


# Zafer Satilmis

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## PROFESSIONAL SUMMARY

As an embedded software engineer, I worked on many platforms and processors. I have knowledge of FreeRTOS, Linux, Embedded Linux, Linux Kernel, C, C++, GPIO, UART, ADC, SPI, I2C, CAN-BUS Multithreading, Posix, BSP, Makefile, Eclipse, Jira, git, CI/CD, Robot Framework, QT, Bare Metal

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## SKILLS

- ★ C, C++, Microcontrollers and Microprocessors, Embedded Linux, Linux Kernel, Ubuntu
- ★ Programming and Design Skills, FreeRTOS, Bare Metal, Event Driven, Embedded Linux
- ★ TCP/UDP, LwIP, CycloneTCP, BSP Socket Programming, Multitask Programing
- ★ UART, CAN-BUS, I2C, SPI, RS485,
- ★ Multithreading, Object Oriented Programing (OOP), Test Driven Development(TDD), SOLID
- ★ Jira, Git, CI/CD
- ★ Robot Framework, Python, Google Unit Test, Functionality Test
- ★ Qt, SIL (Software in the Loop),
- ★ AT Commands, PPP Connection, GSM Modem

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## EXPERIENCE

**Senior Embedded Software Engineer**                      **02/2024 - 01/2026**  
**LUNA Elektrik A.Ş | A Landis+Gyr Company**                      **Izmir - Turkey**

- Worked as a Senior Software Engineer in the Modem/Gateway team.
- Acted as both System Architect and Embedded Software Developer.
- Designed and implemented scalable, production-level embedded software architectures.

### MASS – National Smart Metering Systems

- **Led the end-to-end software architecture and development** of the MASS project.
- Designed **modular software architecture** and distributed development tasks across the team.
- Developed embedded software compliant with Milli Akilli Sayac Sistemi (MASS) requirements.
- Implemented **real-time and periodic data acquisition** (readout, load profile, OBIS codes) from multiple electricity meter brands via **RS485**.
- Designed and implemented **JSON-based data serialization** according to MASS protocol.
- Implemented **TCP and MQTT** communication for secure and reliable server connectivity.
- Enabled local data storage by integrating **LittleFS on QSPI** flash memory.
- Designed a robust logging system for device-level and protocol-level logging.
- Integrated **Quectel GSM modems and established PPP** connections using LwIP.
- Enabled stable **TCP/IP and MQTT** communication over GSM networks.

### Technologies:

FreeRTOS, LwIP, LittleFS, GSM Modem, PPP, TCP/IP, MQTT, RS485, BSP Socket Programming, GPIO, RTC, I2C, SPI, Multithreading

## TEST ENVIRONMENT AND CI/CD AUTOMATION

- Proposed and led the development of a centralized test environment supporting both product and developer testing.
- **Designed and implemented an automated test bench using Robot Framework.**
- Built an extensible hardware infrastructure supporting ~30 different electricity meters (multiple brands and models).
- Integrated multiple modem device variants for simultaneous multi-meter testing.
- Used **Raspberry Pi** as the main test controller.
- Triggered automated tests via **CI/CD pipelines**, executed on Raspberry Pi.
- **Enabled daily, weekly, and on-demand** automated testing.
- Determined software release versions based on **automated test reports**.
- Improved **software reliability and field readiness** through fully tested and reported releases.
- Developed **reusable Robot Framework libraries** for embedded systems:
  - UART, TCP, MQTT, GPIO, Power Management

### Technologies:

Robot Framework, Python, Raspberry Pi, CI/CD, Relay Box, Test Automation, Fault Injection

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## Senior Embedded Software Engineer / Team Lead      04/2021 - 08/2023

Airties Kablosuz Iletisim Sanayi ve Dis Ticaret A.S,  
Customer Project Office (CPO)

Izmir - Turkey

- Served as a Senior Software Engineer and Team Lead within the Customer Project Office (CPO), leading customer-specific embedded software projects.
  - Led the **AT&T (one of the largest telecommunications companies in the United States)** software engineering team, acting as the primary technical point of contact for customer requests and escalations.
  - Analyzed, prioritized, and resolved customer-reported bugs and feature requests for production devices.
  - Developed, debugged, and maintained software on Linux-based embedded systems using **Broadcom BSP**.
  - Strong hands-on experience with **C/C++, Makefile, Bash scripting, and Ubuntu Linux environments**.
  - Managed task distribution, sprint planning, and backlog tracking using **Jira**.
  - Coordinated and participated in weekly planning meetings with **AT&T, Capgemini, and Airties teams**.
  - Performed code reviews, provided technical guidance, and supported team members in problem-solving activities.
  - Supported Wi-Fi Mesh networking technologies and gateway/extender products for major telecom operators.
  - Projects: **BGW320, BGW210, CGW450, AT4981**
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## Senior Embedded Software Engineer      03/2019 - 02/2021

Asis Elektronik Ve Bilisim Sistemleri A.S,

Izmir - Turkey

Developed software in FreeRTOS, Bare Metal, QT and Embedded Linux environments using C and C++.

### Central Tire Inflation System (CTIS) – Military Vehicles

- Worked on a Central Tire Inflation System developed for military vehicles.
- Developed software using **FreeRTOS**.
- Gained hands-on experience with **CAN-BUS, EEPROM, FRAM, GPIO, ADC**, and power management units.
- Worked with **RS232, CubeMX**, and **TFT displays**.

