

**Technical sheet - Final project.
Semester 01 - 2018.**

**VISUALIZATION, MONITORING AND CONTROL SYSTEM OF AN ELECTRIC ISLAND (NODE 611)
OF AN ELECTRICAL SYSTEM BASED ON THE IEEE-13 STANDARD.**

In order to know the variables in different points of Node 611 and execute some control action, it is necessary to implement it; connect acquisition devices and obtain measurements of each of their locations simultaneously. In addition, this data must be sent to a web platform to facilitate its remote viewing. Finally, a control system must be installed to disable nonessential system loads in critical cases. The objective of this is to be able to facilitate performance and efficiency studies of different elements implemented in the node.

The approach to solve this problem is to perform a prototype acquisition and control system together with a web development to monitor the electrical variables of Node 611. There must be a single device to acquire the data and the shipment is made through the wireless network of the Universidad del Norte, as well as a device to perform the control and a single web platform that hosts the variables sent.

The design is done both fields: in hardware (modules for data collection and sending, system for connection and disconnection of non-essential loads), and in software (web platform design for the management and visualization of information). As constraints found, we have: economic factor (acquisition price of sensors), time (during the sending of these), as well as dependence on the university network to send the variables and the times of shipments close to 90 seconds.

In this project, it was possible to implement the Node 611, as a data acquisition system of the micro-network of the Universidad del Norte and the variables of said node. Likewise, a development of a web platform was carried out to observe these measures without having to be physically in the location of the network. Finally, a control system was implemented in order to maximize the performance of the batteries in critical cases of the system.