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# **OPC UA Server of the DummyCamera of the Zeuthen MST prototype**

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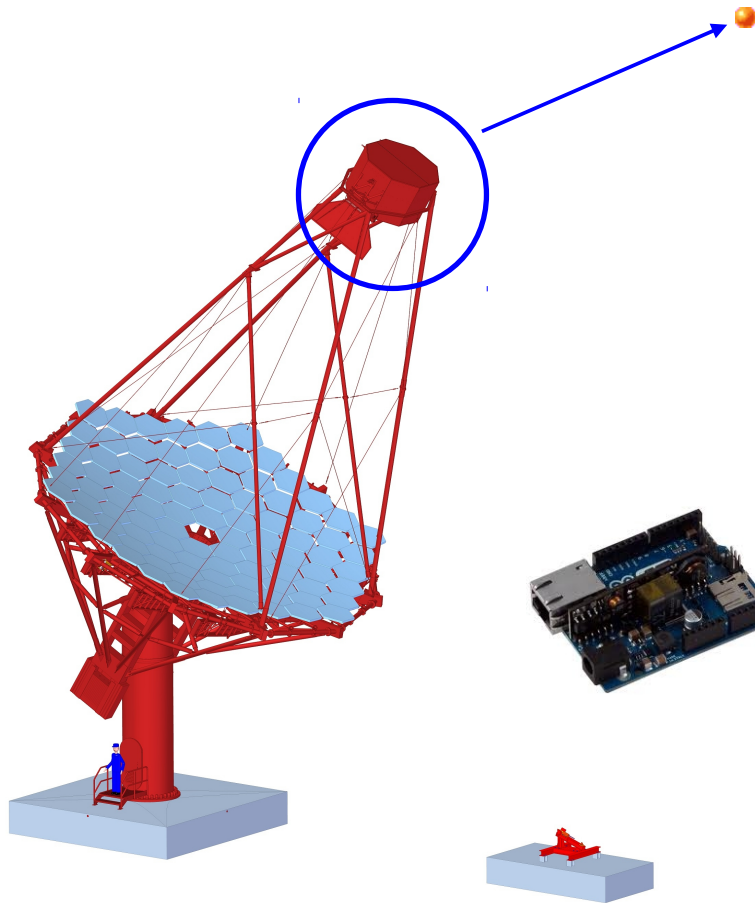
**Geneva, September 5<sup>th</sup>, 2012**

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**T. le Flour, J.-L. Panazol (LAPP)**

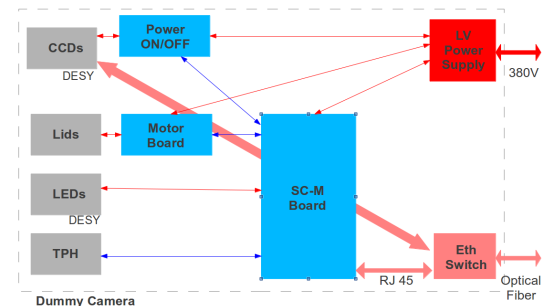
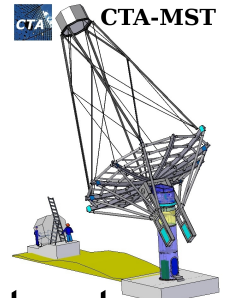
**J. Bolmont (LPNHE)**

