



Mission Report
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August 30 and September 5, 2015
Bir Zeit University
Palestine

The Medlink Association asked me to conduct in Bir Zeit University (Palestine) a training mission under the TEMPUS program CODE.

Remember that the goal of this program is to train teachers able to take into account the advanced technologies used in the new generation of vehicles and therefore able to ensure the maintenance thereof.

Indeed, what characterizes these vehicles, it is the presence of IT solutions for both the driver assistance, safety of passengers and the vehicle, motor control, ...

A vehicle can be seen from the point of view of its functionalities as a distributed computing system whose nodes are connected by a network.

The lessons taught are divided into two sessions: the first one, which was conducted between August 30 and September 5 so focused on the onboard computer that can be found on each node of a vehicle.

The second session will be devoted to the network and in particular the CAN network.

This session consisted of 35 hours of instruction spread over 5 consecutive days.

Each morning was devoted to a lecture on real-time computing with some tutorials.

While the afternoon was for practical work.

The content of the lecture was:

Introduction to embedded computing for cars

Real-time operating systems

Real-time scheduling issue

Aperiodic task servicing

Control of resource access

The practical work had the Linux operating system as support. To do so, the Ubuntu system was installed on Windows machines. The objective of this lab was to understand the concepts attached to multitasking systems, especially the central scheduling issue. Each practical session was preceded by a short preparation course given with videoconference by Samia Bouzeffrance in CNAM Paris. These practical exercises were made in C programming language.

The prerequisite for this session as we mentioned before the session was the knowledge of the C language. Unfortunately, this prerequisite was not met by several participants.

Overall, the session allowed each participant to have a vision of how embedded software is implemented in vehicles.