

Wissem Yaakoubi

Embedded Systems Engineer

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PROFESSIONAL EXPERIENCE

Embedded Systems Engineer

Sept 2023 – Present

Pixiimotors

Tunisia, TN

- Built a **customized Operating System** for an E-scooter instrument cluster on i.MX8 using **Yocto Project**
- Implemented **Bluetooth** pairing functionality with headsets for audio playback and recording.
- Integrated **4G connectivity** and **GPS** by adding kernel drivers and scripts for reliable connections and precise location accuracy.
- Added a **Voice Chat-Bot** feature by managing dependencies and ensuring integration within the OS.
- Built an **SDK** for cross-compiling Qt applications and C/C++ programs using the Yocto Project.
- Achieved a 63% reduction in **OS boot time** (8 seconds) through U-Boot, kernel and UserSpace optimization.
- **Skills** :Yocto Project, C, Linux Kernel, U-boot, CAN protocols, Bash scripting , Systemd , Toolchain

Embedded Systems Intern

Feb. 2023 – Aug. 2023

Pixiimotors

Tunisia, TN

- Developed a real-time **STM32** program to monitor CAN messages from scooter components
- Reduced boot time on Raspberry Pi by optimizing Kernel and rootfs **Buildroot** configurations.
- Documented the firmware using **Doxygen** and respect the **MISRA C** standard.
- **Skills**: STM32 , C, Debugging, CAN, UART, Timers, Buildroot, Qt

Embedded Systems Engineer

Aug 2022 – Oct 2022

Horizop Energy

Netherlands, NLD

- Research and development of electrical vehicle charging station.
- Design and development of dynamic load balancer to no over-voltage the grid.
- **Skills**: Electronics, ADC, Proteus

Embedded Systems Intern

Jun 2022 – Aug 2022

Pixiimotors

Tunisia, TN

- Developed a lighting control system for e-scooters based on STM32 and WS2812B controlled the color through PWM with changed duty cycles.
- **Skills**: STM32, PWM, NVIC, GPIO, Timers

TECHNICAL SKILLS

Systems Development: Yocto Project, Buildroot, FreeRtos ,Linux Kernel ,Device Tree

Languages: C/C++, Python, HTML/CSS

Hardware Platforms: STM32, Esp32, Raspberry PI , Renesas RZ/G2L, I.MX8

Developer Tools: Git, Stm32CubeIDE, VS Code, GDB, Doxygen

Communications Protocols: Uart, Can Bus, SPI, I2c, Bluetooth, Wifi ,LTE

Peripherals: GPIO, DAC, ADC, Timers, HSE, LSE

PROJECTS

Smart Meter | *STM32, Python, Matlab*

Mar 2022 – Jun 2022

- Design PCB of acquisition board to copy the waveform and features of voltage and current signal (Altium).
- Extraction of the first 10 harmonics, calculate the THD and showing in real-time in the screen using numeric filter

Self-Balancing Robot | *STM32, I2C, C*

Feb 2022 – Mar 2022

- Design and identification of different parameter (inertia, Gravity) of the robot (Catia V5).
- Controlled DC motor torque using PID control, integrated IMU data with Kalman filter.

Robotic Competition : Autonomous robot | *Arduino, Proteus, Sensors*

Sept 2019 – Jun 2019

- Creating an autonomous robot from scratch to complete tasks according to sensor information(Arduino , CatiaV5, Proteus).

EDUCATION

National Institute of Applied Sciences and Technology (INSAT)

Tunisia, TN

National Engineer's Degree in Autoation and Industrial IT

Aug. 2018 – Sept 2023