EPICS

EXPERIENCE IN USING BASED EMBEDDED CONTROLLERS WITH EPICS ENVIRONMENT FOR BEAM TRANSPORT IN SPES OFF-LINE TARGET PROTOTYPE

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Overview

EPICS was chosen as general framework to develop the control system of SPES facility under construction at LNL. We report some experience in using some commercial devices based on Debian Linux to control the electrostatic deflectors installed on the beam line at the output of target chamber.

Hardware:
➢ embedded devices based on PC/104 standard and equipped with data acquisition board
➢ embedded used to interface PLC systems with EPICS environment
➢ allow a robust and flexible remote control
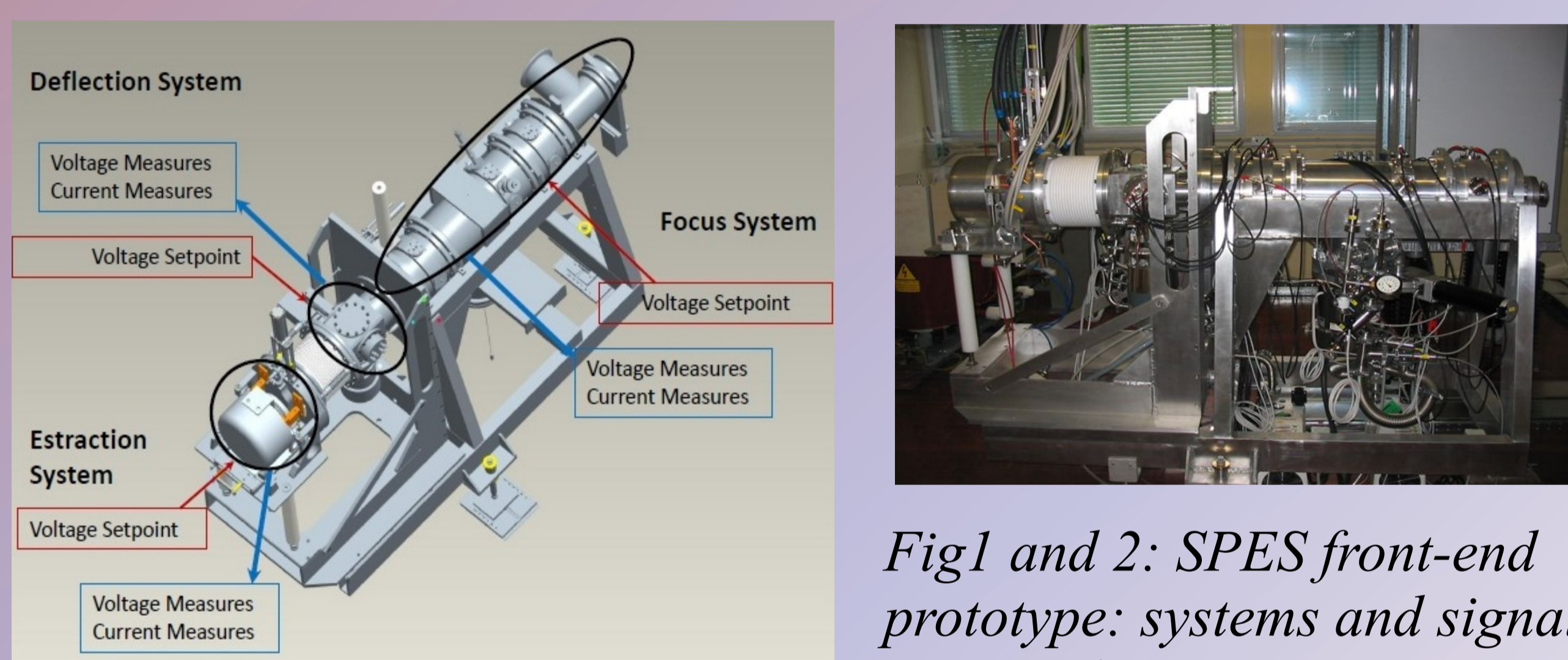➢ EPICS environment configured to initialize an IOC application at boot time

