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Design automation of the manufacturing process of a mini-biodiesel plant

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The increasing pollution in the atmospheric layer has meant world-wide temperature variations, causing the melting of icecaps and floods, among other environmental factors. This change in temperature has been mainly caused by the indiscriminate emission of CO₂, especially due to the rising number of vehicles in circulation. Researchers have identified that, among other types of fuel, diesel has the highest level of CO₂ emission. Hence the need for the development of biodiesel, produced from oleaginous plants, aimed at reducing the emission of this harmful gas into the atmosphere, besides using renewable resources. However, as in any automation process, it is necessary to have sensors, actuators and controllers, which together perform the automation and control of the production process. Besides that, there are other process variables to be accounted for, such as temperature, flow and level. Considering such concept, and within the academic context, the creation process of a mini biodiesel plant will be described.



Fig. 13. - Automation and Control Project of the Mini Biodiesel Plant - FAMEC. Source: FAMEC-MUB-02-001

Recent Publications

1. BEGA, E.A. KOCH, R. FINKEL. V.S.etal. Industrial instrumentation. Publisher Interciência: IBP. 3rd Edition. Rio de Janeiro, 2011.
2. BRAFMAN, I. Econometric model for the projection of apparent fuel consumption in Brazil - otto and diesel. 2009. 103 f. Dissertation (Master degree) - Faculty of Economics and Finance Ibmec, Rio de Janeiro, 2009.
3. CONAB - NATIONAL COMPANY OF SUPPLY. Ethanol as a new universal fuel: statistical analysis and projection of domestic consumption and export of Brazilian ethyl alcohol from 2006 to 2011. Brasília, 2008.
4. D'AVILA, L. A. Limits of biodiesel production in Brazil. BIOCOM-4th national biofuels symposium. Chemical School of UFRJ, LABCOM-Laboratory of Fuels and Petroleum Derivatives. Rio de Janeiro, May 19 and 20, 2011
5. METROPOLITAN FACULTY OF CAMAÇARI. Pedagogical project of the control and automation engineering course. Camaçari, 2012. 182p

Biography

Deivison Silveira Santos de Jesus Master's degree in Mechanical Engineering and Automotive Industrial Systems, Postgraduate in Reliability Engineering, Control and Automation Engineer, Electro technical Technician. He has professional experience in the area of management of electrical maintenance in industrial equipment and quality engineering in the automotive area. It is also Black Belt certifying 7 Green Belt in the year 2017 .

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