



Key features:

- **Higher laboratory performance since several students can work simultaneously.**
- **Possibility of dividing the classroom into workgroups.**
- **Collaborative experiments performance.**
- **There are different user levels (manager, basic, intermediate and advanced) with different permissions.**
- **The manager has the absolute control of the system.**
- **The manager/teacher can supervise from his/her computer the operations every user is performing in the unit.**
- **User and manager are connected at all times.**
- **CENTRALIZED AND SECURE SYSTEM, it can be totally controlled from the central computer.**
- **The ESN System is MODULAR, OPEN and EXPANDIBLE.**
- **A webcam is supplied with the unit of the system and a projector for the laboratory.**
- **Visualization of the changes in the unit from any computer of the laboratory.**
- **The required infrastructure, both hardware and software, is provided.**



ISO 9001: Quality Management (for Design, Manufacturing, Commercialization and After-sales service)



European Union Certificate (total safety)



Certificates ISO 14001 and ECO-Management and Audit Scheme (environmental management)



Certificate and Worlddidac Member

INTRODUCTION

- SCADA:

A SCADA application (Supervisory Control and Data Acquisition) is the one that acquires real signals or data from EDIBON technical units and control and supervise them.

Any SCADA system includes hardware and software components. The hardware collects and stores data in a computer with SCADA software installed. The computer processes the data and displays them in real time.

- NET:

A local area network (LAN) consists of a group of computers and associated devices that share information and are connected to a server, being the connection either wired or wireless.

With this type of network, any computer has remote access to any other computer of the network.

GENERAL DESCRIPTION

The EDIBON Mini Scada-Net System, "MINI ESN", is the integration of an EDIBON computer controlled unit and the SCADA system in a local network.

The main feature of this system is the remote control of an EDIBON unit belonging to it from any control station included in the local network. In addition, this unit can be visualized from any workstation.

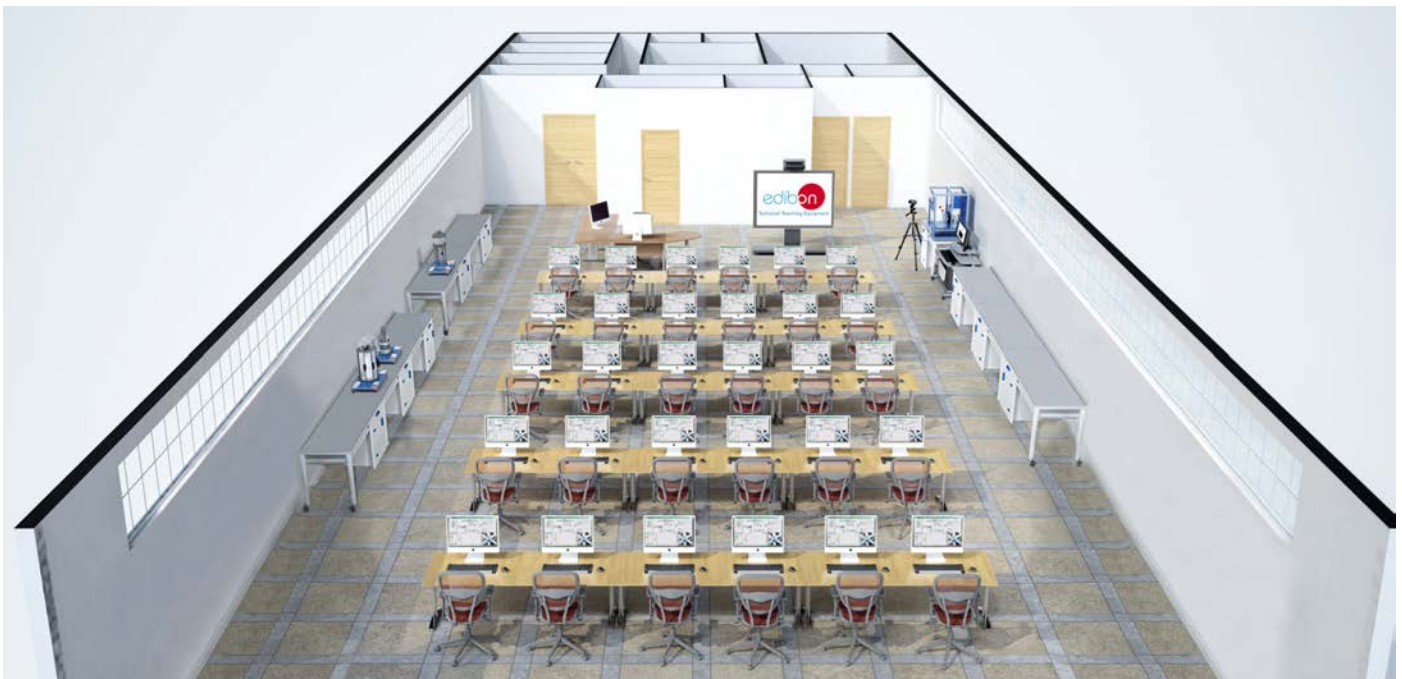
Consequently, the efficiency of a laboratory with the "MINI ESN" system is higher than the efficiency of a conventional laboratory. This increase is due to the fact that several users can work simultaneously with the same unit and, as a result, waiting times between experiments are reduced. In laboratories with a "MINI ESN" system, up to 30 users can work simultaneously.

