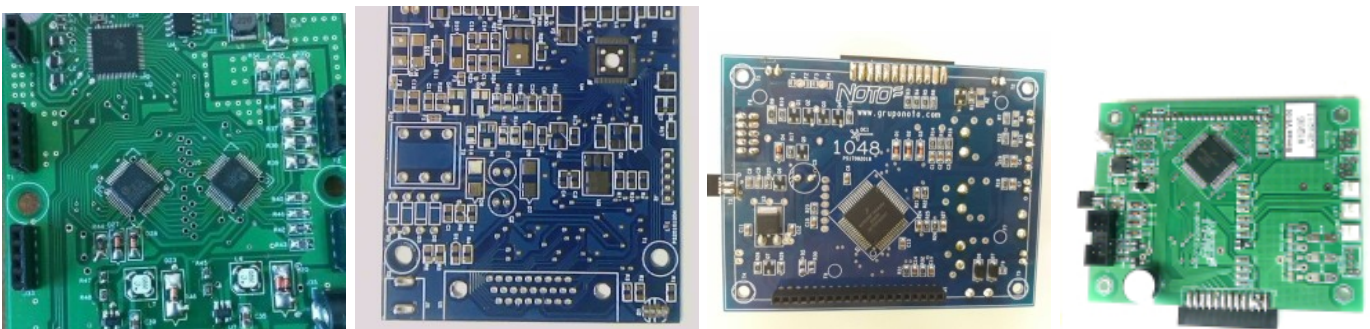figure 1: Equipos de potencia, fuentes, osciladores, mezclando tecnologias TH y SMD

figure 2: Placas de control para los diversos equipos, controladores de LCD, manejo de PWM, comunicaciones, generadores de señales, tecnología TH y SMD 1206, 0805 y 0603.

figure 3: Equipos ensamblados y comercializados por la empresa Noto Group

Seconsat

Ademas de las tareas de consultoría, se desarrolló un equipo inalámbrico para reporte de temperatura, humedad, velocidad, y demás parámetros desde la caja de un camión de carga a un equipo rastreador.

Se utilizó tecnología 0402 en una placa de 4 capas con requerimientos de radiofrecuencia desde 200 Mhz hasta 2.4 Ghz. Se definieron los requerimientos, se diseñó el esquematico, y se diseñó el PCB en Orcad Allegro como se muestra en la figura **??**.
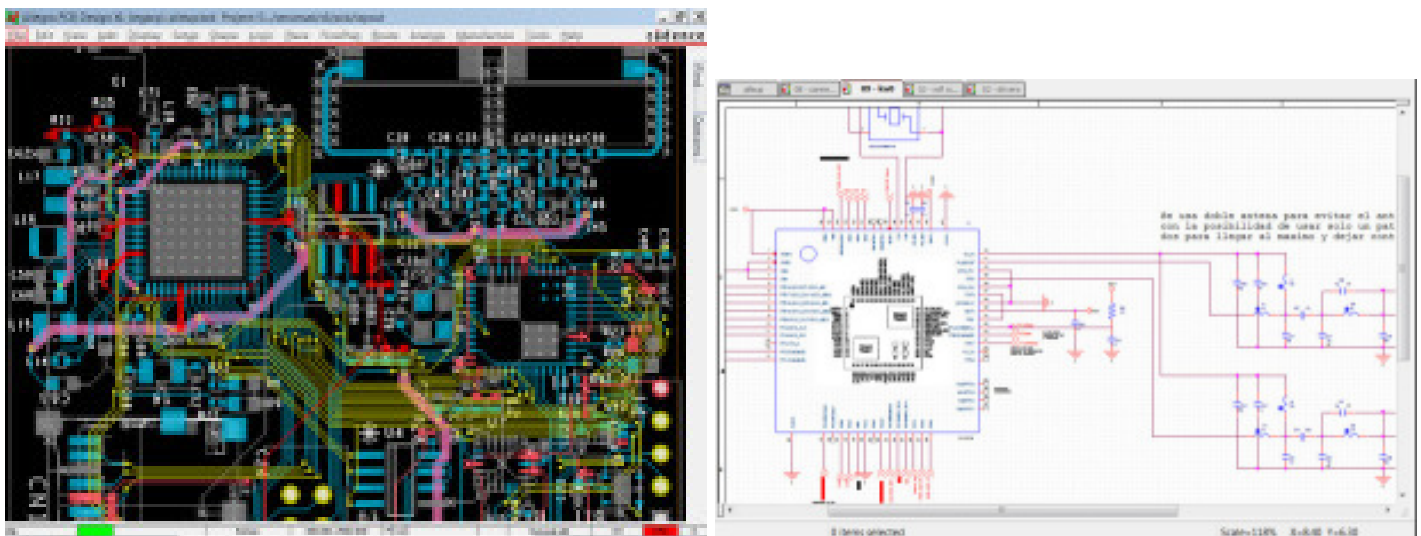
figure 4: Desarrollo de PCB de comunicación inalámbrica 2.4Ghz y sub-1Ghz para reporte de parámetros ambientales dentro de camiones

Xenon S.A.

Para la empresa Xenon S.A se desarrollan y se fabrican actualmente equipos electrónicos para automatización de salas de cines controlados desde los servidores por lineas dedicadas o puerto serie RS232. Se fabrican modelos con diferentes prestaciones, tamaños y gabinetes como se muestra en la figura **??**.

Pointer

Para la empresa Pointer, del rubro rastro vehicular, se desarrollan y fabrican accesorios para rastreadores entre los que se destacan:

- Botonera con leds indicativos.
- Teclado táctil para ingreso de clave.

En la figuras **??** se muestran algunos de los equipos desarrollados y fabricados:

La Colmena

For the well-known disc of Pilar, La Colmena, a LED ceiling was developed and manufactured using Ethernet with the sophisticated software Madrix, highlighting the photos of the installation in the figure **??** and there are also some public videos on videos La Colmena.

From this work, a product that consists of interconnected modules to form LED screens different pitch and sizes. Can you see in the pictures of the figure **??** and you can see some videos at see videos.

figure 5: Equipos para automatización de salas de cines controlados por RS232 y por lineas dedicadas. En gabinetes metálicos y racks de 19''
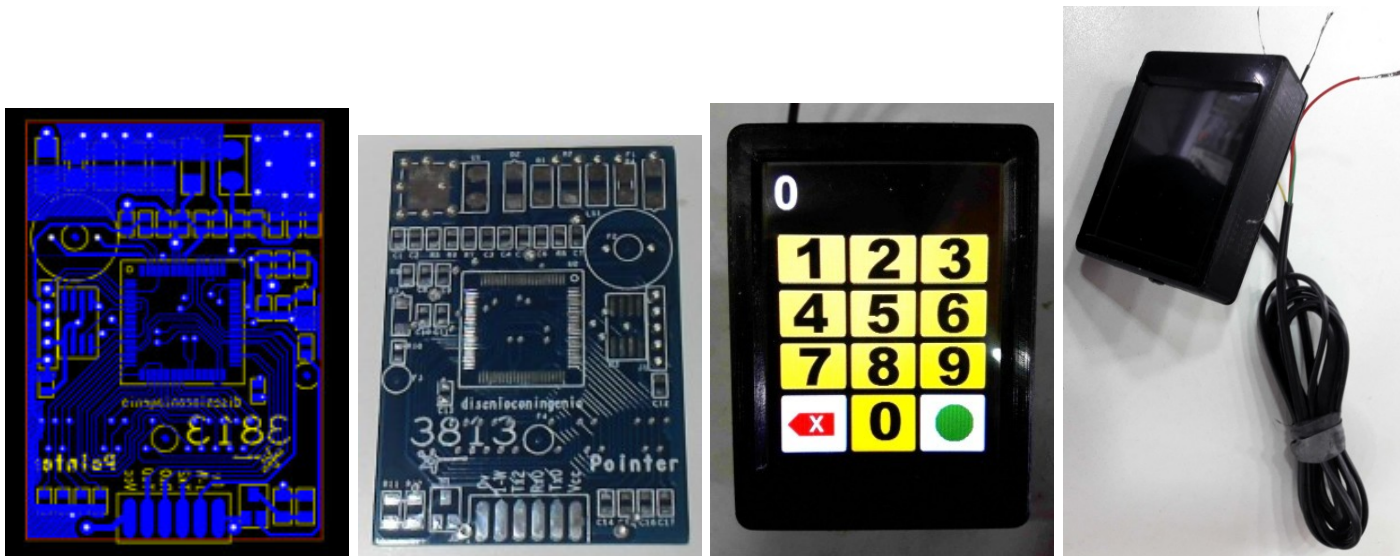

