

# Oleksandr F.

## Expert Senior Embedded Developer with an Aerospace background

### SUMMARY

- Master's Degree from the Kharkiv National Aerospace University - Developed a Smart Thermostat with self-learning capabilities and remote mobile app control, utilizing MSP430 microcontroller, ZigBee, and ultra-low power technologies. - Designed an Energy Management System for remote heating control, incorporating automatic and manual modes, and leveraging STM32, Qualcomm Snapdragon 410, and PCB design. - Created firmware and PCB design for a Pump Monitoring System with a GUI for pump operation control, employing ESP IDF, FreeRTOS, and memory management. - Engineered a Mosquito Sensor to detect and transmit data on specific insect forms using STM32L4, LoRa, and GPS technology. - Expert in programming embedded systems with experience in C, and C++, and integrating various communication protocols such as I2C, SPI, and UART. - Proficient in using embedded Linux for system development, including working with Qualcomm Snapdragon and managing system resources. - Experienced in mobile application integration for both iOS and Android platforms, ensuring seamless user interaction with embedded devices. - Upper-Intermediate English

### TECHNICAL SKILLS

<b>Main Technical Skills</b>	C/C++/C#, Node.js
<b>Programming Languages</b>	PHP
<b>JavaScript Frameworks</b>	Backbone.js, Node.js
<b>Mobile Frameworks and Libraries</b>	BLE
<b>C++ Libraries and Tools</b>	C/C++/C#
<b>AI &amp; Machine Learning</b>	OpenCV
<b>Data Analysis and Visualization Technologies</b>	Power BI
<b>Cloud Platforms, Services &amp; Computing</b>	DigitalOcean
<b>Azure Cloud Services</b>	Microsoft Azure API
<b>Industry Domain Experience</b>	DSP
<b>UI/UX/Wireframing</b>	Adobe After Effects
<b>SDK / API and Integrations</b>	API, Microsoft Azure API

<b>Mail / Network Protocols / Data transfer</b>	GPS
<b>Platforms</b>	IOT, Raspberry PI, STM32, SX1276, TI
<b>Third Party Tools / IDEs / SDK / Services</b>	MathCAD, Microsoft Visual Studio Code
<b>Operating Systems</b>	RTOS
<b>QA, Test Automation, Security</b>	Selenium Webdriver
<b>Other Technical Skills</b>	ADC, ARM, Atmel AVR, DAC, ESP IDF, I2C, LoRa, M2M, MathLab, NXP S32k118, Range of operating systems, SDIO, SnapDragon 410, SPI, STM32L4, UART, ZigBee

## WORK EXPERIENCE

### Embedded Developer

**Summary:** Development and programming of a Smart Thermostat which included the creation of a self-learning system with remote mobile app control features.

**Responsibilities:** Programming of MSP430 microcontroller, implementation of a control system, development of mobile application integration.

**Technologies:** ZigBee, TI MSP430, Colour OLED, Embedded Linux, IoT, Ultra low power, Stepper motor control, iOS, Android

### Embedded Developer

**Summary:** Designed an Energy Management System for remote controlling of heating devices, which includes features for both automatic and manual operation modes.

**Responsibilities:** PCB design, firmware development for system control.

**Technologies:** STM32, Embedded Linux, Qualcomm Snapdragon 410, PCB Design, ADC, DAC, Linux, Galvanic isolation, FFT

### Firmware Developer

**Summary:** Developed firmware and PCB design for a Pump Monitoring System that displays sensor data on a GUI for efficient pump operation monitoring and control.

**Responsibilities:** Firmware development, PCB design, GUI control system implementation.

**Technologies:** ESP IDF, C, C++, I2C, SPI, Free RTOS, Memory management, VS Code, Threading C/C++, ESP low-level drivers

### Embedded Developer

**Summary:** Creation of a Mosquito Sensor device capable of registering specific insect forms and transferring the data to users.

**Responsibilities:** PCB design, firmware development and data transmission system implementation.

**Technologies:** STM32L4, Cortex M4 ultra-low power, Linux, PHP, C, GPS, LoRa, UART, SPI, M2X API, SX1276

## EDUCATION

- **Master of Science**

Kharkiv National Aerospace University named after Zhukovsky 'KhAI'  
2005 – 2010