Since the central control computer is located between the unit and the local network, the teacher can manage the access to the unit and provide the users with the permissions required to operate or view the unit of the "MINI ESN" System. The rest of users can visualize the unit in their computers while other person is controlling it from his/her post.

The communication between the unit and the users is always managed by the teacher. The users will not be able to control the unit from their computers if the teacher does not provide the permissions required.

There are different configuration levels that allow the manager, usually a teacher, to grant certain access permissions to the users/students (basic, intermediate or advanced) depending on the needs of the laboratory practical exercise to be carried out.

The configuration of a laboratory with the EDIBON Mini Scada-Net System consists of 30 student posts, a control post (teacher's post) and an EDIBON technical teaching unit. All the units/posts included in the laboratory are connected through a local area network.



"MINI ESN" SYSTEM CONTROL, MAIN ACTIONS

✓ **Case 1:** The teacher controls the unit and the students visualize the teacher's operation.



✓ **Case 2:** One student controls the unit provided that he has been granted permission by the teacher. This student controls the unit and the other students visualize the actions. However, the teacher can recover the control whenever he/she desires and disable the student's permissions.



EDIBON MINI SCADA-NET SYSTEMS





The EDIBON Mini Scada-Net System, "MINI ESN", is made up of the following elements:

- EDIBON technical teaching unit:
 - Unit process unit (UPU).
 - Computer.
 - SCADA software.
 - Data acquisition board.
 - Electronic interface.
 - Webcam.

- Laboratory accessories:
 - A teacher control post. A computer is included to manage access to the units and to give required permissions to the users to operate or view EDIBON teaching unit.
 - 30 Student's posts. Each post has its own computer to operate and view EDIBON teaching unit.
 - Projector: element required by the students to view how the teacher works with the unit.
 - A projection screen to visualize the operations carried out in EDIBON teaching unit.
 - Local network devices: switches and network cables.

- Teacher software:
 - Management of the signals and data coming from the EDIBON unit in the laboratory.
 - Management and organization of the students from the central post.
 - Management of the users' passwords, as well as the access permissions they have in the "MINI ESN" system.
 - Provides access to the laboratory unit and to its SCADA software.
 - Students' assessment and monitoring of the level of knowledge gained by the students.
 - The manager can receive questions from the users.
 - The manager can ask technical or theoretical questions related to the unit, such as to the unit itself, its operation, its results, etc.
 - User's assessment, either in real time or during the complete process length, in order to assess the student's level of understanding.
 - Chat available between manager and user at any time.
 - The manager can send and receive results and files to the user, where necessary, and viceversa.

- Student software:
 - Viewing signals coming from the unit, as well as managing actuators, controls, etc. of that unit.
 - Asking the manager questions about the unit the student will work with (configuration, results, etc.).
 - Viewing the unit under operation.
 - Working with the unit and controlling it from the student's post.
 - Sending messages via chat to the manager.
 - Sending files and questions to the manager, in real time.

EXERCISES AND PRACTICAL POSSIBILITIES

- 1.- Control the unit from any post located in the laboratory.
- 2.- Supervise different experiments about data acquisition and representation, from the unit, in real time.
- 3.- Visualize any experiment from any laboratory post.
- 4.- Generate reports with the results obtained with the unit.
- 5.- Show to the laboratory members the appropriate manual or automatic operations to perform with the unit included in the system.
- 6.- Create more elaborate practical exercises.
- 7.- Modify any parameter of the unit included in the system from any work post in the laboratory.
- 8.- Cause an abnormal operation of the unit for the students to practice fault finding exercises.
- 9.- Assess the knowledge of a student or group of students about the unit included in the "MINI ESN" system.
- 10.-Develop guided practical exercises for a better understanding of the unit.
- 11.-Individual training practical exercises.
- 12.-Group exams or practical exercises.
- 13.-Perform interactive exercises (using the chat between manager-users).
- 14.-Exchange of obtained results among the members of the "MINI ESN" system.
- 15.-Any exercise directly related to the SCADA software of the unit.

ALL AVAILABLE MINI SCADA-NET SYSTEMS

The EDIBON Mini Scada-Net System, "MINI ESN", can be supplied with units belonging to the following areas:

10. PHYSICS
20. ELECTRONICS
30. COMMUNICATIONS
40. ELECTRICITY
50. ENERGY
60. MECHATRONICS, AUTOMATION & COMPUMECHATRONICS
70. MECHANICS
80. FLUID MECHANICS
90. THERMODYNAMICS & THERMOTECHNICS
100. PROCESS CONTROL
110. CHEMICAL ENGINEERING
120. FOOD & WATER TECHNOLOGIES
130. ENVIRONMENT
140. BIOMEDICAL ENGINEERING

* Specifications subject to change without previous notice, due to the convenience of improvement of the product.



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REPRESENTATIVE: