David
Vila Bagaria

AV/ Puigmal 44; 08560 Manlleu
(+34) 664616088
david.vila.bagaria@gmail.com
03/01/1996
/davidvilabagaria

Electronic engineer currently working on hardware design. To date, I have completed the bachelor's in Telecommunications Engineering and the master's in Electronic Engineering at the UPC. With knowledge in communication systems and protocols, electronics, programming and signal processing.

I consider myself a responsible person, with high sense of commitment and eager to learn. Specialist in keeping my hands always busy and my schedule full. Passionate about technology, engineering, RF, electronics and music. I have also managed to be a musician and to keep up with several weekend projects.

Experience

JAN 2022 – PRESENT

R&D Hardware Engineer / Elausa Electronics

Development of electronic systems for IoT, industrial and automotive products. Providing custom solutions tailored to each customer and sector. Designing both schematics and PCB layout, ensuring full EMC compliance.

OCT 2020 – JAN 2022

R&D Hardware Engineer / SimonTech S.L.

Following the same line within the R&D Hardware Team. Keeping the development of the lightning platform documented in the MSc. thesis, while working on new lighting and home automation-related products such as high-performance connective LED controllers for architectural lighting solutions.

JUL 2019 – OCT 2020

R&D Research Intern / SimonTech S.L.

Being part of the R&D Hardware Team to carry out the Introduction to Research project as well as the Master's Thesis.
Tasks related with electronic hardware design in the framework of home automation: involving circuit simulation, PCB design, soldering and evaluation and certification of compliance with current legislation using lab instrumentation. Altium Designer as the main software tool.

Working mainly in the development of a new lightning platform for home automation compliant with DALI lightning protocol (IEC 62386). Contributing as well in the redesign of connective devices implementing other communication protocols such as 1-10, KNX or Z-Wave.

FEB 2018 – AUG 2018

Research Assistant / Universitat Politècnica de Catalunya (UPC)

Development of Bachelor's Thesis and other parallel research lines related to IoT and embedded systems within the Wireless Networks Department of the UPC by means of the research-initiation scholarship INIREC.

SEP 2016 – FEB 2018

Broadcast Engineering Intern / Cellnex Telecom S.A.

Creation of technical projects related with TDT, FM and MW emitting stations.
Coverage studies on TDT and FM networks. Signal degradation and interference studies prior to the construction of wind and solar farms. Study and analysis of radiation diagrams.
Programming of web tools for the management of company's internal databases involving HTML, PHP, SQL and jQuery.

2012 – 2017 (SUMMER)

Telecommunications Technician / Electrònica Joan S.L.

Electrical appliance and electronic device repair. Technical service for several brands and insurance companies. Maintenance of TDT, FM and private RF links and base stations.
Antenna installations for individuals, neighborhood communities and companies (TDT, SAT, ICT, CCTV). Internet provision and installation through fiber optic or RF links.
Fiber optic deployment over the province of Girona.

Education

2018 - 2020

MSc. Electronic Engineering (MEE) / ETSETB; UPC

Intensification in *Integrated Systems*.
Average of 9.30 – 1st of the promotion

Provides a broad profile that includes skills and expertise in power, analog and RF electronics, instrumentation and sensors, digital systems, micro and nanotechnologies and microelectronics. Chose the intensification in Integrated Systems with coursework including subjects such as: “Energy Management for Distributed and Integrated Systems”, “System on Chip Physical Design”, “Analog and Mixed-Signal System-On-Chip Design”, and “Radiofrequency Integrated Circuits and Systems”.

I also took 15 elective ECTS credits of “Introduction to Research” to develop a project at SimonTech. It consisted in the redesign of a DMX-DALI Lightning Protocol Interface in order to solve existing issues, ensure compatibility with new sensitive ballasts and prepare the design to be compliant with the upcoming DALI-2 standard extension. Leading to a qualification of 9.5 and more than 200 reprocessed units.

Wrote the thesis titled “Design, Implementation and Validation of a Low-Cost DALI Controller”. It describes the whole hardware development (from the initial requirements to the certification of compliance of the prototype with LVD and EMC directives to obtain the CE mark) of a product included in a new series of low-cost connective devices designed to replace conventional switches and sockets in order to turn a house into a smart home. The dimmer is intended to interact with the user either through manual operation or wireless communication, and to translate the information to the luminary through DALI protocol. It obtained a final qualification of 10.

2014 - 2018

BSc. Telecommunication Technologies and Services Engineering (GRETST)/ ETSETB; UPC

Major in *Electronic Systems*.
Average of 8.26 – 9th of the promotion (out of 373 students who began on 2014).

Provides a solid background in ICT engineering as well as the specific skills determined by the chosen Major. I chose the Electronic Systems specialization with coursework including subjects such as

"Instrumentation and Measurement Systems", "Fundamentals of Micro- and Nano-technologies", "Power Electronics and Control Systems", "Design of Digital Electronic Systems" and "Communication Electronics".

Wrote the thesis titled "Design and Implementation of a Radio Wake-up Receiver" within the framework of IoT. It consisted in the development of a discrete low-power RF front-end as a part of an auxiliary receiver in charge of waking up the main transceiver on-demand; reducing drastically the overall system's power consumption. The design is capable of decoding different amplitude-based modulations such as the one proposed by the upcoming IEEE802.11ba standard using a semi-passive non-coherent demodulation scheme; achieving a maximum bitrate of 250 kbps at 2.4GHz. It obtained a final qualification of 9.8.

Projects

- Design and Implementation of a Class D Amplifier for Audio – PBE (2017)
- IoT to Everything: Implementation of a device able to interact with a smartphone – PAE (2018)
- Design and Implementation of a Radio Wake-Up Receiver – TFG (2018)
- Redesign of a DMX-DALI Lightning Protocol Interface – IR (2019)
- Design, Implementation and Validation of a Low-Cost DALI Controller – TFM (2020)

Awards

- Research Project Award granted by the council of Manlleu to "Pedals d'efectes, la unió entre la música I l'electrònica" within the category of experimental science and technology - (2014)
- Letter of Excellence granted by the Universitat Politècnica de Catalunya to students who passed all the courses in the first attempt without failing any one of them, being part of the 19.03% highest top students of the promotion - (2018)
- Honors in several subjects, including relevant ones such as:
    - Analog and Mixed-Signal System-On-Chip (AMS)
    - Radiofrequency Integrated Circuits and Systems (RICS)
    - Advanced Analog Circuit Techniques (AACT)
    - Micro and Nano Electronic Design (MND)
    - Electrònica de Comunicacions (ECOMSE)

Other Skills

- Musician since 2005. 5th level of superior grade conservatory studies.
- Driving license with own vehicle.
- Native Catalan and Spanish, intermediate English.