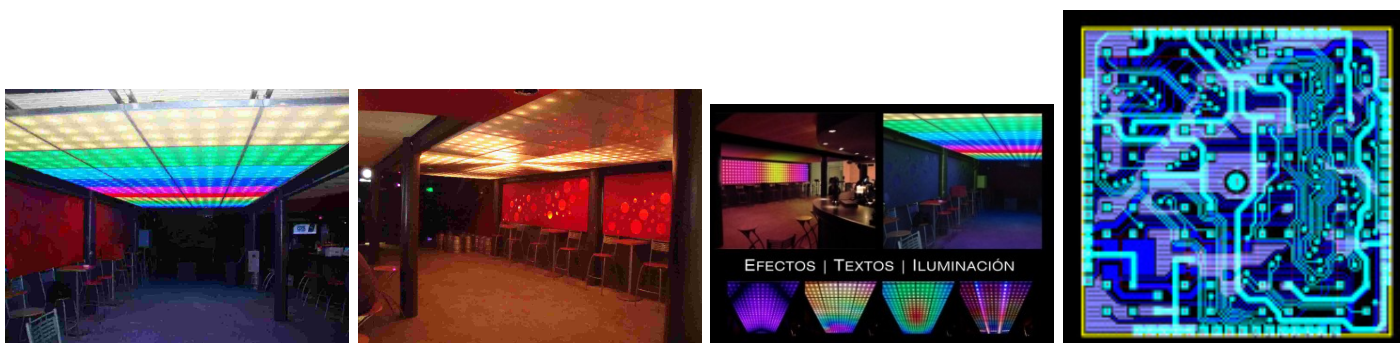figure 6: Teclado táctil para ingreso de pin desarrollado y fabricado.

figure 7: LED display mounted on the roof of the La Colmena disc, developed, manufactured and installed.

figure 8: Modules of interconnectable LEDs to form LED screens controlled by ethernet of different pitch and sizes.

Controlador para Máquina CNC

En el marco de la CESE (Especialización en sistemas embebidos), se diseño un controlador para una máquina CNC de 3 ejes, tanto el hardware de potencia, como el firmware de control y el software de gestión que se muestran en la figura **??** y se puede ver videos en el siguiente link: videos pap
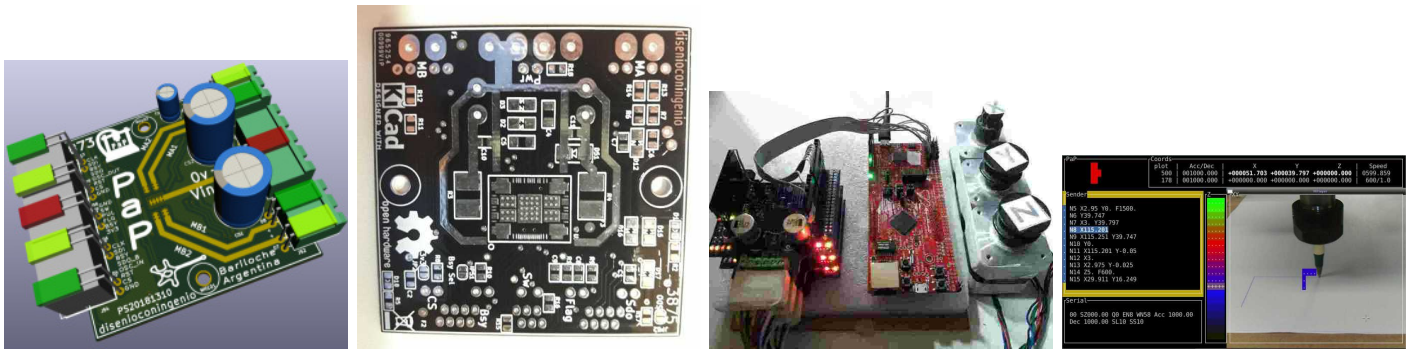