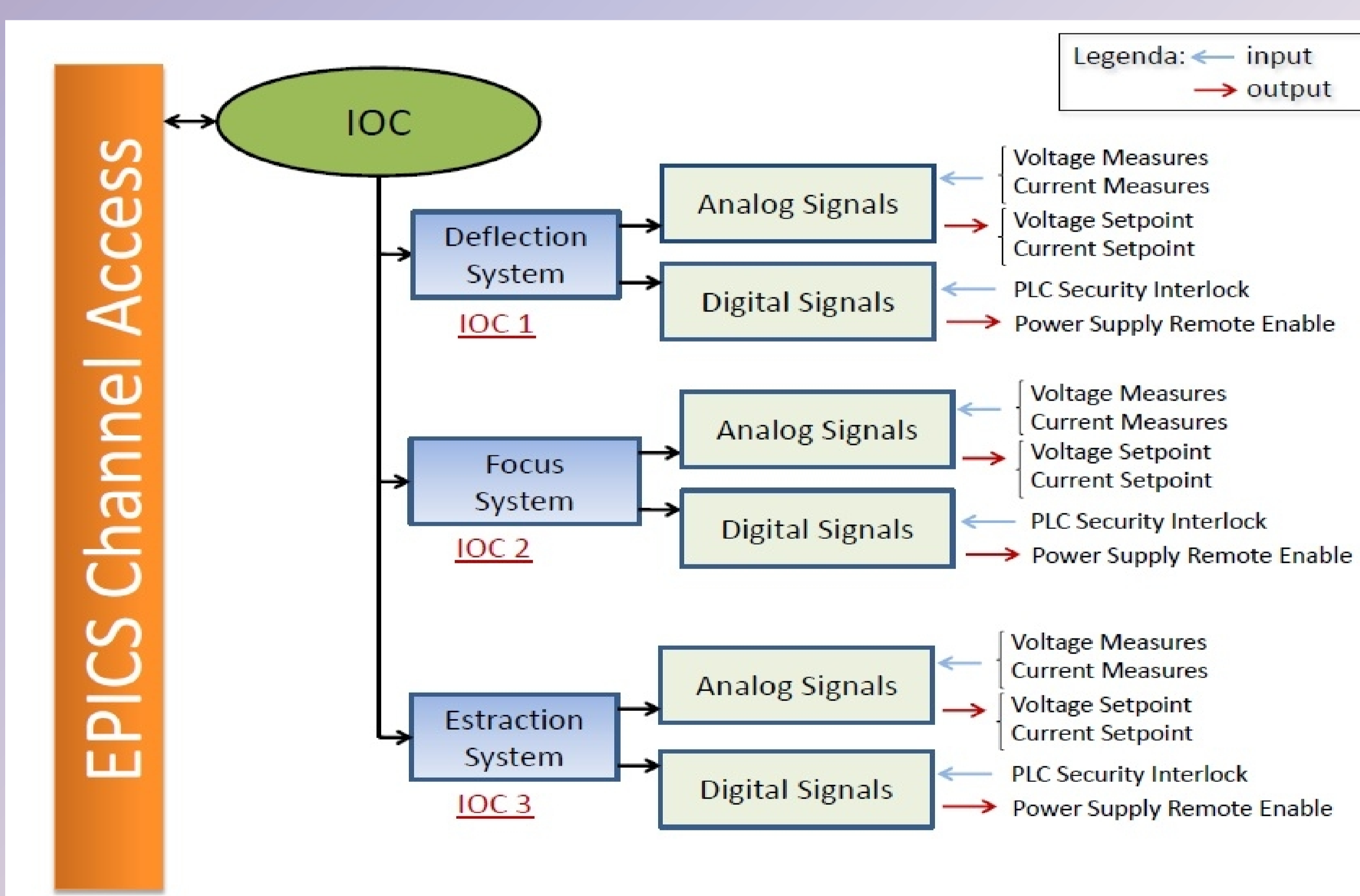Fig1 and 2: SPES front-end prototype: systems and signals managed.

Fig3: EPICS control system structure used.