# Zeuthen MST prototype

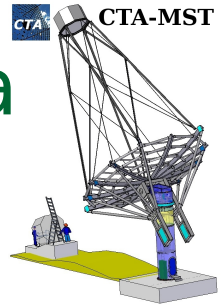


## Dummy Camera

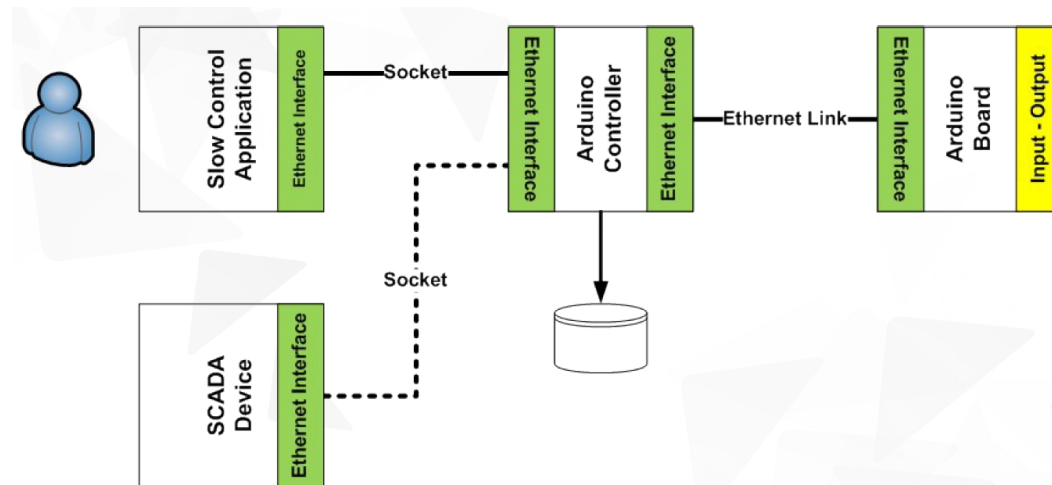
- Host instrumentation for the structure mechanics measurements
  - CCD cameras, Temp sensors, pointing LEDs, accelerometers
- Test of the Lids motorisation
  - Need to control it
- Add of some electronics to control and monitor this instrumentation
  - Based on Arduino® device
- And logically, need ACTL software to control this device

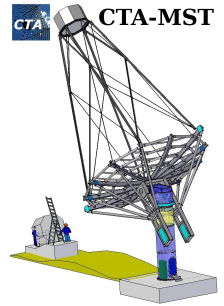


# ACTL software for the Dummy Camera



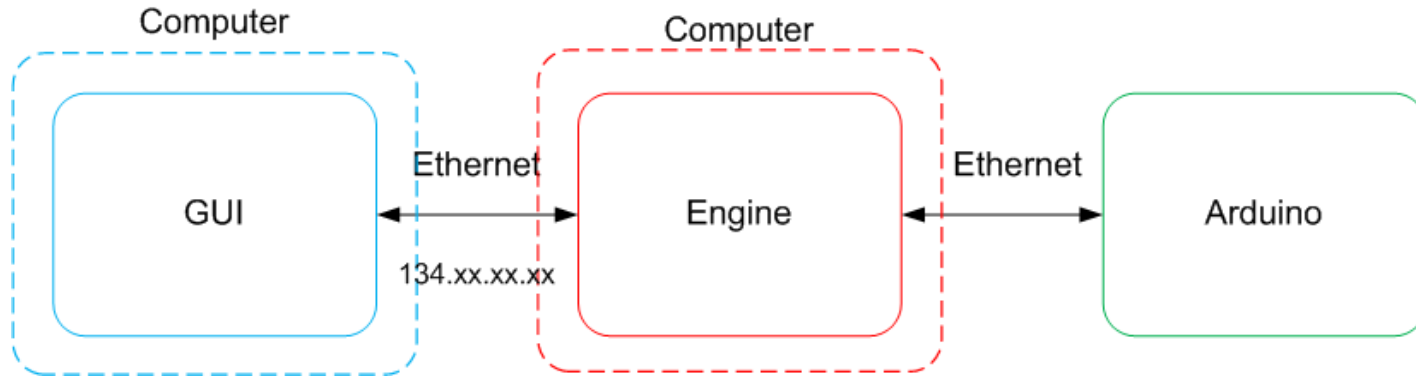
- Today, there are two sets of software
  - Integration software: to make tests during the building phase
    - No need of a huge SCADA (OPC, ACS, Tango, ...)
    - Work in a workshop with a basic laptop
  - MST-proto control software
    - Scada framework is ACS, set up in Berlin, and running on a local computer → the 'Central DAQ'
    - Creation of a OPC UA server that 'controls' the Arduino device