figure 9: Sistema de control de máquina CNC, hardware, firmware y software.

National Atomic Energy Commission

I worked at the CNEA as a research fellow in the PET (Positron Emission Tomography) development group.
During the work period, a CNC machine was developed for automatic movement of radioactive material. I also code part of the photon coincidence algoritm in VHDL for the FPGA shown in the figure **??**.
Then I developed the software for acquisition and analysis of raw data from the equipment shown in the figure **??**.
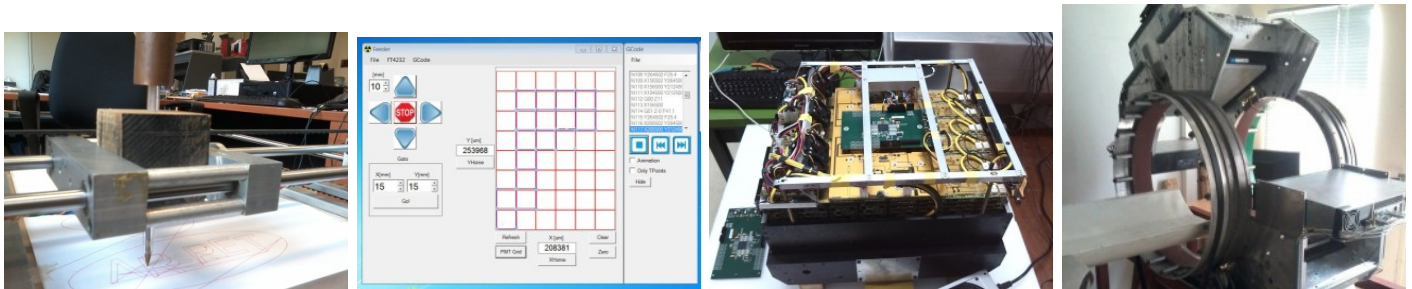

figure 10: CNC table for automation of acquisitions with a capture of the management software, the board with the FPGA mounted in one of the 6 heads, and the half-finished tomograph.

figure 11: Captures of acquisition software, CUIPET, of the PET at CNEA's lab.

disenioconingenio

When I was in charge of Disenioconingenio, I developed several products for sale in the market and customized according to the characteristics required by the customers, the following stand out ○ RFID 125Khz Multiprotocol

