Eya Chaieb

eya.chaieb@insat.ucar.tn
+21620067913
2001/08/03
linkedin.com/in/eya-chaieb-80a455281

Profile

Embedded Software engineering student with hands-on experience in signal processing, particularly in automotive and wireless technologies. I am proficient in C++, MATLAB, LabVIEW, and embedded systems design, with a strong focus on communication protocols such as LoRa, MQTT, CAN, Ethernet etc.. My projects span from real-time data acquisition to advanced sensor integration and system control. I have also knowledge in computer vision, ROS, and automation technologies to develop innovative solutions for diverse industries.

Professional Experience

2024/09 – 2024/09 **Embedded System Developer**

Orange

Embedded Development and Energy Optimization:

- Development of C++ drivers for microcontrollers enabling efficient data acquisition via I2C and SPI.
- Optimization of energy consumption by implementing low-power modes and interrupts.

IoT Architecture and Communication Infrastructure:

- Development of a master-slave communication architecture for microcontrollers and Raspberry Pi, with implementation of the MQTT protocol for reliable and efficient data transmission.
- Connection to the cloud via AWS IoT Core for remote management and communication with the mobile application backend.
- Developed Python scripts to automate the addition of new devices, resulting in a reduction of setup time by over 20 hours per month by managing unique identifiers and IP addresses via DHCP server.
- Design of an online visualization interface for rapid access and real-time monitoring and remote management of hydroponic systems.

Mechanical Design and Systems Integration:

- Design and optimization of a vertical hydroponic system
- Design and manufacture of custom-made PCB enclosures, ensuring optimum integration of electronic components.

2023/08 – 2023/09 **PCB Designer**

Bako motors

• contributed to the conception of Battery Management Systems (BMS) for electrical cars to enhance efficiency and performance.
• did research on electromagnetic compatibility of components, particularly while engaging in the intricate process of designing a printed circuit board (PCB)

2023/07 – 2023/08 **IOT and Embedded Systems Developer**

Horizon Data

• Acquisition and processing of EMG signals from myoelectric sensors.
• Supervision and processing of EMG data for movement recognition and classification using machine learning algorithms.
• Controlling Servomotor based on motion predictions.
• Worked on sensor data filtering technology such as Butterworth, Chebyshev or Bessel to eliminate high frequency noise, such as white noise or measurement noise .

Projects

Implementation of a VTOL (Vertical Take off and Landing) Aircraft
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• Conducted theoretical non-linear system analysis.
• Implemented a Kalman filter on gyroscope sensor 's data.
• Created an electrical design and a PCB with KICAD.
• established a 3D model of the aircraft using SOLIDWORKS.
• Ensured communication between LabVIEW and ESP8266 through TCP/IP Protocol.

Autonomous Robot
• Designed and built an autonomous robot with real-time obstacle detection and avoidance.
• Developed path planning algorithms and implemented wireless RF communication for remote control.
• Created custom PCB for sensor and motor integration, optimizing power management.
• Integrated YOLO V5 for object detection and tracking, enhancing the robot's autonomous capabilities.

Education

2020 – 2025 **Industrial IT and Automation**
INSAT

Skills

• **Programming Languages:**
C++ / Embedded C / Python

• **Mechanical Design:**
SolidWorks

• **Firmware development**

• **Power Electronics**

• **Embedded Linux**

• **Control Systems:**
MATLAB | SIMULINK |LABVIEW

• **signal processing**

• **image processing**

Languages

ENGLISH	FRENSH	ARABIC
C2	C2	NATIVE

Extracurricular activities

• Content Manager for SPA'X event (organized by IEEE SC).
• Executive Board member at NATEG INSAT 2022-2023