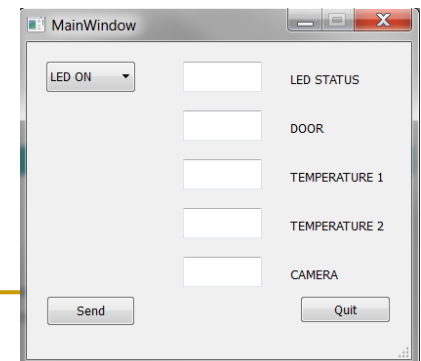


# Integration software

- The Arduino device is a TCP server

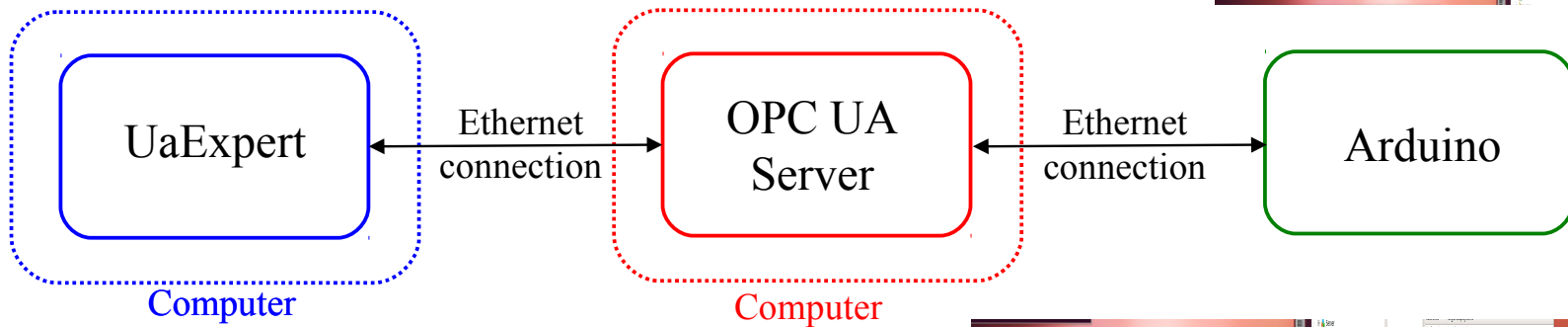
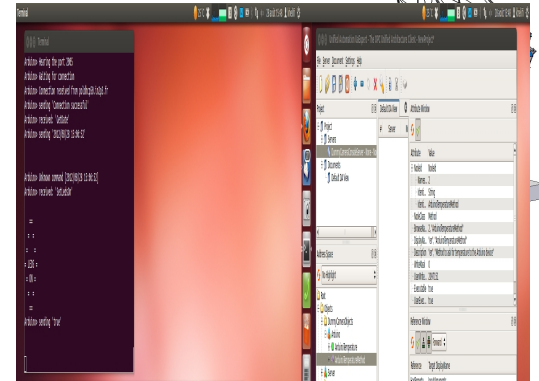


- The Arduino controller is written in Python (rapid prototype software)
  - Uses sockets, checks communication, integrates high level functions and sequences (open/close lids, switch on/off LEDs, ...)
  - Make the interface between the GUI/SCADA and the device
- Creation of a basic GUI
  - Standalone tool to control all IO
  - Made in Python, uses sockets also



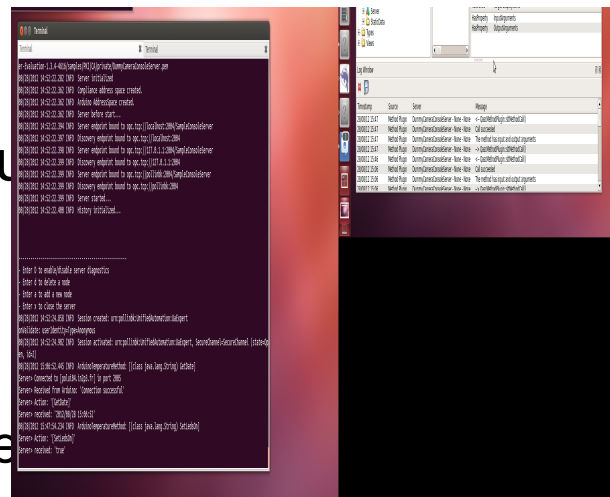
# OPC UA Server

- Development of a **Java emulator** of the Arduino device
- Socket Server and simulation of functions
- Running on a distant machine

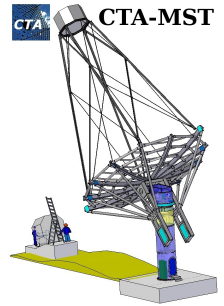


- **OPC UA Server** using the distribution of Prosys SDK

- Demonstration version, in Java
- From their examples, developed my own server of Dummy Came