Software:
➢ database structure optimized to minimize the number of PVs
➢ modular structure allows easy modification in function of:
   ✦ Experiment's requests
   ✦ Technical requests
➢ Developed a special Naming Convention for PV names
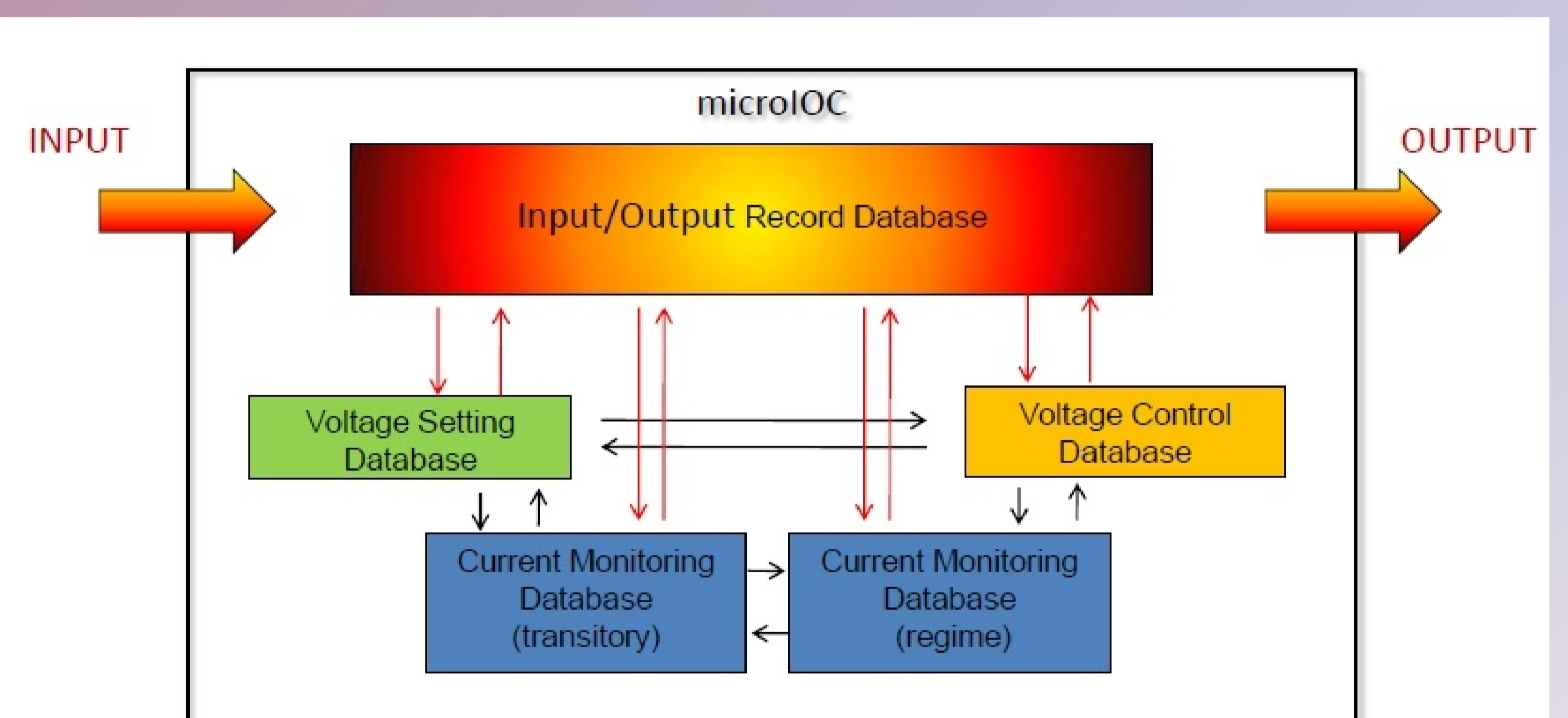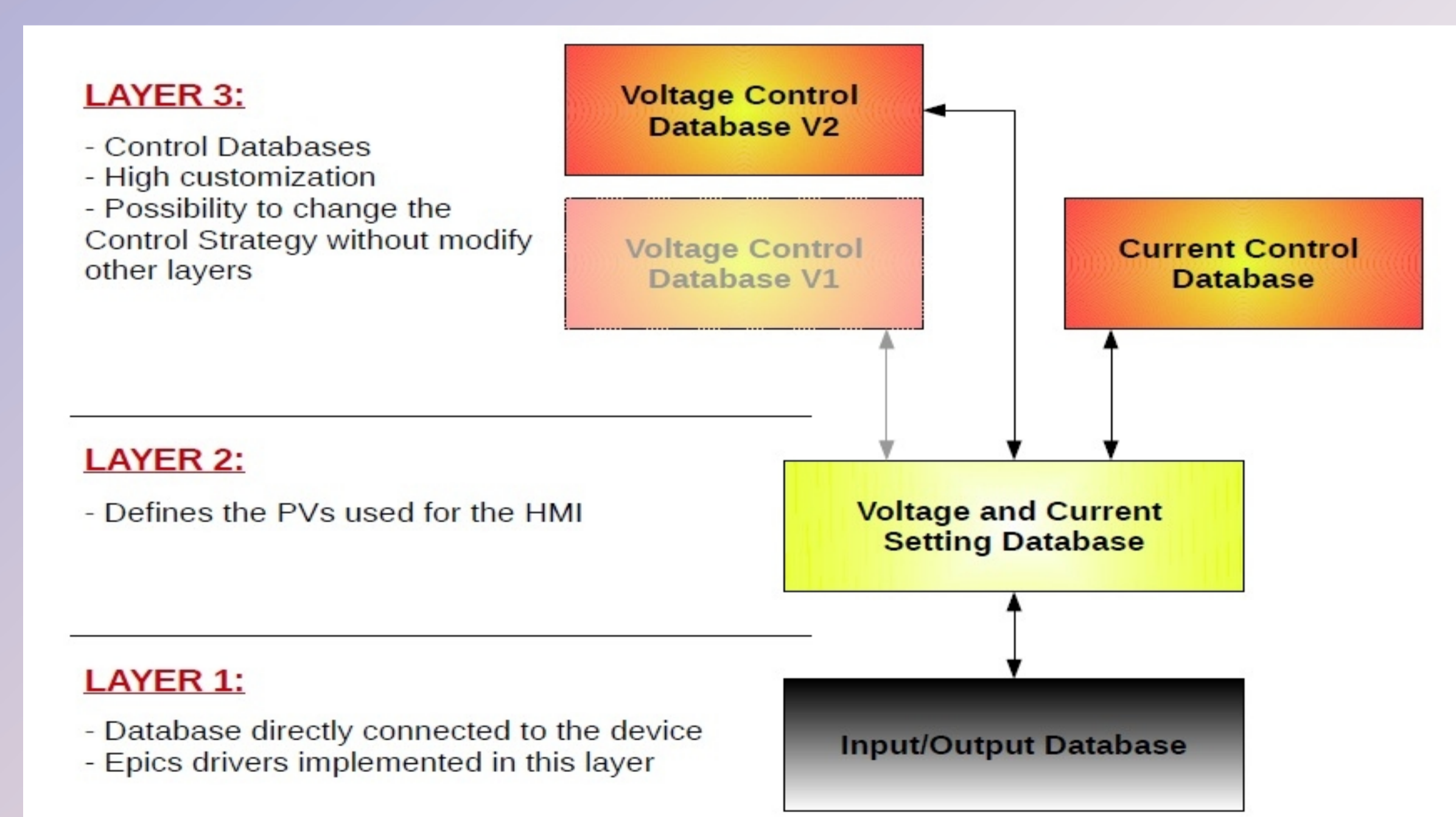

Fig4: EPICS application: database interconnections.

Fig5: EPICS application database: layers.

Performances

During this production period (since Janaury 2010) we observed that the hardware solution adopted guarantees good performances, allowing us to create a transparent layer between PLC systems and EPICS software. On the software side, the EPICS application structure adopted permits an easy management by users and a easy reuse of most of the code wrote for others applications.

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