2022 - 2023

PFE BOOK

JOIN OUR TEAM IN SFAX

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ABOUT US - HABEMUS

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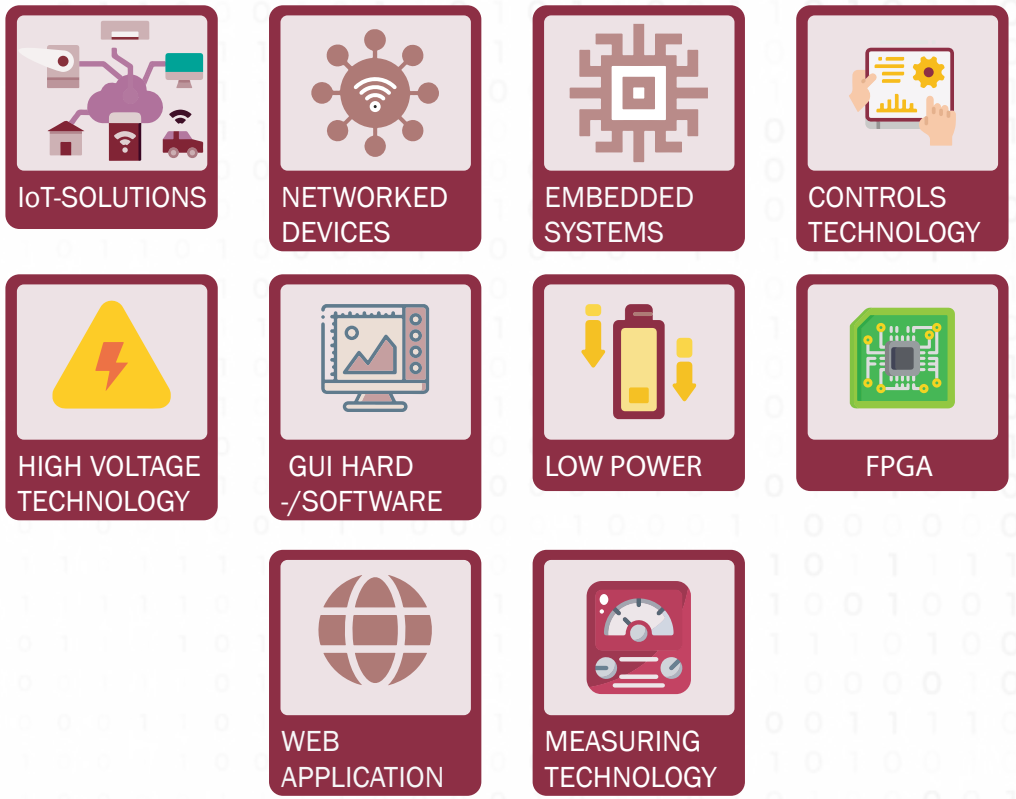
WHO ARE WE ?

Established in 1995, habemus! is a competence center for electronics and software engineering with headquarters in Germany and offices in Tunisia and Hong Kong.

Today, everybody is talking about IoT, we do it! As an IoT Solutions provider, we support our customers through the entire lifecycle of the product starting from the concept and design phase through manufacturing to maintenance and after sales support. Through our focus on our people, on innovation and on quality we help our customers be on the front edge of technology.

At habemus! we are committed to an open and inclusive culture and believe that our motivated and highly skilled team is the reason for our success. Thus, we support and challenge our employees in all positions and tasks.

Technology competence



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Embedded Software Development

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PFE Topic 1

Evaluation of Ultra Wide Band indoor positioning solutions

Description

Modern ultra wide band wireless modules allow a very precise wireless positioning.

The purpose of this project is to develop an indoor positioning system based on UWB modules and an STM32 micro-controller.

Skills

Embedded-C, Microcontroller, STM32, Signal processing, Hardware interfaces

PFE Topic 2

Evaluation of radar-based gesture recognition system

Description

It is possible to use highly integrated radar systems to detect and recognize gestures.

The purpose of this project is to evaluate the use of modern radar systems and STM32 microcontrollers for gesture recognition for a gesture-based control of devices.

Skills

Embedded-C, Microcontroller, STM32, Signal processing

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Embedded Software Development

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PFE Topic 3

Evaluation of low power long range communication solutions

Description

Low Power Wide Area Networks (LPWAN) technologies such as LoRa allow the realization of long-range communication between devices and are optimized for low-power consumption.

The purpose of this project is to design and develop an application based on STM32 microcontroller and LPWAN wireless technologies to improve the range of an existing wireless system

Skills

Embedded-C, Microcontroller, STM32, Wireless communications, Hardware interfaces, Security

PFE Topic 4

Evaluation of Speech Recognition on microcontrollers

Description

Speech recognition software modules based on Deep Learning or other technologies may be used to command devices by voice.

The purpose of this project is to evaluate the use of speech recognition modules on STM32 to command devices by voice

Skills

Embedded-C, Artificial Intelligence, Deep Learning, Microcontroller, STM32

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Embedded Build and Automation

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PFE Topic 5

Development of a test bench

Description

Testing automation for embedded software projects has turned to be of great importance for quality assurance in the software development.

The purpose of this project is to design and develop a Hardware in the loop setup based on a desktop application and measurement equipment. The application connects to multiple interfaces such as I/Os, serial devices, Bluetooth, etc. and serves for the automatic validation of embedded products.

Skills

Embedded-C, Microcontroller, STM32, Wireless communications, Hardware interfaces, Security

PFE Topic 6

No/Low code configuration

Description

Node-red is an innovative tool for wiring hardware devices, software API's and online services.

The purpose of this project is to create an application using Node-red and embedded-C to disassociate the application logic from the low-level firmware and make it easy for the end user with no programming skills to configure an IoT device.

Skills

Embedded-C, Artificial Intelligence, Deep Learning, Microcontroller, STM32

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Web and Mobile Development

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PFE Topic 7

Development of a mobile app for IoT devices

Description

Multiple IoT devices may be configured and controlled using a smartphone.

The purpose of this project is to develop a mobile application for Android and iOS to connect to connect to an IoT device. The app allows a secure and user-friendly interface to perform functions like updating the device firmware, configuring the device and performing specific controls.

Skills

Flutter, React Native, Bluetooth, Wi-Fi, NFC, IoT, Security

PFE Topic 8

Developement of mobile app for video streaming

Description

Modern WiFi standards allow high quality video streaming.

The purpose of this project is to develop a mobile application to visualize high-resolution videos with low latency.

Skills

Flutter, React Native, WiFi, Video codecs

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Hardware Development

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PFE Topic 9

Development of a wireless charging demonstrator

Description

Wireless charging has been increasingly gaining traction in the market and is expected to continue to heavily influence our daily lives.

The purpose of this project is to develop, design and validate a Qi-based wireless charging device according to the WPC Qi-v1.3 specification.

Skills

Altium Designer, LTSpice, Analog/Digital Electronic, Power Electronic, IOT, Embedded-C is preferred.

PFE Topic 10

Development and design of a precise GPS/GNSS device

Description

For many years, classical GNSS/GPS navigation systems were prone to errors of a few meters. This can be overcome through modern precise GPS/GNSS systems.

The purpose of this project is to develop, design and validate a precise GPS/GNSS device with accuracies down to few centimeters.

Skills

Altium Designer, LTSpice, Analog/Digital Electronic, Power Electronic, IOT, Embedded-C is preferred.

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