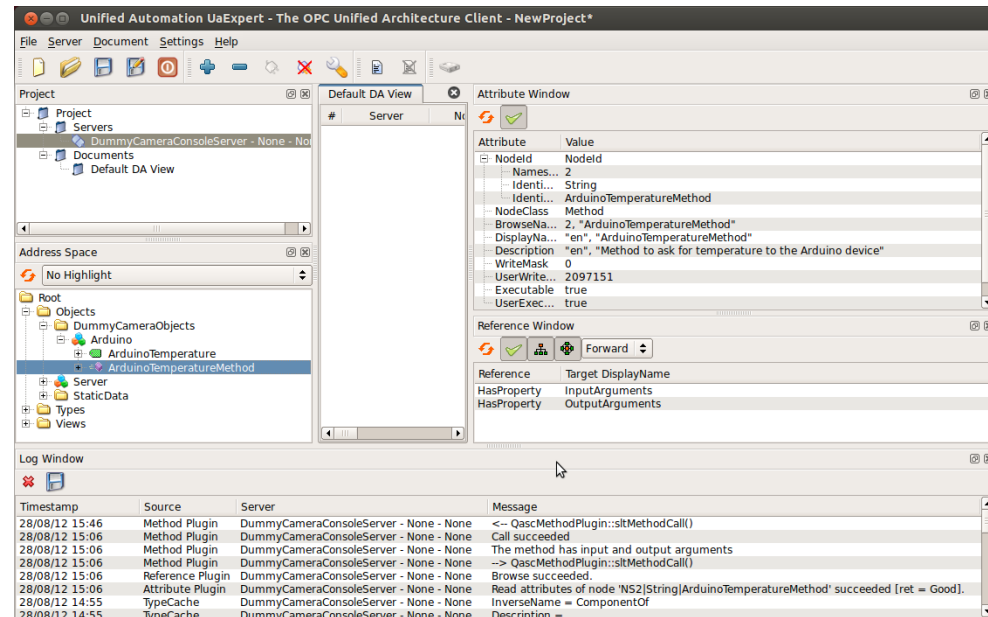
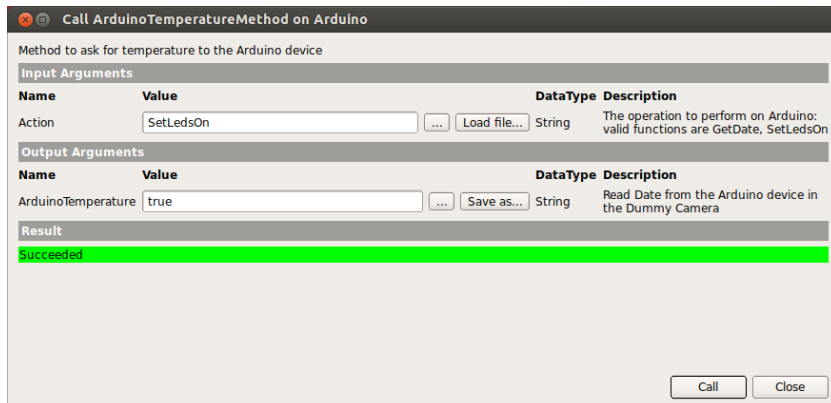


A pain, because OPC UA is powerful and thus complex

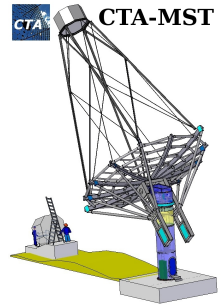


# OPC UA Server

- With only this, I can not test it easily because writing an OPC UA Client (GUI) is not trivial!
- **OPC UA Client**
  - Using the OPC UA Client UaExpert (GUI)
  - Distributed by Unified Automation GmbH
  - Very easy to use:
    - no development
  - Access to all the OPC UA server functionalities



# Conclusions



- Integration software
  - Design, made and tested with the real device
  - Ready to operate
- OPC UA server
  - A server prototype is developed: TCP communication established with some difficulties with a device emulator and a OPC UA client
  - Development under way to integrate all functions
  - In parallel, wish to use a generic server as proposed by the LAPP
    - Configuration with an XML file of all functions, initialisation parameters, ...
    - → Could be very convenient for all hardware developers