A 125khz RFID card reader was designed with a discrete frontend and fully decoded by the microcontroller. This allows reading data from different manufacturers and different protocols, and combining with multiple data outputs, such as RS232, RS485, Wiegand and ABA.
There are shown some pictures in the figure **??**.
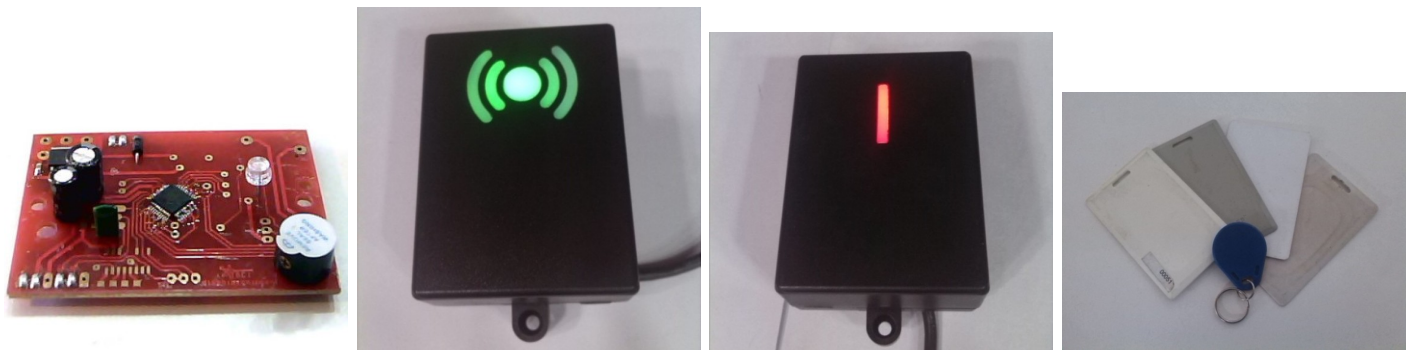
○ Hango - Wheel chair motorizer

figure 12: 125khz RFID multiplrotol card reader, compatible with most card manufacturers.

In conjunction with institutions dedicated to assisting people with mobility difficulties such as CIAPAT, AEDIN and FAME, we develop Hango.

It consists of a motorizer that attaches to manually driven wheelchairs granting comfort and independence.

Models for children and adults up to 100kg were developed with different styles of commands, some based on the typical joystick, and other new ones using touch screen technology.

The equipment adapts to the vast majority of market chairs with minimal mechanical intervention and allows the coupling and uncoupling without tools, suitable for transfers by car and plane.

Threr are some pictures in the figure **??** and **??** and also some videos at Videos Hango.
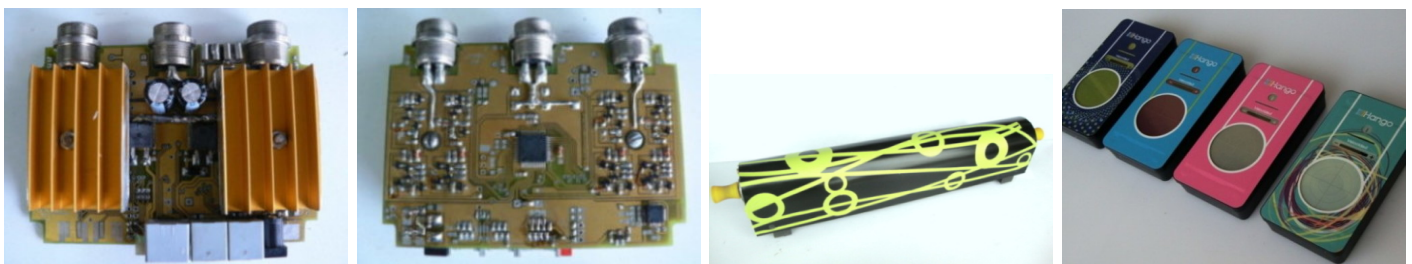

figure 13: Hango Power boards, controller and joysticks.

figure 14: Hango parts, and Hango at the CIAPAT expo.

Digicard S.A.

