



Gonul Demir

Research & Development Engineer

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Personal Details:

Female • Turkish

Resourceful and innovative professional with over a decade of experience in designing advanced electronic security systems and sensors within the Istanbul tech sector.

Experienced in designing and optimizing cutting-edge technologies to enhance system functionality, reliability, and market competitiveness. Demonstrated success in leading projects from concept to execution, improving product performance, and ensuring operational safety across diverse applications. Proficient in navigating complex certification processes and addressing electromagnetic compatibility challenges in high-noise environments. Skilled at driving technological innovation, implementing quality improvements, and delivering products that meet rigorous industry standards.

Areas of Expertise

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|--------------------------------------|--------------------------------------|---------------------------------|
| ◆ Electronic Security Systems | ◆ Researching Skills | ◆ Regulatory Compliance |
| ◆ Applications Management | ◆ Operational Excellence | ◆ Quality Assurance & Control |
| ◆ Hardware Design and Integration | ◆ Optical Engineering | ◆ Electromagnetic Compatibility |
| ◆ System Reliability & Functionality | ◆ Firmware & Software Development | ◆ Cost Efficiency Optimization |
| ◆ Cross-functional Team Leadership | ◆ System Reliability & Functionality | ◆ Innovative Design Solutions |
| | ◆ Product Lifecycle Management | ◆ Technical Documentation |

Professional Experience

Senior Research & Development Engineer | Teknim Electronic • Istanbul

2022–2024

Designed and developed innovative alarm and access control systems to enhance security and strengthen market competitiveness. Developed a completely new high-performance beam detector, achieving:

- A **2.4x** range improvement compared to local competitors.
- A **20%** range advantage over the closest global competitor.
- A **30%** reduction in production costs compared to local competitors through advanced optical and electronic design optimizations.
- This new design has laid a strong foundation for the company's market strategy and customer expectations.

Research & Development Engineer | Fenac Encoders& Sensors • Istanbul

2017 – 2022

Responsible for designing cutting-edge solutions that seamlessly integrated hardware, software, and optical system.

My contributions significantly improved product reliability and performance, addressing both civilian and military demands.

- **Proximity Detector Development:** Designed and implemented a proximity detection system by managing optical design, hardware architecture, and software flow, ensuring accurate target identification.
- **Encoder Development:** Created a range of innovative encoders, including magnetic and optical incremental encoders, wheel encoders, and compact contactless solutions for military and civilian projects.

- **Elevator Safety Enhancements:** Spearheaded the development of an advanced door detection system, improving obstacle detection and establishing a long-lasting industry solution.
- **Hardware Optimization:** I designed and developed a differential line driver circuit with short-circuit protection for RS422 and 24V/200mA applications, ensuring reliable and robust performance.
- **Electromagnetic Compatibility (EMC):** Solved critical EMC challenges in high-noise environments to enhance the durability and reliability of electronic components.
- **Advanced Sensor Design:** Developed an approach sensor for escalators, leveraging ST's TOF sensor technology to achieve precise and reliable detection accuracy.

Research & Development Engineer | Mavili Electric Electronic • Istanbul

2011 - 2016

- **Beam Detector Project:** Carried out the optical design, hardware development, and certification processes for the Beam Detector, consisting of six different models. By completing critical certification processes such as EMI/EMC, TSE, and LPCB, I ensured that the products met regulatory standards and entered the market smoothly.
- **Flame Detector Project:** Successfully completed all design and development processes for the Flame Detector, consisting of four different models, up to the prototype stage.
- **Test Equipment Development:** To accelerate production testing and reduce defect rates, I designed specialized test equipment, including accelerometers, light meters, heat sensors, and motor driver boards.
- **Electromagnetic Compatibility (EMC):** Conducted internal and external EMC tests to ensure compliance with electromagnetic compatibility standards and provided technical support for the projects.
- **Quality Improvement:** Contributed to quality improvement initiatives, successfully reducing defect rates in production processes by **10%**, enhancing product reliability.
- **Production Efficiency:** Worked on accelerating testing processes, resulting in a **15%** reduction in test durations.
- **Standardization and Reliability:** Ensured that tests met industry standards, improving accuracy and reliability across all production tests.

Prior Experience as Freelance Designer, Inovenso Consulting R&D Machinery • Istanbul | Purchasing Manager, Soypak Electronic • Istanbul

Education

Bachelor of Electrical Engineer - Uludağ University

Erasmus Programme Electronic Engineer - Universita Degli Studi Di Salerno

Professional Development

Persuasion Techniques Training | Diction Training | The Fundamentals of Correct and Effective Speaking

Online (Remote) Presentation Techniques Training | Team Resource Management Training

Agile Scrum Master Training

Würth Elektronik Electromagnetic Compatibility Design & Compliance Issues Seminar | EMC & Power EMI Design

Languages

English: Proficient | German: A1

Technical Proficiencies

Microsoft Office Applications | Altium Designer | C