### Vehicle Health and Use Monitoring System (VHUMS)

- Participated in the project from start to finish, including design and implementation.
- Designed the **software architecture** and divided the system into functional **software blocks**.
- Developed software on **Bare Metal, FreeRTOS, and Embedded Linux platforms**.
- Collected and processed data from multiple peripherals.
- **Designed communication protocols** and defined data flow between different boards.

- Built a common software infrastructure that could **run on both PCs and embedded boards**.
- Developed a **Qt-based simulation** application to test and develop the system **without physical hardware**.
- Used CAN-BUS, RS232, ADC, UART, I2C, EEPROM, FRAM, GPIO, and RTC.

### Video Management System

- Responsible for **software design** and dividing the system into **software modules**.
- Shared and coordinated software blocks within the team.
- Designed communication packages to allow multiple subsystems to work together at the same time.
- Worked with Qt, CAN-BUS, RS232, RS485, I2C, SPI, UART, RTC, and FreeRTOS.
- Gained experience with **i.MX6Q, STM32, CubeMX, and PELCO-D** protocol.

### BMC Weapon Tower System

- Took part in the development of the vision system software, including **Day Camera, Thermal Camera, and Laser Range Finder**.
- Worked on commander weapon control card software for the gun tower system.
- Developed software compatible with other units in a large and **complex system architecture**.
- Designed flexible communication protocols using **CAN-BUS and RS485**.

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### Senior Embedded Software Engineer 03/2016 - 02/2018

Cardtek Kart Ve Bilisim Teknolojileri A.S, Izmir - Turkey

- Worked as a Senior Embedded Software Engineer at Cardtek, a company providing card payment systems for Izmir public transportation.
- Developed software using **C and C++** on Vera, **Linux operating system** running on **cash register / POS devices**.
- **Implemented software updates** and **provided field support** based on system and customer requirements.
- Gained hands-on experience with payment systems, MIFARE cards, and contactless technologies on Embedded Linux platforms.
- Worked with communication interfaces including **I2C, SPI, UART**.
- Designed and implemented message packets and communication layers using **TCP Socket** in Embedded Linux environment.

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### Embedded Software Engineer 08/2014 - 02/2016

Hugin Yazilim Teknolojileri Istanbul - Turkey

Worked as an Embedded Software Engineer at Hugin, a company operating in the payment systems sector (**POS and Cash Register devices**). Developed software using the C programming language based on project requirements.

#### Cash Register Drawer and Buzzer Control

- Enabled **GPIO access from user space** by configuring kernel options.
- Recompiled and installed the **Linux kernel** on the device.
- Developed header and source files to control GPIO from user space.

#### Thermal Printer Acceleration

- Improved thermal printer performance using **Inter-Process Communication (IPC)**.
- Used message queues to speed up printer operations on the cash register device.

#### 7" TFT Screen Driver

- Developed header and source files for a 7-inch TFT screen driver.
- Used DirectFB (Direct Frame Buffer) according to project requirements.

## 128x36 Pixel OLED Display

- Analyzed the hardware datasheet and completed hardware connections on an Embedded Linux board.
- Developed **I2C-based display drivers** with custom header and source files.

## Encryption and Secure Communication

- Developed encryption modules for **communication between two external devices**.
- Implemented cryptographic algorithms including **Diffie-Hellman, AES (CBC/ECB), 3DES, and RSA**.
- Gained hands-on experience with **OpenSSL libraries and functions**.

## Linux Kernel and Device Driver Experience

- Learned how to write and compile **Linux kernel modules**.
- Added new devices under the **/dev directory**.
- Worked with device file operations such as **open, read, write, and ioctl**.

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## Embedded Software Engineer 10/2013 - 08/2014

Sunny Home Electronics – R&D Department, Istanbul, Turkey

- Worked on **LED TV** software in the R&D department.
- Fixed errors reported by the test team and developed software based on field or customer requests.
- Developed software on **Embedded Linux boards** using the **C programming language**.
- Gained knowledge of Linux user space and system-level programming.
- Learned and worked with **POSIX, multi-threading, mutex, Inter-Process Communication (IPC), Linux console, Ubuntu, Makefile, SVN, and Jira**.

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## Embedded Software Engineer 09/2011 - 08/2012

Katmerciler Arac Ustu Ekipman, Izmir, Turkey

- Worked as an Embedded Software Engineer at a company producing firetrucks and special military vehicles.
- **Fixed bugs** reported by the test team and **developed new software** features.
- Developed software **using C language** on 8-bit and 32-bit microcontrollers
- Gained experience with communication protocols such as **RS232, RS485, SPI, I2C, and CAN-BUS**.

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## PERSONAL PROJECTS

- <https://github.com/engZafer35/iVIS>
- [https://github.com/engZafer35/Apartment\\_Management\\_System/tree/master/Documents](https://github.com/engZafer35/Apartment_Management_System/tree/master/Documents)
- <https://github.com/engZafer35/Aviora>
- [https://github.com/engZafer35/Event\\_Based\\_Project](https://github.com/engZafer35/Event_Based_Project)
- <https://github.com/engZafer35/ZLogger>

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## EDUCATION

Karadeniz Technical University, 2011  
Bachelor of Science: Electrical and Electronic Engineering

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## CERTIFICATIONS

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### C and Systems Programmers Association

I completed the 6-month C training given by Necati Ergin at the C and System Programmers Association.

### C++ Programming

I completed the 6-month C++ training given by Necati Ergin at the C and System Programmers Association.

### Embedded Linux Systems Training by Nazım KOÇ ([www.ucanlinux.com](http://www.ucanlinux.com))

Using toolchain and compiling toolchain, compiling u-boot, installing RootFS, busybox compilation, buildroot, kernel compilation, writing boot scripts.