For several years, I work for the company in the area of development of new hardware products aimed at access control. I can highlight the development of a new RFID reader of 125khz to replace the old magnetic cards readers and provide customized solutions integrated with the rest of the access control system of the company. I did the requirements, schematic design, PCB design, prototype, documentation for production, commissioning and documentation of use. The reader is still produced and using currently. Some photos of the equipment can be seen in figure **??**.
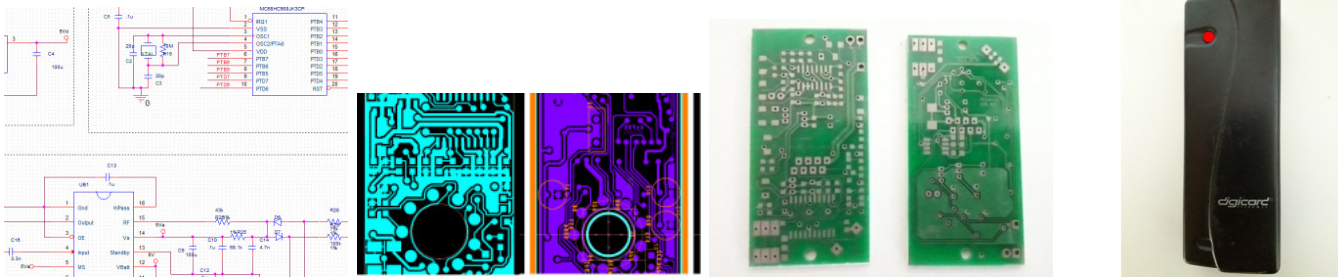
Softron

figure 15: Development of hardware, firmware and production of RFID reader of 125khz for the company Digicard.

La empresa Softron S.A provee soluciones al mercado mayorista de proveedores de energia, instalando medidores de consumo y ofreciendo el servicio de monitore remoto.

Para dicha emprea se desarrollaron placas de integracion entre SBC, computadoras en una placa, y perifericos como, salidas de rele, entradas IO's, fuentes de alimentacion, soporte para modulo GSM y dual SIM, entre otras opciones. Se pueden ver algnas fotos de la placa desarrollada en la figura **??** para la cual se realizaron varios prototipos y se genero toda la documentacion de fabricacion en volumen.

Por otra parte tambien se disenaron dispositivos inalambricos para monitoreo de temperatura usando redes Zigbee en modo mesh, se pueden ver algunas fotos de los equipos fabricados en la figura **??**.
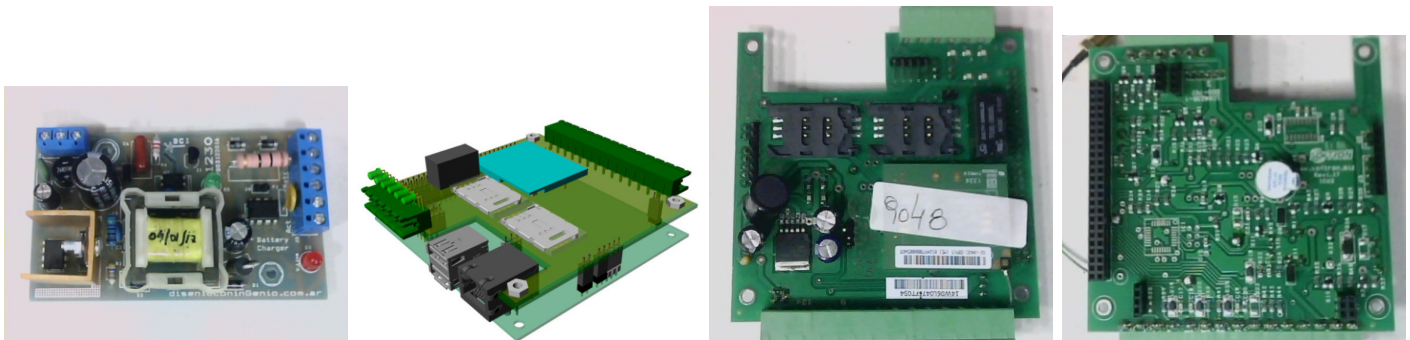

figure 16: Placa de integracion entre una SBC y una amplia gama de perifericos, modulo GSM, fuente de alimentacion y conectores.

Grupo Koner

Para la empresa Grupo Koner se desarrolló y customizó un lector RFID para el registro y control de accesos de los conductores de las flotas de vehículos monitoreados.

Por otro lado se diseño y construyó un equipo inalámbrico para la integración entre radio controles y el rastreador del vehículo permitiendo evitar el cableado de botoneras.

figure 17: Equipo inalámbrico de integración entre el rastreador AVL y radio controles.

