The Connected Things group at Fraunhofer AICOS develops embedded systems considering scalability, reliability, privacy, and interoperability. We have prepared a set of training series on Embedded System development ranging from basic OS concepts to complete system architecture.

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A lot of technical competence and an excellent vision of what a client is. A very good communication with the client. They understand our language… Of all the institutions we have worked with, and we have worked with some throughout the years, it is the most competent and most professional team with whom we have ever worked in the development of new products.

Ricardo Carvalho, Tekon Electronics

FORMAT
Webinar and Workshop with theoretical and hands-on sessions

STARTING
Regularly and upon request

DURATION
According to client's needs

AUDIENCE
Available courses range from beginner, intermediate to advanced

COURSE FEE
Contact us for a quotation

CONTACTS

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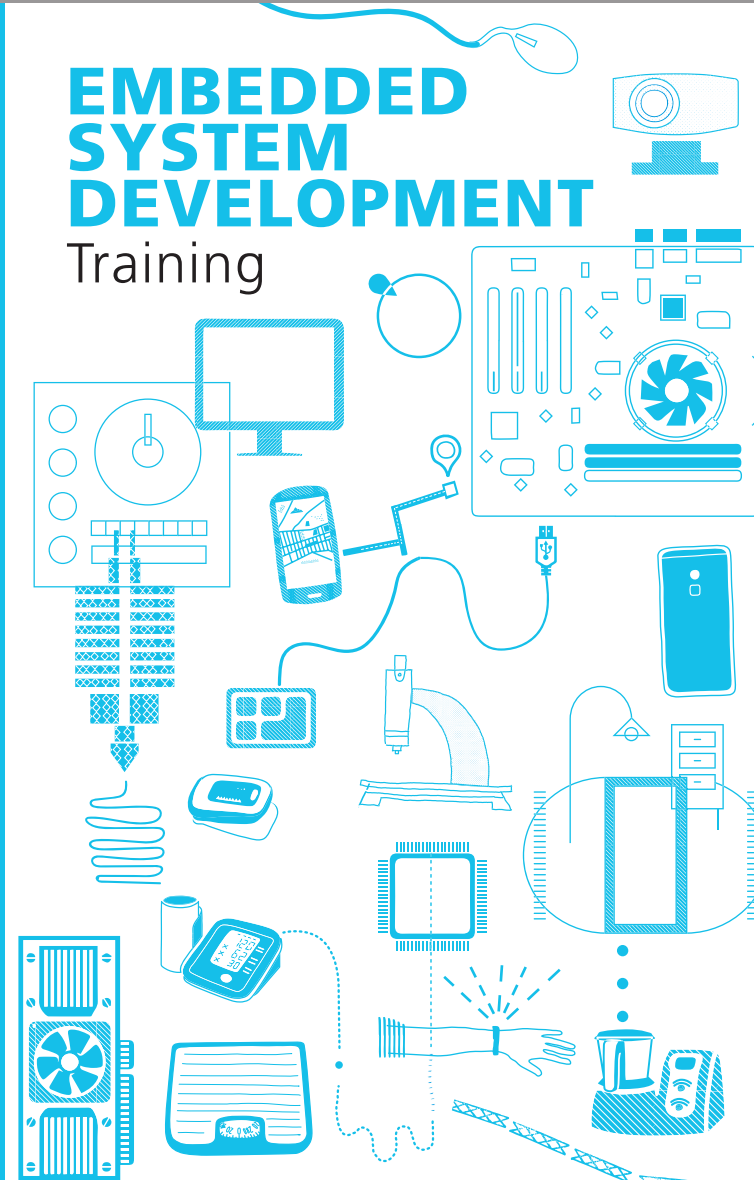4200-135 Porto, PORTUGAL

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EMBEDDED SYSTEM DEVELOPMENT
Training

EMBEDDED SYSTEM DEVELOPMENT TRAINING

Overview

Following the IoT paradigm and its increasing number of sensors monitoring various aspects of our daily living: from our homes, workout routines, work posture and environment, to the industry, agriculture and logistic companies that produce and transport the goods we consume; embedded system development is a fundamental competence for the development of the sensors and the gateways that monitor, aggregate and transport such data to the inter(or intra)net.

Thanks to several years of experience and market-ready solutions, Fraunhofer AICOS is able to provide class-leading training on various topics of embedded system development, to help clients learn about the process and implementation. The program can be custom built based on the client's needs, level of expertise and short term objectives.

Key benefits

–   Custom training sessions based on the client's profile
    and objectives;
–   Hands-on training with the support of experienced developers;
–   Extensive selection of available technologies to develop and
    monitor embedded systems;
–   Learning about the creation of embedded Linux OS and
    embedded software;
–   Consultancy on best implementation choices and technolo-
    gies based on the client's end goal and objectives.

Contents

Introduction to Linux based Operating Systems
–   Linux basics;
–   Bash scripting and development tools.

Developing modular solutions with C/C++
–   Inter process communication;
–   Threads, shared libraries and memory management;
–   Communicating with peripherals;
–   Integration with cloud services;
–   Debugging using Open Source tools - Valgrind and gdb.

Yocto
–   Overview about the Yocto project and its terminology;
–   Building a full Linux based image with Yocto;
–   Personalising and building a custom Linux based image;
–   How to add support to new hardware (CPU, peripherals) to
    the Yocto build environment.

Maintenance and monitoring tools
–   Process supervision using Monit and M/Monit;
–   OS update using Mender.

### Hardware for embedded systems
–   How to choose the right platform and its expansion
    modules;
–   Hardware designing guidelines for mass production.

Filipe Sousa is the Head of Connected Things at Fraunhofer AICOS, conducting research on mobile computing, embedded intelligence, and wireless communications. He holds a PhD in Telecommunications from the Faculty of Engineering of the University of Porto and was a researcher in INESC Porto where he actively participated in several EU projects.

Carlos Resende received an MSc in Electrical and Computers Engineering from the University of Porto in 2009. Since then, he has been working as a researcher at Fraunhofer AICOS in projects in the areas of wearable sensors, sensor networks, monitoring systems and remote management in industrial, home and health environments. His principal research interests are the development of hardware and firmware for embedded systems, and sensor networks.
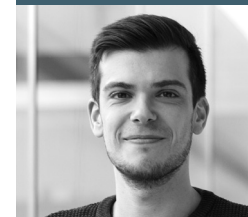
João Oliveira received his MSc in Electrical and Computers Engineering from the University of Porto in 2014. Since then, he worked as a researcher at Fraunhofer AICOS, developing his skills in embedded systems, low power wireless networks and sensors. In 2018, he joined Vestas to develop control software for wind turbines, returning to Fraunhofer AICOS at the end of 2019. His research interests include hardware and software development for embedded systems, sensor networks and autonomous computing.