Piscina Natural

Para la empresa Piscina Natural, se desarrollo un controlador que permite regular la generacion de cloro a partir de la electrolisis de agua salina. Mediante una pantalla y teclado de control el equipo permite dosificar la cantidad justa de cloro para mantener la piscina en optimas condicinoes y de manera homogenea durante todo el tiempo. En la figura **??** se pueden ver algunas fotos del controlador y del equipo terminado.
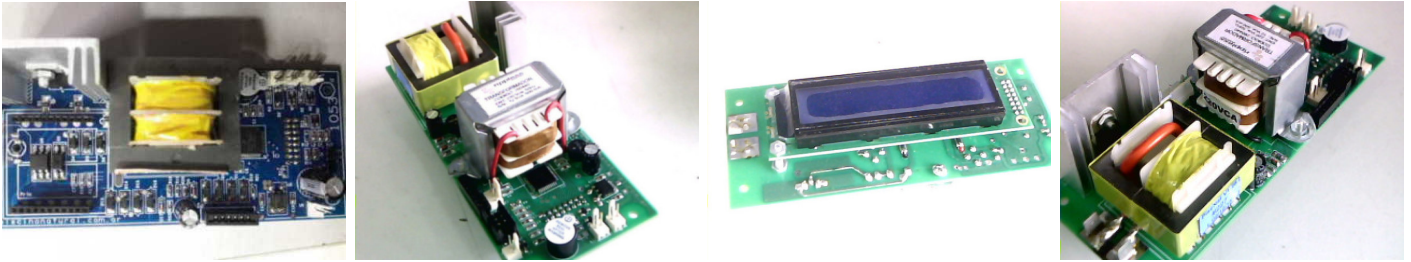

figure 18: Controlador de dosificador de cloro, placa de control y equipo terminado de la empresa Piscina Natural

Títulos

Se muestran en la figura **??** los títulos y certificados relacionados a la carrera de grado.
En la figura **??** se muestran certificados de diversas actividades realizadas de manera independiente.

(a) Título de Ingeniero Electrónico con especialidad en Telecomunicaciones del ITBA.

(b) Foto de entrega de título junto con mi profesor y referente, el Ing. Eduardo Martinez.

(c) Medalla al primer puesto en I+D, iniciación en investigación y desarrollo, del ITBA

(d) Certificado de participación en Batletek, competencia de lucha de robots en el ITBA, en donde se obtuvo el tercer puesto.

figure 19: Títulos y certificados obtenidos durante la carrera de grado en el ITBA.

(e) Informe en diario Clarín sobre la competencia de robots de lucha en la que se participó.

(f) Certificado de participación en el curso de Inteligencia Artificial.

figure 19: Títulos y certificados obtenidos durante la carrera de grado en el ITBA.

(g) JAIIO, 32º Jornadas Argentinas de Informática e Investigación Aplicada. Se presento el trabajo *Design and Simulation of a pipeline-structured Floating Point Unit for high performance general purpose processors.* ver trabajo

(h) CACIC, IX Congreso Argentino de Ciencias de la Computación en donde se presento el trabajo *Selection of the Optimum Stage Number in Pipelined Floating-Point Units* ver trabajo

figure 19: Títulos y certificados obtenidos durante la carrera de grado en el ITBA.

(a) Introducción a Latex. Se tomó el curso de introducción a latex como herramienta para la presentación de trabajos científicos y documentos en general. Se continuó luego de manera autodidacta y se la utiliza frecuentemente para la documentación, presentaciones, papers, etc. Ver certificado

(b) Certificado por el dictado de un curso a escuela secundaria de introducción a la robótica, teórica y práctica. Ver certificado

(c) Certificado de examen de ingles TOEIC. Ver certificado

(d) Diploma de participacion en el concurso de proyectos LATAM 2018 organizado entre el MIT y el ITBA. Ver certificado

figure 20: Certificados obtenidos en diferentes cursos y seminarios participando de manera independiente como parte de la actualización personal técnica y académica.